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Spatial Correspondence Between Cultural Heritage and Tourism Supply: Evidence From 6,312 Heritage Sites in the Bashu Region

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Abstract

Counting A-grade scenic areas as a measure of the tourism supply of cultural heritage confuses natural endowment with heritage convertibility. This measurement problem has seldom been examined at a regional scale. A site-level database is assembled for the Bashu region covering 21 prefectures in Sichuan and 37 districts and counties in Chongqing: 5,004 heritage sites and 1,308 A-grade scenic areas, 6,312 points with complete administrative attribution. Scenic areas are separated into 355 heritage-anchored and 953 non-anchored units by whether tangible heritage lies within 1 km. Three findings emerge. Proximity, measured against the distance expected under local heritage density, has a median of 0.596, with 69% of scenic areas nearer to heritage than random; by grade the ratio runs from 0.309 at 5A to 0.783 at 2A. Heritage-anchored supply scales with heritage stock at an elasticity of 0.710 (spatial lag model, $t = 5.22$). In the pooled sample the national-level dummy is negative, but the sign reverses once heritage type is stratified. Traditional villages make up 68.0% of national-level and 53.8% of provincial-level heritage, and scenic counts around villages are one-seventh those around relic sites. Among developable relic types, national-level heritage therefore averages 3.82 scenic areas against 2.62 at provincial level. Cluster position adds a further several-fold gap. The inter-provincial gap loses significance once natural scenic areas are removed and spatial dependence controlled (0.700 under OLS, 0.162 under SAR, $t = 0.46$). These are descriptive results. The distance variable shares its data source with the dependent variable, confounders are uncontrolled, and no identification strategy is applied; no causal claim is made.

Keywords: cultural heritage, tourism supply, spatial correspondence, A-grade scenic areas, Bashu region

1. Introduction

1.1 A Received Judgement

In September 2026 the General Office of the CPC Central Committee and the General Office of the State Council issued the *Plan for the Protection and Transmission of Cultural Heritage during the 15th Five-Year Plan Period*. The plan sets the goal of a comprehensive heritage protection framework by 2030 and requires the systematic protection and unified supervision of cultural heritage (General Office of the CPC Central Committee & General Office of the State Council, 2026). It was prepared under the 15th Five-Year Plan outline approved in March 2026 (National People's Congress, 2026). The document calls for preventing the displacement of protection by reuse, of culture by tourism, and of heritage by excessive commercial development, extending the commitment made at the Third Plenary Session of the Twentieth Central Committee (CPC Central Committee, 2024).

Behind the requirement sits a widely accepted judgement: cultural heritage is readily neglected by the tourism system, and tourism development tends to bypass the heritage base and build anew. The

judgement is intuitive. Heritage protection emphasises authenticity and restraint, tourism development emphasises scale and volume, and the two appear to conflict by nature.

Intuition is not evidence. Unpacked, the judgement contains two testable propositions: whether cultural heritage is effectively absorbed by the tourism supply system in spatial terms, and whether that absorption follows the designation hierarchy. Both can be tested with site-level data, whereas earlier discussion has remained at the level of institutional description and case observation.

The distinction matters because the two propositions point to different remedies. If supply is spatially detached from heritage, the problem is one of allocation and the remedy is to redirect investment towards heritage. If supply is attached but distributed without regard to designation, the problem lies in how the two assessment systems articulate, and redirection would change little. A judgement that conflates the two can therefore justify an intervention that the evidence does not support. The point is not to adjudicate between protection and development, but to establish which of the two descriptions the spatial record actually fits.

1.2 What the Test Requires

Three conditions must hold. The unit of observation must be fine enough: aggregate comparison across administrative areas cannot establish whether supply sits next to heritage, so the analysis must descend to the site level. The measurement must withstand scrutiny: correlating one ratio with another produces mechanical correlation, and aggregating to administrative areas makes results sensitive to the zoning scheme. Variation must be sufficient: elevation spans 235 m to above 4,000 m, heritage is typologically complete, and Sichuan and Chongqing share a cultural region while having been administratively separate for under thirty years.

Correspondence itself needs definition. At its weakest it means co-presence: heritage and tourism supply occupying the same districts, which any aggregate count will show. At its strongest it means that the position of a scenic area is governed by the position of heritage, so that removing heritage would remove the scenic area. Between these lies the version adopted here, which asks whether scenic areas sit closer to heritage than the local distribution of heritage would lead one to expect, and whether the closeness varies systematically with the attributes of the heritage concerned. That version is measurable with point data and is falsifiable: a distribution indistinguishable from random placement would refute it.

