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Tourism-enhancing effect of World Heritage Sites: Panacea or placebo? A meta-analysis

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ABSTRACT

UNESCO's World Heritage inscription is considered to positively influence tourism demand. However, relevant econometric research has yielded inconsistent results. In this study, we used a meta-analysis to synthesize the effects of World Heritage Site (WHS) status across 344 econometric estimates from 43 studies. Meta-regression results reveal several factors explaining the effect size of WHS status on tourism demand, such as the research period, level of development in the destination country, heritage type, dyadic data type, WHS endowment measure, and use of robust standard error. A sub-group analysis identifies different factors in developing vs. developed countries and cultural vs. natural WHS types. Lastly, implications are provided for destination/heritage management and tourism researchers based on meta-regression results.

Introduction

Among UNESCO's various conservation and sustainable development programs, the list of World Heritage Sites (WHSs) has attracted particular attention from tourism researchers for its perceived ability to provide a "magnet for visitors" (Fyall & Rakic, 2006). Inscription on the list is portrayed as a reliable way to boost visitor numbers (Shackley, 2006), and the *de facto* image of WHS status is that of a "top brand" that confers a competitive advantage over rival, non-listed destinations (Buckley, 2004). This underlying assumption of a positive inscription-visitation relationship is integral to the list's success, as national secretariats and management organizations vie to apply for WHS status specifically to inflate visitor numbers. The competitive atmosphere around the inscription process provides further proof of the list's appeal. The rapid post-millennium growth in sites on the WHS Tentative List also offers indirect evidence of the list's effectiveness as a promotional and marketing tool (Ryan & Silvanto, 2009, 2014). The promise of additional visitors and associated economic impacts appear especially lucrative for the tourism sector (Evans, 2001; Li, Wu, & Cai, 2008; Prideaux, 2002), framing the "WHS effect" as justification for additional listing costs incurred via promotional expenses and infrastructure development.

Yet despite the influence of WHSs within the tourism sector, studies have diverged considerably over the finer details of the relationship between WHS status and tourism demand (Cellini, 2011; Yang, Lin, & Han, 2010). Although some quantitative research has identified a positive effect (Yang et al., 2010), other evidence has pointed to a negligible or even negative relationship (Cuccia, Guccio, & Rizzo, 2016). This discrepancy partly reflects the multi-dimensional diversity of the WHS list, which includes 1073 sites in 167 sovereign states. The 832 cultural WHSs also differ substantially in their scope, managerial aims, and composition from the 206 natural and 35 mixed WHSs (Buckley, 2018). Moreover, the diverse body of empirical work refers to a range of variables including

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scale (national, regional, local), national GDP (more- or less-developed countries), and the tourism market segment in question (international or domestic). Data can also be either longitudinal or cross-sectional (Ribaudo & Figini, 2017). This meta-analysis of extant literature therefore assumes a broad scope (Brockwell & Gordon, 2001) to synthesize the overall effects of WHSs on tourism demand and to explore the influence of such variables on the relationship. By taking on this task, we aim to contribute to the current knowledge base in two ways. First, we synchronize an overall effect size of WHS status on tourism demand using meta-analysis. Second and more importantly, we present a pioneering effort to unveil the heterogeneity of this effect size via rigorous meta-regression. Using an 'augmented' dataset based on previous empirical studies greatly increases the statistical power of analysis. Results are expected to provide vital insights for various interested parties: for scholars, in terms of adopting an appropriate research methodology to calibrate WHS effects; and for practitioners seeking to embrace the WHS as a strategic management tool.

This study opens with a literature review of evidence for and against a WHS effect. Then, the conceptual framework discusses factors explaining the heterogeneity of effect size, and the methodology outlines the models used for meta-regression based on 344 estimates from 43 studies. Lastly, we discuss the findings of different estimation models to identify how discrepancies in prior research reflect the various study settings and design specifications. Corresponding academic and applied implications can contribute to the ongoing debate over whether the WHS effect acts as a panacea or placebo for tourism demand.

Literature review

The establishment of UNESCO's WHS program in 1972 was driven by various conservation-related objectives. By highlighting outstanding heritage examples, sites of global significance could hopefully be preserved or safeguarded from unplanned or large-scale development. However, showcasing cultural heritage attractions also raised expectations for increased visitor numbers and revenue (Buckley, 2004; Shackley, 2006). Although the contemporary program remains ostensibly focused on mobilizing resources for conservation, the prestige and publicity of listing in fact precedes other agenda, and the "tourist-enhancing effect"—that is, the perceived ability to drive visitation and revenue—has monopolized practitioners' efforts (Yang & Lin, 2011; Yang et al., 2010; Yang & Lin, 2014).

The list's proclaimed ability notwithstanding, tourism scholars have yet to come to a consensus on WHS's enhancing effects, and the debate continues to unfold. One recent paper called into question the WHS's effect as a "panacea", suggesting that it functions instead as a "placebo" (Adie, Hall, & Prayag, 2018). Yet multiple studies have corroborated the notion of WHS status as a "magnet" that drives visitation (Fyall & Rakic, 2006; Shackley, 2006). Scholars have sought to quantitatively capture this WHS effect that inflates visitation and catalyzes economic impact using single- or multi-site case studies employing either cross-sectional or longitudinal approaches. Particularly rapid rises in visitation have also been found at WHSs in developing countries such as Hoi An in Vietnam (Di Giovine, 2008), Angkor Watt in Cambodia (Winter, 2014), and Lijiang in China (Su & Teo, 2008). Investigations have involved multi-site and multi-country settings with multi-year comparisons, and a positive association has been confirmed using econometric models of panel data at different scales (Su & Lin, 2014; Yang et al., 2010; Yang & Lin, 2014).

Compelling evidence has also suggested that the WHS effect might be non-significant. The estimated WHS effect from Yang et al. (2010) was refuted by Cellini (2011), who contended that their findings were neither "clear-cut" nor "robust" due to a dramatically different reading of the pooled ordinary least squares (OLS) estimator coupled with the associated explanation of elasticity. Huang, Tsaur, and Yang (2012) noted that although the coefficients on the heritage listing variable were positive, not all were statistically significant. This debate has prolonged a bevy of studies refuting the causal nature of the relationship between WHS inscription and visitation (Rodwell, 2002). Cellini (2011) offered evidence that WHS listed status did not affect the growth rate of tourist overnight stays per resident in an Italian context. Beyond macro analyses, specific micro studies of individual tourists have also cast doubt on the WHS effect. A literature review found visitor awareness of WHS status to be moderate, barely influencing behavior (Poria, Reichel, & Cohen, 2011). Field surveys in Queensland and Hawaii revealed that few visitors could correctly identify the WHS symbol or recognize what it represented (King & Halpenny, 2014). Even local tourism operators—potentially the most direct beneficiaries of increased visitor numbers—doubted the WHS's ability to modify customers' behavior (Hall & Piggin, 2002).

In reality, the same diversity encompassed by the scope of the list undermines efforts to classify cause–effect relationships into homogenous sub-sets of evidence, given that the "outstanding universal value" rhetoric belies "a truly operational definition" of WHS (Musitelli, 2002, p. 329). Many factors have been used to explain divergent empirical findings among different studies. Segment analyses have contrasted the perceived WHS effect between day-trips versus overnight stays, and domestic versus international markets, with Asian tourists appearing to focus more on WHS status (Huang et al., 2012). So-called 'hidden gems' that are less-well established as destinations prior to being listed seem more likely to experience a substantial uptick in post-inscription visitation (Frey & Steiner, 2011). Conversely, the pre-determined prestige of world-class destinations such as the Taj Mahal, Stonehenge, or Mount Fuji can obscure or even cancel out the effect of WHS listing at such "super-sites" (Jones, Yang, & Yamamoto, 2017; Palau-Saumell, Forgas-Coll, Sánchez-García, & Prats-Planagumà, 2013). As indicated by Cellini (2011), any tourism-enhancing effect could in fact be derived more from other prestigious attraction brands, such as China's national 3A-4A label, highlighting that most WHSs contain numerous, overlapping designations that camouflage causal relationships.

Even as conclusive evidence of the 'WHS effect' remains elusive, Frey and Steiner (2011) offered evidence of four negative dimensions associated with WHS listing: i) the selection process; ii) substitution effect; iii) overextension; and iv) attracting destruction. Ironically, the selection stage offers the biggest 'carrot' for stakeholder collaboration (Avieli, 2015); however, deficiencies in the process related to transparency and accountability have incited claims of favoritism (Frey & Steiner, 2011). The predominantly Western perceptions of 'outstanding universal value' have been criticized as a top-down Eurocentric approach (Winter, 2014), which might not align with local ideas about the significance of heritage. Post-inscription, the increased international recognition may trigger conflicts between local place attachment and global ownership by adding to the load placed on host residents and the environment (Orbasli, 2002). The cost of developing new facilities and infrastructure combined with the top-down, often opaque WHS inscription process can isolate or even incense local communities (Jimura, 2011). Ample potential has arisen for conflict due to the mismatch between global demand and local needs for tourism development (Su & Wall, 2012). The influx of tourists and the presence of tourist-oriented activities can affect residents' everyday lives (Jurowski, Uysal, & Williams, 1997). On-site visitor management issues include spatial-temporal congestion, and the presence of a WHS can cause substitution by diverting visitor flows away from other surrounding attractions. Emerging economies face particular challenges in WHS management, including the role of the community in decision making, benefit sharing, ownership of historic places and artifacts, and forced displacement (Timothy & Boyd, 2006). More recently, Caust and Vecco (2017) deemed the rapid rise in visitation to three SE Asian cultural WHSs to be "dramatic and uncontrolled." This resembles the longstanding 'loved to death' debate wherein strong externalities from WHS status have exacerbated visitor impacts related to traffic, trash, toilets, and trails management, effectively encouraging gradual deterioration due to overcrowded tourist honeypots (Yang et al., 2010). The negative impact of such overextension has been surpassed only by a few extreme examples, such as an ancient bridge in Mostar or the Buddhas at Bamiyan, where WHS status has directly invited devastation via clear targets for destruction by terrorism or warlords (Frey & Steiner, 2011).

The effects of WHS on the tourism sector can spill over to related industries and result in the growth of local economies (Ribaudo & Figini, 2017). Funding for WHSs is allocated to heritage protection, environmental enhancements, and infrastructure construction. Expectations for increased tourist expenditures can draw public and private investments in the service sector. Capital flows to the real estate market, causing land speculation and gentrification in areas surrounding WHSs (Hidalgo, Borsdorf, & San Martín, 2014). The entire local economy is also affected in myriad ways by the multiplier effect of tourism (VanBlarcom & Kayahan, 2011). Moreover, WHS designation carries long-term sociocultural impacts by helping to reinforce a place/national identity through recognition of exceptional universal value (Li et al., 2008). The environmental impact of WHSs is controversial because the organization advocates for environmental conservation even as it leads to gradual destruction caused by overcrowding (Yang et al., 2010).

Conceptual framework

Based on prior studies, we proposed a list of factors within three categories (and six sub-categories) that may affect the empirical results of WHS effects across different studies. These categories included research background, methodology, and outlets (see Fig. 1). In this section, we discussed each of these factors in detail.

Research settings

Research period. When WHS inscription launched in 1972, only 20 states participated in the initiative; 193 countries have since joined the program, and over 1000 sites from 167 countries are inscribed in the list (Ribaudo & Figini, 2017). Awareness and popularity of the WHS brand have grown steadily over the past 40 years (Su & Lin, 2014). Studies on WHS effects have employed different datasets covering distinct research periods. Given the growing esteem of WHSs, the brand has become an increasingly important tool that destinations can leverage to establish a competitive advantage in a progressively competitive market. Therefore, we expected studies focusing on more recent periods to reveal more substantial estimated effects than those focusing on earlier timeframes.

Development level. The WHS effect was more pronounced in developing countries such as least developed countries than in OECD countries (Ribaudo & Figini, 2017). Essentially, in newly developing destinations where international tourists are less familiar with the host country's attractions, the WHS brand can simplify or streamline choices and establish novel itineraries to be disseminated by tour guides and in travel books (Ryan & Silvanto, 2009). As suggested in the literature, WHS status was highly recognized in China and considered an appealing attraction for domestic tourists (Ryan & Huimin, 2009), whereas the WHS brand was less known in developed countries like Israel, Australia, and the United States (King & Halpenny, 2014; Marrocu & Paci, 2013). Another important reason is that authorities in developing countries were more likely to promote WHS labeling due to the economic benefits it can bring to a destination (Yang & Lin, 2014). Using survey data from over 319,000 visitors, Wuepper and Patry (2017) found that more developed countries were less willing to promote the WHS brand than less-developed ones. We hypothesized that WHS inscription exerts a larger influence on promoting tourism in developing countries than in developed countries.

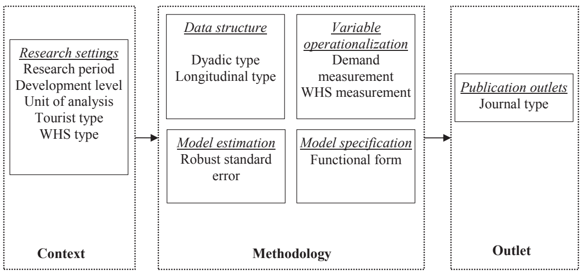

Fig. 1. Conceptual framework for meta-analysis.

Unit of analysis. WHS inscription can increase tourist activities and visitation to a destination, but its effects may vary at different scales. Studies have examined the effects of WHSs at the national, regional, and municipal levels, but the most direct and largest impact was believed to be at the local level where a site is located (Cuccia, 2012). On a broader scale, the effects might be diluted by other factors and by redistribution of tourists among different places (Ribaudo & Figini, 2017). Simply adding a single tourist site to the WHS list might not result in a notable visitation increase to a large country like the United States; therefore, we argued that the effect of WHS status is contingent upon the unit of analysis, namely at the national or regional level.

Tourist type. The effects of WHS status may differ between international and domestic tourists. In general, international tourists have limited knowledge about attractions in a destination, and they may be more likely to select attractions based on reputation indicators such as WHS status. Therefore, WHS listing could bring international reputation to a tourist site and increase the global visibility of a destination (Su & Lin, 2014). In addition, international tourists may be more interested in visiting top-tier attractions such as a WHS to maximize the value of long-distance travel. The tourism-enhancing effect might thus be larger for the international market than the domestic one. Moreover, WHS status could help to establish a national image and identity, which may further increase international tourist arrivals (Li et al., 2008). We hypothesized that the effects of WHS status are greater on international tourists than on domestic travelers.

WHS type. Given the multiple types of WHSs (cultural, natural, and mixed), their levels of attractiveness to tourists could vary (Kim, Wong, & Cho, 2007). Yang et al. (2010) found cultural heritage to exert a larger influence in China than natural heritage, presumably due to the appeal of Chinese culture. Cuccia (2012) believed that cultural sites were more likely to be affected by WHS listing because many were only appreciated locally prior to inscription, whereas WHS listing can raise site awareness on a national and international scale. From a logistical perspective, natural WHSs tend to cover larger areas in more remote areas, which may reduce and/or camouflage the positive effect on tourism demand. However, Su and Lin (2014) noted that natural heritage sites were more influential than cultural heritage sites for international tourists.

Data structure

Dyadic type. Dyadic data refers to data structures involving a paired structure of one or multiple destinations with one or more origins regardless of model estimation. This data type acknowledges the bilateral nature of tourist flows (Morley, Rosselló, & Santana-Gallego, 2014). To model dyadic data, an empirical model often incorporated variables capturing origin-side characteristics (e.g., population size and GDP) and the relationships between destinations and origins (e.g., distance and exchange rate), which may increase the accuracy and explanatory ability of an empirical model (Khadaroo & Seetanah, 2008). In this work, we were interested in exploring whether differences exist in the estimated effects of WHS status between studies that used dyadic-type data and those that did not.

Longitudinal type. The effects of WHS status can be examined on cross-sectional and longitudinal dimensions (Yang & Lin, 2011). Using cross-sectional data, researchers can investigate whether destinations with a larger number of WHSs attracted more tourists than destinations with fewer WHSs during the same period (Arezki, Cherif, & Piotrowski, 2009). However, a major drawback associated with this type of data is that most often, the results imply a correlational rather than a causal relationship. Research using longitudinal/panel data can reasonably explore the effects of WHSs by examining changes in tourist arrivals along with changes in the number and status of WHSs (Huang et al., 2012). In this study, we compared the estimated WHS effects among studies with longitudinal data and those without.