1.3 Four Contributions

A site-level database of 6,312 records across four heritage categories and three designation tiers, each with name, category, level, batch, attribution, coordinates and elevation. Attribution reaches 100% and eight provincial and categorical counts match the source inventories item by item; 92.2% of relic sites, 94.8% of traditional villages and 96.5% of scenic areas carry site-specific coordinates.

A three-level diagnostic of correspondence. The spatial level uses relative distance to remove background density, the aggregate level uses level-on-level regression to avoid ratio coupling, and the structural level locates differentiation under a spatial lag model with spatially robust standard errors. The design avoids mechanical correlation, density bias in nearest-neighbour distance, modifiable-areal-unit bias, and inflated significance under spatial autocorrelation.

A separation of type, position and level. Scenic counts around national-level heritage are lower in the pooled sample, but the sign disappears once type is stratified: traditional villages make up a 14 percentage-point larger share of national-level heritage and have one-seventh the scenic count of relic sites. Within type, national-level heritage is higher rather than lower, and cluster position adds a further gap. Failing to separate the three yields the erroneous conclusion that designation does not matter.

A correction of one indicator misuse. Measuring heritage tourism supply by total scenic counts reads natural endowment as institutional performance: Sichuan is significantly higher than Chongqing

on the full count, but the gap vanishes once natural attractions are removed and spatial dependence controlled.

The first three contributions concern data and measurement, the fourth concerns method. The study is descriptive: it characterises the supply patterns associated with heritage type, cluster position and designation level without asserting causal direction. Exogenous variation sufficient for identification lies outside what these data provide, as Section 4.5 explains.

1.4 Three Untested Defaults in the Literature

Research on heritage and tourism commonly assumes three things.

That supply should follow heritage, and failure to follow constitutes failure. The assumption presumes that the reasonable location for tourism supply is close to heritage. Heritage geography has long argued that the spatial pattern of heritage is a product of power and culture rather than a natural projection of value (Ashworth et al., 2007; Graham et al., 2000), and the recognition and misrecognition of community heritage exposes the selectivity of designation (Waterton & Smith, 2010). Criteria for outstanding universal value have likewise been questioned for granting priority to particular heritage (Labadi, 2013), while heritage tourism in China is overlaid by the entrepreneurial logic of local governments (Su & Teo, 2009).

That the higher the designation, the more complete the conversion. Critical heritage studies hold that heritage is cultural practice rather than object, and that the authorised heritage discourse privileges particular forms of tangible heritage (Smith, 2006). Heritage is a selective adjustment of the present to the past, its boundaries drawn by contemporary needs and governmental technologies (Harrison, 2013), and critique should address those technologies rather than rest on value deconstruction (Winter, 2013). World Heritage designation does attract more inbound tourists (Yang et al., 2010), but the effect derives from brand and visibility rather than from rank as such. New cultural geography further treats nature, landscape, place and space as dimensions in the construction of meaning rather than passive containers of culture (Qian & Zhu, 2015).

The argument carries a consequence that is often left implicit. If designation is a claim-making practice rather than a measurement of value, then the rank a site carries records the outcome of a negotiation — among expert communities, local governments, and the developmental priorities of a given period — and not a quantity that later practice can be expected to track. Two corollaries follow. The first is that a mismatch between rank and provision would be unremarkable, since nothing in the construction of rank promises otherwise. The second, less often drawn, is that an absence of mismatch is equally unremarkable and carries no evaluative weight: a supply system can follow designation closely for reasons that have nothing to do with the worth of what is designated. Neither corollary licenses the inference that higher rank ought to attract more provision, which is what makes the proposition worth testing rather than assuming.

That mismatch is primarily spatial. The assumption has driven extensive calculation of coordination and mismatch indices, but the question is rarely asked whether observed non-coincidence is genuine locational deviation or an artefact of measurement.

1.5 Three Existing Approaches

Coordination indices computed at the administrative level are mature and intuitive, and suit large-scale comparison. Their limit is that the unit of observation is an administrative area, so results vary with the zoning scheme (Openshaw, 1984), and coordination indicates only whether two composite indices move together.

Work on the spatial distribution of intangible cultural heritage is the most developed strand. Nationally, intangible heritage is denser in the east than the west and clusters into cores, preferring flat terrain, agreeable climate and more developed local economies (Wu et al., 2015; Xu & Pan, 2018).

River-basin studies echo the pattern: the Yangtze Economic Belt forms three cores and two belts, the Yellow River Basin shows dispersed overall distribution with local clustering, and socioeconomic factors explain more than physical geography (J. Li et al., 2020; Nie et al., 2022; Tian et al., 2022). At provincial scale, researchers have applied a human–land relationship perspective (Meng et al., 2022) and multi-level data (Gu et al., 2025; Hu et al., 2024; Sun & Ma, 2026; Zhang et al., 2024). This strand explains why heritage is distributed where it is, but not whether tourism supply follows.