Variable operationalization

Demand measurement. Extant research has used different measures of tourism demand such as tourist arrivals, tourism revenue, and overnight stays. Tourist arrivals comprise the most popular proxy for tourism demand, measuring the size of the tourism market based on the number of tourist arrivals to a destination (Huang et al., 2012; Patuelli, Mussoni, & Candela, 2013; Su & Lin, 2014). Tourism revenue, however, represents tourism demand based on its economic value; some studies have used it to compare revenue-based estimates with arrival-based estimates (Chen & Haynes, 2012; Saha & Yap, 2014). Likewise, a few studies used overnight stays as a measure of tourism demand to emphasize the economic value (Cellini, 2011; Cuccia, Guccio, & Rizzo, 2013; Yang et al., 2010). These proxies assume different perspectives to represent tourism demand, and we were particularly interested in examining whether using the measure of tourist arrivals lead to distinct estimated results.

WHS measurement. In most studies, WHS status has been treated as a continuous variable by using the exact number of WHSs in a destination (Lyons, Mayor, & Tol, 2009; Poprawe, 2015). In some studies, however, the WHS effect was captured by a dummy variable indicating the presence of WHSs in the region or WHS status (Huang et al., 2012). Because the number of WHSs in a destination changes only slightly annually, it is difficult to capture the effects of WHSs; thus, we anticipated that treating WHS as a dummy variable may increase its estimated effects. Also, due to the diminishing returns of WHS inscription, the effect size from continuous measures should be smaller than that from dummy measures.

Model estimation

Past empirical studies have employed different model estimation methods to estimate the effects of WHS status, including OLS, count data model (CDM), and panel data estimation. Regarding the estimation method of standard errors, many studies used robust standard errors to correct heteroscedasticity and within-cluster error correlation (Yang, Li, & Li, 2017). These alternatives can lead to different *t*-test and *z*-test scores for the point estimate, ultimately resulting in different *p*-values for statistical significance. Therefore, we hypothesized that using robust standard errors can yield different effect sizes of WHS status.

Model specification

Functional form. Researchers have adopted different types of functional forms in estimating WHS effects: log-log, log-level, and level-level. The log-log form requires the natural log of dependent variables (e.g., tourist arrivals) and independent variables (e.g., number of WHSs) (Yang et al., 2017); the log-level form requires the natural log of the dependent variable only (Yang & Lin, 2014); and the level-level form leaves the dependent and independent variables untransformed (Arezki et al., 2009). Many studies have used a dummy measure of WHS status on the right-hand side of the empirical model, and a log-transform of the dummy is not feasible. In this study, we explored whether a log-transform of the dependent variable influences the effect size.

Publication outlets

Journal type. Journal type has been commonly used as a parameter in meta-analyses to explain disparate results (Van Iddekinge, Aguinis, Mackey, & DeOrtentiis, 2018). Scholars have suggested that studies revealing statistically significant findings are more likely to be published in academic journals compared to studies yielding insignificant results (Dalton, Aguinis, Dalton, Bosco, & Pierce, 2012). This phenomenon also applies in the context of WHS research. We investigated whether the estimated effects of WHSs are larger in articles appearing in peer-reviewed journals than in other types of outlets.

Methodology

Data collection and coding

Existing studies on the effects of WHS status on tourist demand were gathered through a comprehensive search on databases including Google Scholar, EBSCO Hospitality & Tourism Complete, and ProQuest Dissertation. Keywords including “world heritage,” “tourism,” “tourist,” “regression,” “panel data,” and “gravity model” were used for a literature search on October 17–20, 2017, and 122 papers were initially collected. More relevant papers were added after further cross-referencing. We then screened the collected papers based on four criteria: 1) tourism demand measure served as the dependent variable in the empirical model; 2) at least one WHS-related variable was incorporated as an independent variable; 3) the paper was written in English; and 4) the effect size of WHS status could be unambiguously coded. We excluded many studies that partially captured a WHS effect using a composite attraction measure that included WHS as a part of it (Joshi, Poudyal, & Larson, 2017; Yang & Fik, 2014). Also, we disregarded empirical studies using efficiency/productivity as the dependent variable (Cuccia et al., 2016) and those capturing the effects of intangible cultural heritage (Roh, Bak, & Min, 2015). The final sample included 43 research papers in the forms of journal articles, theses and dissertations, working papers, and book chapters.

The coding process consisted of three steps. First, we developed a preliminary coding scheme based on the factors included in the conceptual framework (Fig. 1). Second, we randomly selected 10 papers from the sample and subjected them to independent coding by two authors. The authors compared the results and modified parts of the schemes to better cover relevant information from the literature. Third, the two authors coded the literature independently and discussed all discrepancies until a consensus was reached. As most papers ran more than one empirical model, we coded all relevant models in each paper, and a total of 344 estimates of the WHS effect were collected for further analysis.

We chose the partial correlation coefficient r as the effect size in this meta-analysis. In all coded estimates, apart from *t*-scores, many *z*-scores and standardized regression coefficients remained. Therefore, use of the partial correlation coefficient (a scale-free measure) can render estimates from different studies more comparable (Ringquist, 2013). Many studies presented more than one effect size, and we coded all of them and kept them in the sample. We abandoned the one-estimate-per-study coding strategy because we were particularly interested in understanding how different inter-study estimates varied in terms of model specification, sample split, and estimation method (Disdier & Head, 2008).

Once all effect sizes were obtained, we combined them using traditional meta-analysis tools (Hartung, Knapp, & Sinha, 2011). Also, we used a funnel plot to visualize the relationship between effect sizes and their precision (the inverse of the standard error) to detect publication bias. In the absence of such bias, the plot exhibited a roughly inverted-funnel-shaped distribution with a wide bottom; distribution symmetry is critical when assessing publication bias (Stanley & Doucouliagos, 2012).

Meta-regression and data description

We used meta-regression to uncover factors explaining variations in effect size, denoting the effect of WHS status on tourism demand. The regression is specified as follows (Abdullah, Doucouliagos, & Manning, 2015):

$$r_{ij} = \beta_1 + \sum \beta_k Z_{ki} + \beta_0 SE_{ij} + \varepsilon_{ij}$$

where r is the partial correlation coefficient, Z is a set of K explanatory variables, and SE is the standard error of partial correlation coefficient r. In the model, i indexes the estimate, which is nested in study j. A reduced model without any Z variables can be used to

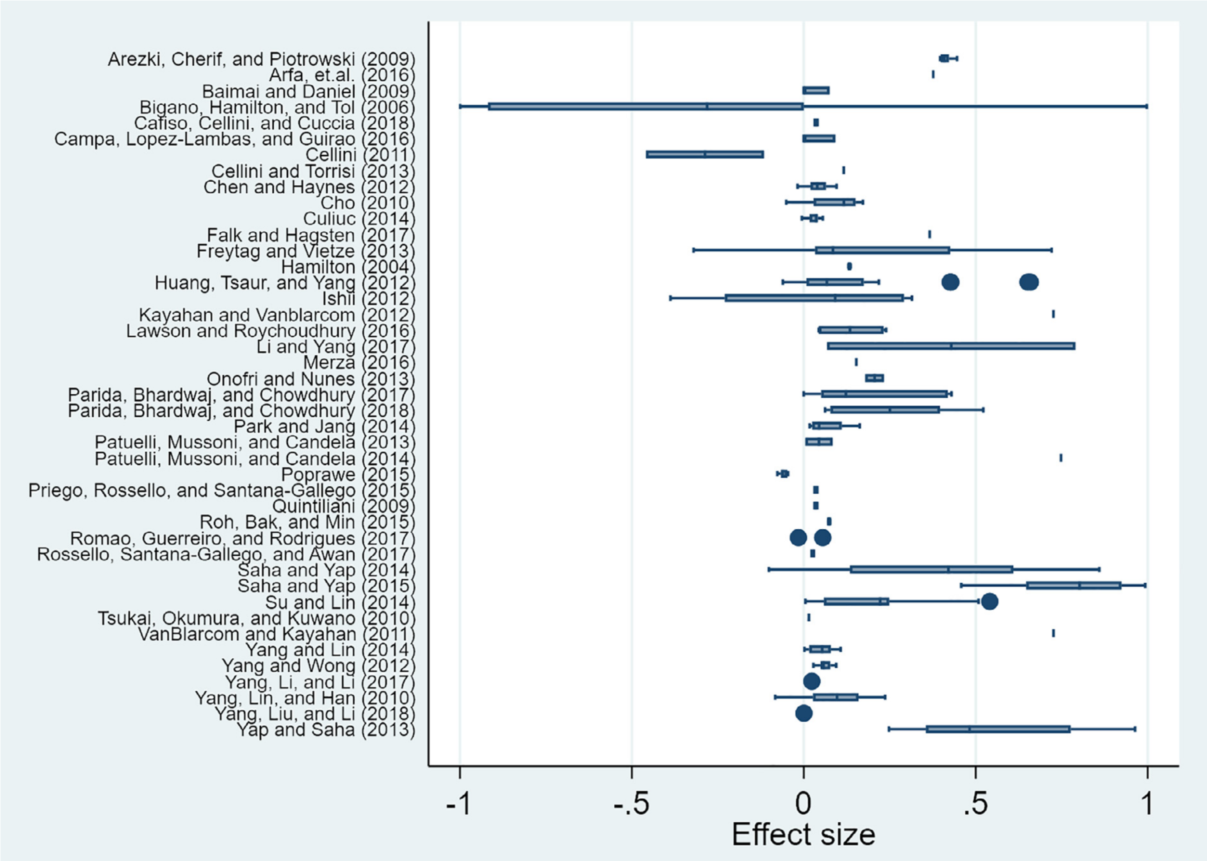

Fig. 2. Box plot of effect sizes across different studies.

conduct a basic FAT-PET test (Stanley, 2008). More specifically, in the absence of Z, an insignificant coefficient of β_0 indicates a lack of publication bias, and estimates of β_1 provide an estimate of the precision effect of the synchronized effect size when the standard error is set at zero (Stanley & Doucouliagos, 2012).

We used weighted least squares (WLS) with a cluster-robust standard error to estimate the model. The inverse variance (or the precision squared) of each estimated effect size was treated as the weight. To incorporate the inter-dependence of effect sizes from the same study, cluster-robust standard errors could be estimated by taking each study as a cluster (Stanley & Doucouliagos, 2012). To conduct a robustness check of results, we also used alternative meta-regression methods such as the random-effects model, generalized estimating equation and mixed-effects model. In a random-effects model, ε_{ij} can be further decomposed into μ_i (an independently distributed study-specific term) and ϵ_{ij} (normal error term), which are independent from each other. According to the simulation results, the WLS model was superior to random-effects models (Stanley & Doucouliagos, 2016). As an alternative to the random-effects model, the generalized estimating equation has been purported to reduce the influence of studies with a wide range of effect sizes (Ringquist, 2013). Further, the mixed-effects model becomes popular to capture the paper-specific effects as random effectors in the meta-regression (Yang, Park, & Hu, 2018). However, compared to the WLS model, it requires more assumptions and less robust to mis-specification and violation of assumptions (Ringquist, 2013).

Fig. 2 presents the box-plot of effect sizes obtained in the sample from different studies. As discussed earlier, we allowed for multiple effect sizes in a single study to accommodate method heterogeneity. As shown in the graph, negative and positive effect sizes of WHS status were found throughout the sample. Interestingly, some studies provided a large range of effect sizes, such as Bigano, Hamilton, and Tol (2006), Freytag and Vietze (2013), Ishii (2012), and Saha and Yap (2014).

Except for variable SE, all other independent variables were specified based on the research framework (Fig. 1). Four variables captured the research settings. Among them, *mid_year* represents the middle year of the research period; *developing* indicates if the destination country is a developing country as defined by the International Monetary Fund; *country_unit* indicates if the unit of analysis is ‘country’ for the effect size; *domestic* indicates if the effect is calibrated exclusively on domestic tourism demand; and *cultural_WHS* indicates cultural WHSs, whereas *natural_WHS* indicates natural sites. Regarding the research methodology, *dyadic* denotes the use of dyadic data, and *longitudinal* denotes the use of a longitudinal data containing time-series information. Moreover, *DV_arrival* indicates whether the dependent variable was measured using tourist arrivals, and *WHS_dummy* indicates whether the WHS effect was measured using a 0–1 dummy variable. Furthermore, *robust_error* captures the use of robust standard errors in model estimates, and *DV_log* indicates if the dependent variable was log-transformed. Lastly, *journal_article* indicates whether the effect size

Table 1
Descriptive statistics of variables.

Variable	Description	Obs.	Mean	Std. Dev.	Min	Max	VIF
SE	Standard error of effect size	344	0.051	0.047	0.003	0.241	1.93
mid_year	Middle year of the research period	344	2003.686	3.716	1991	2014	1.73
developing	0–1 indicator of destinations in developing countries	344	0.262	0.440	0	1	1.59
country_unit	0–1 indicator of country-level analysis	344	0.663	0.473	0	1	3.24
domestic	0–1 indicator of domestic tourism demand only	344	0.113	0.318	0	1	1.82
cultural_WHS	0–1 indicator of only cultural WHSs captured	344	0.235	0.425	0	1	2.06
natural_WHS	0–1 indicator of only natural WHSs captured	344	0.157	0.364	0	1	1.72
dyadic	0–1 indicator of dyadic data	344	0.404	0.491	0	1	1.71
longitudinal	0–1 indicator of longitudinal data	344	0.715	0.452	0	1	2.35
DV_arrival	0–1 indicator of dependent variable as tourist arrivals	344	0.738	0.440	0	1	1.28
WHS_dummy	0–1 indicator of using dummy variable to capture WHS effect	344	0.270	0.445	0	1	2.70
robust_error	0–1 indicator of using robust standard errors	344	0.320	0.467	0	1	2.44
DV_log	0–1 indicator of using log-transformed dependent variable	344	0.744	0.437	0	1	1.63
journal_article	0–1 indicator of journal articles	344	0.878	0.328	0	1	1.19

was obtained from journal articles.

Table 1 presents descriptive statistics of the variables. The average SE of the effect size was 0.051, and the average middle year of the research period was approximately 2004. Moreover, we found that 26.2% of estimates were from destinations in developing countries, 66.3% were based on country-level analysis, and 11.3% of effect estimates were obtained exclusively from domestic tourism demand. Regarding WHS types, 60.8% of estimates did not identify the WHS type, 23.5% were estimated for cultural WHSs, and 15.7% were obtained from estimates of natural WHSs. In terms of data structure, 40.4% of estimates were obtained from dyadic datasets, and 71.5% were from longitudinal datasets. Furthermore, most studies (73.8%) used tourist arrivals as the dependent variable to measure tourism demand, and a number of studies (27.0%) used a 0–1 dummy variable to capture the WHS effect. In terms of model estimation and specification, nearly one-third (32.0%) of estimates were based on robust standard errors, and most (74.4%) were obtained in a model where the dependent variable was log-transformed. Lastly, estimates from journal articles (87.8%) dominated the sample. We also checked for multi-collinearity across these variables; VIF values were all below 4 with most below 3 (see Table 1), suggesting the absence of a severe multi-collinearity problem (Gujarati, 2003).

Results

Effect size combination and funnel plot

We first tested the homogeneity of effect sizes from different studies, and a heterogeneity chi-square test rejected the null hypothesis of homogeneity. The I^2 value was estimated to be 99.94, suggesting that 99.94% of the variability in effect sizes was due to heterogeneity rather than sampling errors. As a result, the overall effect size was estimated by pooling the effect sizes using a random-effects specification, which considered inter- and intra-study variation (Sutton, Abrams, Jones, Sheldon, & Song, 2000). The overall effect size of WHS status on tourism demand was hence estimated to be 0.163 at a 95% confidence interval of [0.130, 0.195]. Fig. 3 presents the funnel plot of coded effect sizes to detect publication bias. Overall, the distribution was slightly over-weighted to the right-hand side. The plot was also slightly asymmetric around the center (slightly to the right of zero) due to the preponderance of positive effect sizes. Therefore, we adapted the Trim and Fill method to adjust the asymmetry (Duval & Tweedie, 2000), and the adjusted overall effect size becomes −0.013 at a 95% confidence interval of [−0.052, 0.026]. In other words, the overall effect size

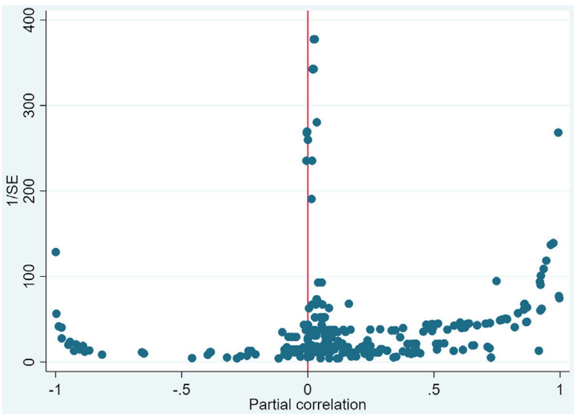

Fig. 3. Funnel plot of effect sizes.

Table 2
Estimation results from meta-regression based on all effect sizes.