Studies of the conservation–tourism trade-off have shifted from calculating coordination to identifying conflict. One traces the contest in rural settlements at a World Heritage site through a process–pattern–mechanism–impact framework (Wang et al., 2026); another characterises coordination and its constraints using coupling and obstacle models (Zhou, 2026). Corridor identification for linear heritage such as the Ancient Tea-Horse Road forms a related branch (H. Li et al., 2021). These studies establish conflict but concentrate on individual cases.

Set side by side, the three approaches divide the terrain in a way that leaves one question untouched. The first sees whether two aggregates move together but not where the underlying objects lie. The second sees where heritage is but not what provision surrounds it. The third sees conflict within a place but cannot say whether the pattern recurs across places. Each is a view from a different altitude, and none reports the distance between the two sets of objects at the scale at which the objects exist. That gap is what a site-level measurement addresses, and it also explains why the aggregate findings of the first approach and the case findings of the third have been difficult to reconcile: they are not competing estimates of one quantity but descriptions of different quantities.

1.6 Research Questions

The gaps amount to one thing: a direct measurement, at site scale, of the positional and quantitative relationship between tourism supply and heritage, estimated without generating mechanical correlation.

Three successive questions follow. Is supply located close to heritage? Does aggregate supply grow in proportion to heritage stock, and does designation introduce an additional difference? If neither designation nor category explains allocation, where does differentiation lie? The third matters most: if both fail, the operative factor may be regional differences in development regimes, a possibility rarely tested directly.

2. Method

2.1 Study Area

The study covers 21 prefectures in Sichuan and 37 districts and counties in Chongqing, 58 units at county level or above, totalling approximately 568,000 km². The extent broadly coincides with the Chengdu–Chongqing Economic Circle, a nationally designated key development zone (CPC Central Committee & State Council, 2021).

Chongqing adjusted part of its administrative divisions in November 2025. Under the *Announcement on the Adjustment of the Administrative Divisions of Jiangbei, Yubei and Beibei Districts* (Yu Fu Fa [2025] No. 15), Jiangbei and Yubei Districts were abolished and Liangjiang New Area established, comprising the former Jiangbei, the former Yubei excluding five towns, and five sub-districts and towns detached from Beibei. Five towns of the former Yubei were transferred to Beibei, and the district and county total fell from 38 to 37. Heritage points in Jiangbei and Yubei were counted under their original attribution and transferred wholesale to Liangjiang New Area; sub-districts and towns detached from or transferred to Beibei were counted under Beibei. Socioeconomic averages for 2021–2025 cannot be disaggregated under the new configuration, so the unit analysis uses only point counts and area.

Elevation spans 235 m to above 4,000 m, across the Sichuan Basin, the surrounding mountains, the western Sichuan plateau and the Wuling mountains. The spatial base appears in Figures 1 to 7: Figures 1 to 3 relate traditional villages to watercourses and roads, Figures 4 to 6 map relic sites, intangible heritage items and historic villages, and Figure 7 places intangible heritage alongside scenic areas.

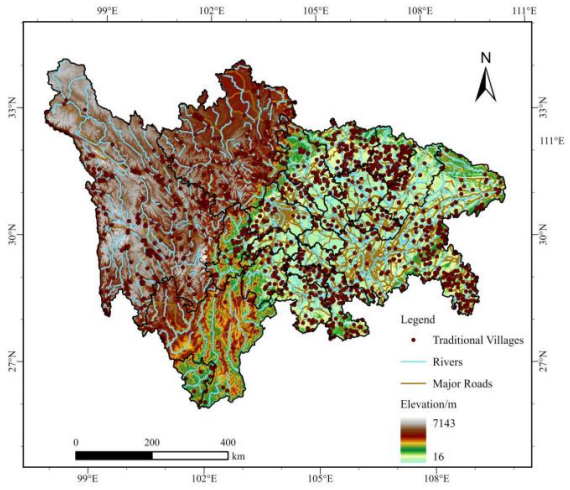


Figure 1. Traditional villages, watercourses and major roads in the Bashu region.