	Model 1 WLS-all	Model 2 WLS-all	Model 3 WLS-Developing countries	Model 4 WLS-Developed countries	Model 5 WLS-Cultural WHS	Model 6 WLS-Natural WHS
SE	5.570	0.730	−3.091**	−1.273	−6.041**	−4.208
	(3.730)	(1.036)	(1.328)	(1.908)	(2.676)	(5.254)
mid_year		0.015*	0.026***	−0.061	0.131**	0.035
		(0.008)	(0.008)	(0.058)	(0.058)	(0.077)
developing		0.114***			0.060**	0.228***
		(0.037)			(0.023)	(0.039)
country_unit		−0.128	0.387***	−0.119	0.086	0.048
		(0.111)	(0.070)	(0.109)	(0.152)	(0.117)
domestic		0.075	−0.081	0.156		
		(0.082)	(0.050)	(0.163)		
cultural_WHS		0.475***	0.109**	0.156		
		(0.088)	(0.035)	(0.116)		
natural_WHS		0.156**	−0.028			
		(0.075)	(0.027)			
dyadic		−0.108*				
		(0.054)				
longitudinal		0.058				
		(0.044)				
DV_arrival		0.078	−0.058***	−0.042	0.185*	0.230***
		(0.070)	(0.016)	(0.053)	(0.093)	(0.041)
WHS_dummy		0.200**	0.375***	−0.238	0.407**	0.471***
		(0.084)	(0.047)	(0.178)	(0.143)	(0.116)
robust_error		0.266**				
		(0.114)				
DV_log		−0.089				
		(0.067)				
journal_article		0.070				
		(0.059)				
constant	0.079	−29.583*	−52.818***	123.183	−263.062**	−70.577
	(0.072)	(16.595)	(15.777)	(115.575)	(116.493)	(153.314)
N (effect sizes)	344	344	90	55	81	54
N (studies)	43	43	11	15	13	9
Adj. R^2	0.020	0.842	0.979	0.222	0.870	0.825
AIC	139.779	−475.900	−250.895	−31.233	−161.628	−66.252
BIC	147.461	−418.291	−230.896	−17.181	−144.867	−54.318

(Notes: *** indicates significance at the 0.01 level; ** indicates significance at the 0.05 level; * indicates significance at the 0.10 level. Robust standard errors are presented in parentheses.)

of WHS status on tourism demand was found to be statistically insignificant. A more rigorous test of publication bias is conducted later in a meta-regression framework (Stanley & Doucouliagos, 2012).

Meta-regression results

Table 2 presents the meta-regression estimation results using all 344 observations from 43 studies. In Model 1, we used a simple WLS meta-regression model including the standard error of effect size only to test for publication bias and uncover the precise effect (Stanley & Doucouliagos, 2012). The estimated coefficient of SE was statistically insignificant, implying the absence of publication bias in the data. Also, the constant was estimated to be positive but statistically insignificant; therefore, the effect of WHS listing on tourism demand was not statistically significant after synchronizing estimates from past studies. This result is consistent with the overall effect size estimate from the Trim and Fill method.

In Model 2, we added other variables explaining the substantial variation of the WHS effect reported in previous studies. This model was estimated using WLS with cluster-robust standard errors. The adjusted R^2 was 0.842, indicating a satisfactory level of explanatory power. The coefficient of SE was still insignificant, confirming the results from Model 1. Regarding research contexts, the positive and significant coefficients of *mid_year* and *developing* suggest that the effect size of WHS increased over time and was significantly larger in developing countries compared to other types of countries. The coefficient of *country_unit* was negative but insignificant, indicating that using country-level data would not necessarily reduce the effect size. A possible explanation for this phenomenon is scale, as country sizes vary greatly and some small countries can be geographically smaller than sub-regions of a large country. The other variable, *domestic*, was estimated to be statistically insignificant, implying that the effect of WHS status was similar on domestic and international tourism demand. The estimated coefficient of *cultural_WHS* was found to be statistically larger than *natural_WHS*, suggesting that, in general, a cultural WHS was characterized by a larger effect in enhancing tourism demand than a natural one. In terms of research methodology, the negative and significant coefficient of *dyadic* shows that dyadic data yielded significantly smaller effects of WHSs; however, using longitudinal data would not necessarily yield different WHS effects. The significant and positive coefficients of *WHS_dummy* and *robust_error* indicate that the estimated WHS effect was larger in studies measuring WHS endowment as a dummy variable and applying robust standard errors in model estimation. Two other variables related to research methodology, *DV_arrival* and *DV_log*, were estimated to be statistically insignificant, indicating that choosing tourist arrival as a tourism demand measure and log-transforming the dependent variable did not yield statistically different WHS effect sizes. Lastly, the variable *journal_article* was estimated to be statistically insignificant, revealing that the estimated WHS effect was not statistically different between journal articles and articles from other outlets.

Table 2 also presents the estimation results of meta-regression based on sub-group analysis. Due to sample size constraints, the model only considered variables related to research contexts and major research methodology. In Models 3 and 4, we estimated the WLS meta-regression for effect sizes based on developing and developed countries, respectively. Model 3 included 90 effect sizes from 11 studies, whereas Model 4 included 55 effect sizes from 15 studies. We found the meta-regression to be particularly compelling in explaining the heterogeneity of WHS effect size in developing countries (adj. R^2 = 0.979) but less so for developed countries (adj. R^2 = 0.222). As shown in Model 3, the results suggest that the WHS effect in developing countries was larger in later years (*mid_year*), country-level studies (*country_level*), cultural WHSs (*cultural_WHS*), studies not using tourist arrivals as the dependent variable (*DV_arrival*), and studies measuring WHS endowment as a dummy variable (*WHS_dummy*). In Model 4 for developed countries, none of the specified variables were estimated to be statistically significant.

In Models 5 and 6, we present the WLS meta-regression estimates for cultural and natural WHSs, respectively. Model 5 included 81 effect sizes from 13 studies, whereas Model 6 contained only 54 effect sizes from nine studies. As indicated by the goodness-of-fit measure (adj. R^2), both models fit the data adequately. As suggested by the estimated coefficients of *mid_year*, the tourism-enhancing effect of cultural WHSs increased significantly over time, but the effects of natural WHSs varied little. Both WHS types exerted larger impacts on tourism demand in developing countries as indicated by the positive and significant coefficient of *developing* in Models 5 and 6. This coefficient was noticeably larger in Model 6, indicating that natural WHS status played a more substantial role in boosting tourism demand in developing countries. Moreover, the results show that the effect size of both WHS types was larger when studies used tourist arrivals as the tourism demand measure for the dependent variable (*DV_arrival*) and used a dummy variable for WHS inscription (*WHS_dummy*).

Robustness check

We conducted a series of robustness check by estimating additional models. These results are presented in Table 3. In Model 7, two papers with too many effect sizes ($n > 30$) were excluded (Gechert, 2015), making a sample of 265 effect sizes from 41 studies. To control for the study-specific effects in meta-regression, we added study-specific dummies to WLS estimation in Model 8 and estimated a mixed-effects model in Model 9. The major difference between the two models is that the study-specific effects are treated as 'fixed effects' in the former while as 'random effects' in the latter. Moreover, Model 10 used a logit model by transforming the dependent variable to a binary variable: whether the effect size is greater than zero (=1) or not (=0) (Gechert, 2015). Because *domestic* predicts the outcome perfectly, this variable was excluded in Model 10, and 39 observations were dropped. Lastly, Model 11 presents the results of the random-effects model, and Model 12 presents the results of the generalized estimating equation. In general, most of the major findings regarding the significance and direction of estimated coefficients still hold in Models 7 to 12. The major discrepancy is that *robust_error* was not estimated to be statistically significant in Models 8 and 9, two models considering the study-specific effects. This might be explained the multicollinearity between study-specific effect and *robust_error,* which is a study-specific variable. In sum, the robustness of our empirical results was generally confirmed.

We further conducted a jackknife sensitivity analysis by excluding the studies one at a time and re-estimating the meta-regression using the rest of the sample (Chen, Thomas, Sadatsafavi, & FitzGerald, 2015). After the iterative repetition of the WLS estimation, we obtained 43 sets of estimated coefficients. Table 4 presents the median, minimum, maximum of estimated coefficients for each variable as well as the number of significant estimates at the 0.05 significance level. The median value of estimate is very close to the estimated coefficients in Model 2. Five variables have significant estimates in most of 43 sets, and they are *cultural_WHS*, *developing*, *robust_error*, *WHS_dummy*, and *natural_WHS*. Another variable, *dyadic*, has significant estimates in about half of sets. This result largely affirms our principal findings in Model 2.

Conclusion and discussion

Over the past decade, the tourism-enhancing effect of WHS status has been fiercely debated with no consensus in sight (Buckley, 2018). This study presents a comprehensive meta-analysis in an attempt to elucidate the real WHS effect and reasons behind the discrepancies in empirical studies. After synchronizing empirical results from 43 studies and correcting for publication bias, the effect of WHS listing on tourism demand was found to be insignificant. Although this finding contravenes simplistic, common sense conclusions about the economic benefits elicited by WHS inscription (Ribaudo & Figini, 2017), it does not necessarily follow that 'the emperor wears no clothes' in that the WHS effect is purely that of a 'placebo' rather than 'panacea' (Adie et al., 2018). Instead, our results highlight the multitude of inter-related variables that can catalyze or camouflage the influence of WHS status. The tourism-enhancing effect was found to be significantly larger in more recent years, at cultural WHSs, and in developing countries but significantly smaller in dyadic datasets. Moreover, treating WHS listing as a dummy variable and using robust standard errors in estimation yielded larger effect sizes. Further, the sub-group analysis of effect sizes shows that the WHS effect did not vary significantly over time in developed countries, and natural WHSs boosted tourism demand more substantially in developing countries.

These findings provide practical implications for destinations already listed as WHSs and those that plan to apply for listed status

Table 3
Estimation results from meta-regression for robustness check.

	Model 7 WLS-w/o studies with 30+ estimates	Model 8 WLS with paper-specific dummies-all	Model 9 Mixed-effects model-all	Model 10 Logit-all	Model 11 RE-all	Model 12 GEE-all
SE	2.042	−3.456	0.597	−2.190	0.145	0.051
	(1.706)	(2.317)	(1.519)	(11.348)	(0.476)	(1.473)
mid_year	0.008	0.029***	0.010	−0.003	0.015***	0.013
	(0.005)	(0.010)	(0.011)	(0.085)	(0.005)	(0.010)
developing	0.047	0.086***	0.153***	1.929**	0.144***	0.151***
	(0.086)	(0.017)	(0.048)	(0.978)	(0.041)	(0.048)
country_unit	−0.129	0.502***	0.098	−0.616	0.042	0.062
	(0.161)	(0.161)	(0.075)	(1.434)	(0.056)	(0.069)
domestic	0.066	−0.068	0.038		0.063	0.071
	(0.086)	(0.045)	(0.088)		(0.060)	(0.089)
cultural_WHS	0.417***	0.115***	0.192***	1.805**	0.235***	0.235***
	(0.108)	(0.020)	(0.040)	(0.867)	(0.049)	(0.044)
natural_WHS	0.065	−0.106***	−0.037	−0.195	0.009	0.009
	(0.059)	(0.024)	(0.046)	(0.927)	(0.052)	(0.051)
dyadic	−0.104**	−0.477**	−0.043	−0.695	−0.063*	−0.061
	(0.048)	(0.193)	(0.039)	(0.820)	(0.038)	(0.037)
longitudinal	0.011	−0.156***	0.091	0.104	0.078	0.080
	(0.060)	(0.034)	(0.139)	(1.119)	(0.049)	(0.115)
DV_arrival	0.071	0.182*	0.010	0.267	−0.038	−0.027
	(0.077)	(0.093)	(0.064)	(0.479)	(0.037)	(0.048)
WHS_dummy	0.203**	0.431***	0.223***	1.868**	0.194***	0.203***
	(0.090)	(0.059)	(0.061)	(0.820)	(0.053)	(0.056)
robust_error	0.249*	−0.041	0.134	0.497	0.190***	0.170**
	(0.145)	(0.028)	(0.083)	(1.093)	(0.049)	(0.084)
DV_log	0.064	0.010***	−0.161***	−1.512*	−0.263***	−0.251***
	(0.070)	(0.000)	(0.056)	(0.773)	(0.042)	(0.047)
journal_article	0.078	0.317***	−0.043	0.102	−0.046	−0.046
	(0.052)	(0.068)	(0.070)	(0.950)	(0.048)	(0.066)
constant	−16.577	−59.190***	−19.950	7.213	−29.415***	−26.066
	(10.619)	(20.761)	(23.075)	(169.805)	(10.308)	(20.736)
N (effect sizes)	265	344	344	305	344	344
N (studies)	41	43	43	36	43	43
Adj. R^2	0.722	0.863				
AIC	−672.893	−581.710	86.564	257.741		
BIC	−619.197	−554.826	151.855	309.825		

(Notes: *** indicates significance at the 0.01 level; ** indicates significance at the 0.05 level; * indicates significance at the 0.10 level. Robust standard errors are presented in parentheses.)

Table 4
Results of jackknife sensitive analysis of meta-regression.

	Median	Minimum	Maximum	Number of significant estimates ($p < 0.05$)
SE	0.744	−0.479	1.515	0
mid_year	0.015	0.009	0.024	1
developing	0.114	0.051	0.150	42
country_unit	−0.129	−0.165	−0.009	0
domestic	0.074	−0.005	0.124	0
cultural_WHS	0.475	0.411	0.533	43
natural_WHS	0.156	0.087	0.210	31
dyadic	−0.108	−0.169	−0.076	20
longitudinal	0.058	0.044	0.125	1
DV_arrival	0.079	0.018	0.093	0
WHS_dummy	0.200	0.146	0.266	39
robust_error	0.267	0.129	0.291	40
DV_log	−0.089	−0.172	0.024	2
journal_article	0.070	−0.172	0.132	0
constant	−29.530	−47.730	−17.980	1
N (effect sizes)	339	304	343	
N (studies)	42	42	42	
Adj. R^2	0.842	0.467	0.941	
AIC	−469.1	−762	−295.2	
BIC	−411.8	−706.2	−238.1	

in the future. For the latter, the role of WHS status in tourism promotion should not be overemphasized. Although it is no panacea, the WHS effect is more pronounced in certain contexts such as in developing countries, where government agencies may realize quicker returns on investment efforts that support new applications for WHS status. If the effect of WHS listing is indeed more pronounced in developing countries, as our results show, then their destination marketing organizations (DMOs) should work diligently to market and promote WHSs, especially natural ones, to the international market. However, alongside the potential for increased tourism demand, the pitfalls of listing are more readily apparent in developing countries. For example, Caust and Vecco (2017) deemed the rapid increase in tourism to three Southeast Asian cultural WHSs (Angkor, Lijiang, and Luang Prabang) to be "dramatic and uncontrolled," exacerbating impacts related to traffic, trash, and water management. In extreme cases, the deterioration of overcrowded tourist attractions has led to claims of "UNESCO-cide" wherein WHSs are 'loved to death', framing listed status as an inadvertent "death sentence for a site" (Avieli, 2015).

Effective evidence of the WHS list's benefits outstripping such costs could be found within a more systematic and transparent monitoring system. Currently, the UNESCO program has no universal database to monitor tourism demand and economic impact, although the submission of a WHS management plan is a mandatory part of the application process (Landorf, 2009). Our meta-analysis identifies some variables that UNESCO could periodically request from individual WHS managers to post on the official website. In revisiting UNESCO's role, particularly in the post-inscription period, our findings also reiterate that the list's principal purpose is to facilitate heritage conservation; therefore, it is insufficient simply to increase tourism demand. Instead, robust cost-recovery mechanisms are needed to funnel funds toward conservation goals via the collection of admission receipts, tickets, or donations (de Fauconberg, Berthon, & Berthon, 2018). Finally, because we identified an overall larger effect of cultural WHSs compared to natural sites, we urge site managers and DMOs to better promote cultural WHSs to international tourists from diverse cultural backgrounds. This awareness can be pivotal to securing a competitive advantage for tourism marketing of cultural heritage sites.

Our results also provide methodological suggestions for future empirical research efforts on the tourism-enhancing effect of WHS listing as well as for tourism demand studies in general. First, the use of dyadic datasets with pair-wise origin-destination observations makes a difference. This type of data corresponds to that used explicitly in gravity models or spatial interaction models of tourism demand (Patuelli et al., 2013), and such data add the nuance of origin-, destination-, and pairwise-specific effects into the empirical model. Therefore, unlike traditional destination-specific data as a non-dyadic dataset, cross-origin heterogeneity can be factored into models using dyadic datasets to alleviate omitted variable biases. Second, because the use of a robust standard error leads to a statistically different effect size, it is better to report a robust standard error in tourism demand models whenever possible. Although this type of standard error is not omnipotent and specifically suited to solving the heteroscedasticity issue, it is still satisfactory in the absence of heteroscedasticity (Wooldridge, 2002). Lastly, our results highlight different effect sizes between cultural and natural WHSs and between continuous and dummy WHS endowment measures. Therefore, we would recommend using separate continuous WHS measures for cultural and natural WHSs in destinations when data are available.

After the thorough review and coding of research methodology in each specific study, we can also provide some research directions for the analysis of the tourism-enhancing effect of WHS. First and foremost, some popular causality inference models, such as synthetic control method (Biagi, Brandano, & Pulina, 2017), difference-in-difference model (Chen, Chen, & Tsai, 2016), and regression discontinuity (O'Brochta, 2017), have not been applied to the study of WHS effect on tourism demand. This causality inference model corrects for the endogeneity problem associated with the WHS designation (Bertacchini & Saccone, 2012), and therefore can generate more reliable estimates on the WHS effect. Second, a more strategic selection of control groups should be considered to make the effect estimate more reliable. Some intuitive control groups of WHS designation can be those attractions on the tentative list that are qualified for inclusion in the World Heritage List but have not yet been inscripted (Parenti & De Simone, 2015). Third, no studies hitherto investigated the effect stemming from a loss of WHS status, and it can be particularly interesting to look at the asymmetric effect of WHS listing. Last but not least, most studies, if not all, failed to examine the dynamic effect of WHS designation. For example, in some destination, the effect can be small but persistent whereas, in other, it can be strong but short-living. A better understanding of these dynamics provides a more comprehensive insight on the sustainability of potential economic benefits.

Some limitations can temper the generalizability of our meta-analysis results. First, due to the limited sample size, we were unable to include other variables explaining the effect size, such as model estimation methods (e.g., OLS, random-effects, and fixed-effects models) and use of control variables (e.g., inclusion of general infrastructure measures and other tourist attraction variables). Second, our meta-analysis sample was not entirely representative of the complete WHS list. For instance, some countries with many WHSs were under-represented in the sample, such as France, Germany, and Mexico. In summation, this study provided a useful synthesis of the literature that can stimulate further discussion and meta-analysis of the WHS effect in diverse contexts. In future studies, we recommend including more effect sizes and expanding explanatory variables to unveil other important factors that shape the effects of WHSs on tourism demand.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.annals.2018.12.007.

References

Abdullah, A., Doucouliagos, H., & Manning, E. (2015). Does education reduce income inequality? A meta-regression analysis. *Journal of Economic Surveys, 29*(2), 301–316.

Adie, B. A., Hall, C. M., & Prayag, G. (2018). World Heritage as a placebo brand: A comparative analysis of three sites and marketing implications. *Journal of Sustainable Tourism, 26*(3), 399–415.

Arezki, R., Cherif, R., & Piotrowski, J. (2009). Tourism specialization and economic development: Evidence from the UNESCO World Heritage List.

Avieli, N. (2015). The rise and fall (?) of Hội An, a UNESCO World Heritage site in Vietnam. *SOJOURN: Journal of Social Issues in Southeast Asia, 30*(1), 35–71.

Bertacchini, E. E., & Saccone, D. (2012). Toward a political economy of World Heritage. *Journal of Cultural Economics, 36*(4), 327–352.

Biagi, B., Brandano, M. G., & Pulina, M. (2017). Tourism taxation: A synthetic control method for policy evaluation. *International Journal of Tourism Research, 19*(5), 505–514.

Bigano, A., Hamilton, J., & Tol, R. (2006). The impact of climate on holiday destination choice. *Climatic Change, 76*(3), 389–406.

Brockwell, S. E., & Gordon, I. R. (2001). A comparison of statistical methods for meta-analysis. *Statistics in Medicine, 20*(6), 825–840.

Buckley, R. C. (2004). The effects of World Heritage listing on tourism to Australian national parks. *Journal of Sustainable Tourism, 12*(1), 70–84.

Buckley, R. C. (2018). Tourism and natural World Heritage: A complicated relationship. *Journal of Travel Research, 57*(5), 563–578.

Caust, J., & Vecco, M. (2017). Is UNESCO World Heritage recognition a blessing or burden? Evidence from developing Asian countries. *Journal of Cultural Heritage, 27*, 1–9.

Cellini, R. (2011). Is UNESCO recognition effective in fostering tourism? A comment on Yang, Lin and Han. *Tourism Management, 32*(2), 452–454.

Chen, Z., & Haynes, K. E. (2012). Tourism Industry and High Speed Rail – Is There a Linkage: Evidence from China's High Speed Rail Development GMU School of Public Policy Research Paper No. 2012-14.

Chen, C., Chen, Y., & Tsai, Y. (2016). Evaluating museum free admission policy. *Annals of Tourism Research, 58*, 156–159.

Chen, W., Thomas, J., Sadatsafavi, M., & FitzGerald, J. M. (2015). Risk of cardiovascular comorbidity in patients with chronic obstructive pulmonary disease: A systematic review and meta-analysis. *The Lancet Respiratory Medicine, 3*(8), 631–639.

Cuccia, T. (2012). Is it worth being inscribed in the World Heritage List? A case study of "The Baroque Cities in Val Di Noto" (Sicily). *Rivista Italiana di Economia Demografia e Statistica, LXVI*(2), 169–189.

Cuccia, T., Guccio, C., & Rizzo, I. (2013). Does UNESCO inscription affect the performance of tourism destinations? A regional perspective. Available at SSRN: https://ssrn.com/abstract=2225771.

Cuccia, T., Guccio, C., & Rizzo, I. (2016). The effects of UNESCO World Heritage List inscription on tourism destinations performance in Italian regions. *Economic Modelling, 53*, 494–508.

Dalton, D. R., Aguinis, H., Dalton, C. M., Bosco, F. A., & Pierce, C. A. (2012). Revisiting the file drawer problem in meta-analysis: An assessment of published and nonpublished correlation matrices. *Personnel Psychology, 65*(2), 221–249.

de Fauconberg, A., Berthon, P., & Berthon, J. P. (2018). Rethinking the marketing of World Heritage Sites: Giving the past a sustainable future. *Journal of Public Affairs, 18*(2), e1655.

Di Giovine, M. A. (2008). *The Heritage-Scape: UNESCO, World Heritage, and Tourism.* Plymouth, MA: Lexington Books.

Disdier, A.-C., & Head, K. (2008). The puzzling persistence of the distance effect on bilateral trade. *The Review of Economics and Statistics, 90*(1), 37–48.

Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot–based method of testing and adjusting for publication bias in meta-analysis. *Biometrics, 56*(2), 455–463.

Evans, G. (2001). World heritage and the world bank: Culture and sustainable development? *Tourism Recreation Research, 26*(1), 81–84.

Frey, B. S., & Steiner, L. (2011). World Heritage List: Does it make sense? *International Journal of Cultural Policy, 17*(5), 555–573.

Freytag, A., & Vietze, C. (2013). Can nature promote development? The role of sustainable tourism for economic growth. *Journal of Environmental Economics and Policy, 2*(1), 16–44.

Fyall, A., & Rakic, T. (2006). The future market for World Heritage Sites. In A. Leask, & A. Fyall (Eds.). *Managing World Heritage Sites* (pp. 159–175). Oxford, UK: Butterworth-Heinemann.

Gechert, S. (2015). What fiscal policy is most effective? A meta-regression analysis. *Oxford Economic Papers, 67*(3), 553–580.

Gujarati, D. N. (2003). *Basic Econometrics* (4th ed.). Boston: McGraw Hill.

Hall, C. M., & Piggin, R. (2002). Tourism business knowledge of World Heritage sites: A New Zealand case study. *International Journal of Tourism Research, 4*(5), 401–411.

Hartung, J., Knapp, G., & Sinha, B. K. (2011). *Statistical Meta-Analysis with Applications*, *Vol. 738*. Hoboken, New Jersey: John Wiley & Sons.

Hidalgo, R., Borsdorf, A., & San Martín, G. (2014). Socio-spatial change in the world heritage site Valparaíso. *DIE ERDE–Journal of the Geographical Society of Berlin, 145*(4), 228–240.

Huang, C.-H., Tsaur, J.-R., & Yang, C.-H. (2012). Does world heritage list really induce more tourists? Evidence from Macau. *Tourism Management, 33*(6), 1450–1457.

Ishii, S. (2012). Key determinants of international tourist flows: How to promote inbound tourism. Unpublished Master Thesis, Georgetown University.

Jimura, T. (2011). The impact of world heritage site designation on local communities–A case study of Ogimachi, Shirakawa-mura, Japan. *Tourism Management, 32*(2), 288–296.

Jones, T. E., Yang, Y., & Yamamoto, K. (2017). Assessing the recreational value of world heritage site inscription: A longitudinal travel cost analysis of Mount Fuji climbers. *Tourism Management, 60*, 67–78.

Joshi, O., Poudyal, N. C., & Larson, L. R. (2017). The influence of sociopolitical, natural, and cultural factors on international tourism growth: A cross-country panel analysis. *Environment, Development and Sustainability, 19*(3), 825–838.

Jurowski, C., Uysal, M., & Williams, D. R. (1997). A theoretical analysis of host community resident reactions to tourism. *Journal of Travel Research, 36*(2), 3–11.

Khadaroo, J., & Seetanah, B. (2008). The role of transport infrastructure in international tourism development: A gravity model approach. *Tourism Management, 29*(5), 831–840.

Kim, S. S., Wong, K. K. F., & Cho, M. (2007). Assessing the economic value of a world heritage site and willingness-to-pay determinants: A case of Changdeok Palace. *Tourism management, 28*(1), 317–322.

King, L. M., & Halpenny, E. A. (2014). Communicating the World Heritage brand: Visitor awareness of UNESCO's World Heritage symbol and the implications for sites, stakeholders and sustainable management. *Journal of Sustainable Tourism, 22*(5), 768–786.

Landorf, C. (2009). Managing for sustainable tourism: A review of six cultural World Heritage Sites. *Journal of Sustainable Tourism, 17*(1), 53–70.

Li, M., Wu, B., & Cai, L. (2008). Tourism development of World Heritage Sites in China: A geographic perspective. *Tourism Management, 29*(2), 308–319.

Lyons, S., Mayor, K., & Tol, R. S. J. (2009). Holiday destinations: Understanding the travel choices of Irish tourists. *Tourism Management, 30*(5), 683–692.

Marrocu, E., & Paci, R. (2013). Different tourists to different destinations: Evidence from spatial interaction models. *Tourism Management, 39*, 71–83.

Morley, C., Rosselló, J., & Santana-Gallego, M. (2014). Gravity models for tourism demand: Theory and use. *Annals of Tourism Research, 48*, 1–10.

Musitelli, J. (2002). World heritage, between universalism and globalization. *International Journal of Cultural Property, 11*(2), 323–336.

O'Brochta, W. (2017). International tourism's impact on regional autonomy: Evidence from 2004 EU accession countries. *Tourism Economics, 23*(8), 1632–1661.

Orbasli, A. (2002). *Tourists in historic towns: Urban conservation and heritage management.* New York: Taylor & Francis.

Palau-Saumell, R., Forgas-Coll, S., Sánchez-García, J., & Prats-Planagumà, L. (2013). Tourist behavior intentions and the moderator effect of knowledge of UNESCO World Heritage Sites: The case of La Sagrada Família. *Journal of Travel Research, 52*(3), 364–376.

Parenti, B., & De Simone, E. (2015). Explaining determinants of national UNESCO Tentative Lists: An empirical study. *Applied Economics Letters, 22*(15), 1193–1198.

Patuelli, R., Mussoni, M., & Candela, G. (2013). The effects of World Heritage Sites on domestic tourism: A spatial interaction model for Italy. *Journal of Geographical Systems, 15*(3), 369–402.

Poprawe, M. (2015). A panel data analysis of the effect of corruption on tourism. *Applied Economics, 47*(23), 2399–2412.

Poria, Y., Reichel, A., & Cohen, R. (2011). World heritage site—Is it an effective brand name? A case study of a religious heritage site. *Journal of Travel Research, 50*(5), 482–495.
Prideaux, B. (2002). Creating rural heritage visitor attractions—The Queensland Heritage Trails project. *International Journal of Tourism Research, 4*(4), 313–323.
Ribaudo, G., & Figini, P. (2017). The puzzle of tourism demand at destinations hosting UNESCO World Heritage Sites: An analysis of tourism flows for Italy. *Journal of Travel Research, 56*(4), 521–542.
Ringquist, E. (2013). *Meta-analysis for public management and policy.* John Wiley & Sons.
Rodwell, D. (2002). The World Heritage Convention and the exemplary management of complex heritage sites. *Journal of Architectural Conservation, 8*(3), 40–60.
Roh, T.-S., Bak, S., & Min, C.-K. (2015). Do UNESCO heritages attract more tourists? *World Journal of Management, 6*(1), 193–200.
Ryan, C., & Huimin, G. (2009). *Tourism in China: Destination, cultures and communities.* Routledge.
Ryan, J., & Silvanto, S. (2009). The World Heritage List: The making and management of a brand. *Place Branding and Public Diplomacy, 5*(4), 290–300.
Ryan, J., & Silvanto, S. (2014). A study of the key strategic drivers of the use of the World Heritage site designation as a destination brand. *Journal of Travel & Tourism Marketing, 31*(3), 327–343.
Saha, S., & Yap, G. (2014). The moderation effects of political instability and terrorism on tourism development: A cross-country panel analysis. *Journal of Travel Research, 53*(4), 509–521.
Shackley, M. (2006). Visitor management at world heritage sites. In A. Leask, & A. Fyall (Eds.). *Managing World Heritage Sites* (pp. 109–120). Oxford: Routledge.
Stanley, T. D. (2008). Meta-regression methods for detecting and estimating empirical effects in the presence of publication selection. *Oxford Bulletin of Economics and Statistics, 70*(1), 103–127.
Stanley, T. D., & Doucouliagos, H. (2012). *Meta-regression analysis in economics and business.* Routledge.
Stanley, T. D., & Doucouliagos, H. (2016). Neither fixed nor random: Weighted least squares meta-regression. *Research Synthesis Methods, 8*(1), 19–42.
Su, Y.-W., & Lin, H.-L. (2014). Analysis of international tourist arrivals worldwide: The role of world heritage sites. *Tourism Management, 40*, 46–58.
Su, X., & Teo, P. (2008). Tourism politics in Lijiang, China: An analysis of state and local interactions in tourism development. *Tourism Geographies, 10*(2), 150–168.
Su, M. M., & Wall, G. (2012). Global–local relationships and governance issues at the Great Wall World Heritage Site, China. *Journal of Sustainable Tourism, 20*(8), 1067–1086.
Sutton, A. J., Abrams, K. R., Jones, D. R., Sheldon, T. A., & Song, F. (2000). *Methods for meta-analysis in medical research.* Chichester: John Wiley.
Timothy, D. J., & Boyd, S. W. (2006). Heritage tourism in the 21st century: Valued traditions and new perspectives. *Journal of Heritage Tourism, 1*(1), 1–16.
Van Iddekinge, C. H., Aguinis, H., Mackey, J. D., & DeOrtentiis, P. S. (2018). A meta-analysis of the interactive, additive, and relative effects of cognitive ability and motivation on performance. *Journal of Management, 44*(1), 249–279.
VanBlarcom, B. L., & Kayahan, C. (2011). Assessing the economic impact of a UNESCO World Heritage designation. *Journal of Heritage Tourism, 6*(2), 143–164.
Winter, T. (2014). Beyond Eurocentrism? Heritage conservation and the politics of difference. *International Journal of Heritage Studies, 20*(2), 123–137.
Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data.* Cambridge: The MIT Press.
Wuepper, D., & Patry, M. (2017). The World Heritage list: Which sites promote the brand? A big data spatial econometrics approach. *Journal of Cultural Economics, 41*(1), 1–21.
Yang, C.-H., & Lin, H.-L. (2011). Is UNESCO recognition effective in fostering tourism? A comment on Yang, Lin and Han: Reply. *Tourism Management, 32*(2), 455–456.
Yang, C.-H., & Lin, H.-Y. (2014). Revisiting the relationship between World Heritage Sites and tourism. *Tourism Economics, 20*(1), 73–86.
Yang, C.-H., Lin, H.-L., & Han, C.-C. (2010). Analysis of international tourist arrivals in China: The role of World Heritage Sites. *Tourism Management, 31*(6), 827–837.
Yang, Y., & Fik, T. (2014). Spatial effects in regional tourism growth. *Annals of Tourism Research, 46*, 144–162.
Yang, Y., Li, D., & Li, X. (2017). Public transport connectivity and intercity tourist flows. *Journal of Travel Research* 0047287517741997.
Yang, Y., Park, S., & Hu, X. (2018). Electronic word of mouth and hotel performance: A meta-analysis. *Tourism Management, 67*, 248–260.

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