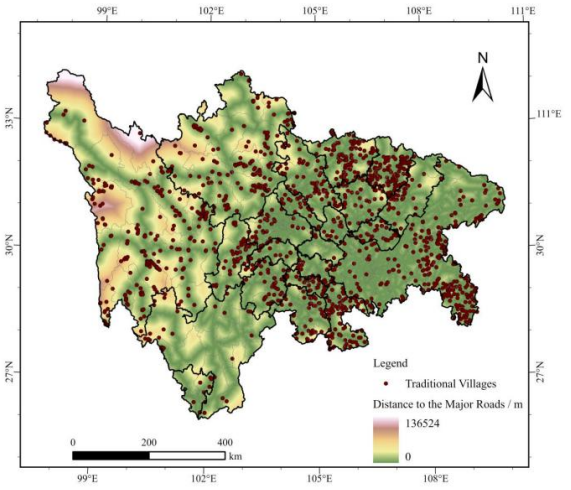


Figure 2. Buffer analysis of major roads.

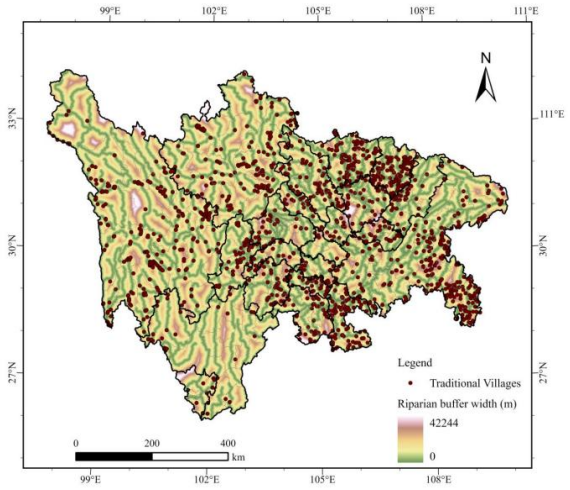


Figure 3. Buffer analysis of major rivers.

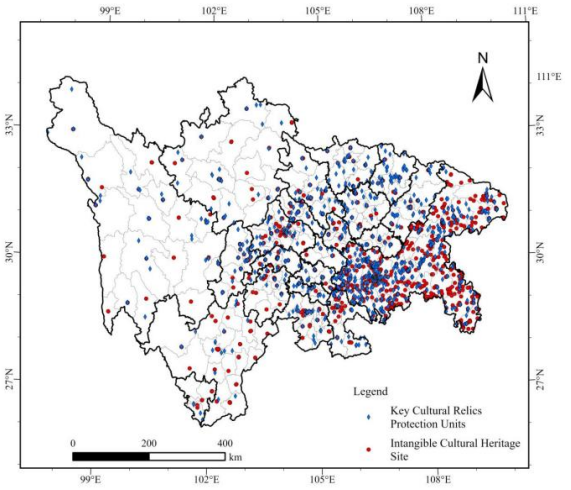


Figure 4. Protected cultural relic sites and intangible cultural heritage items.

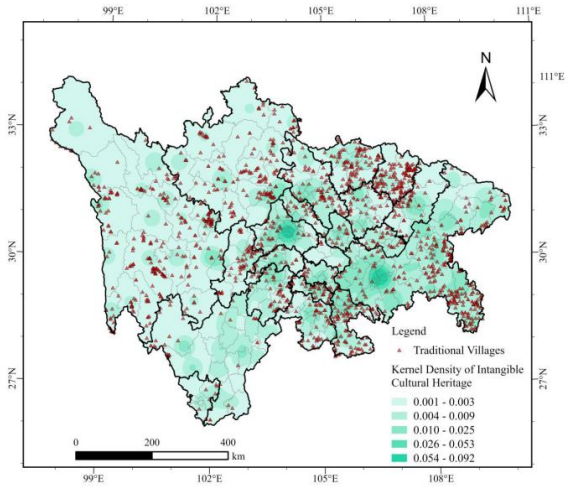


Figure 5. Traditional villages.

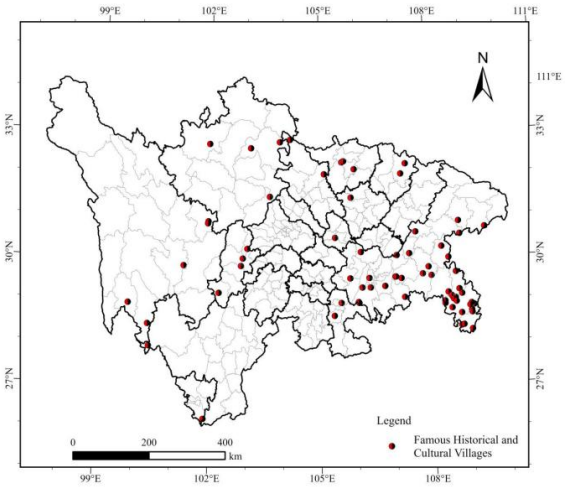


Figure 6. National-level historic and cultural villages.

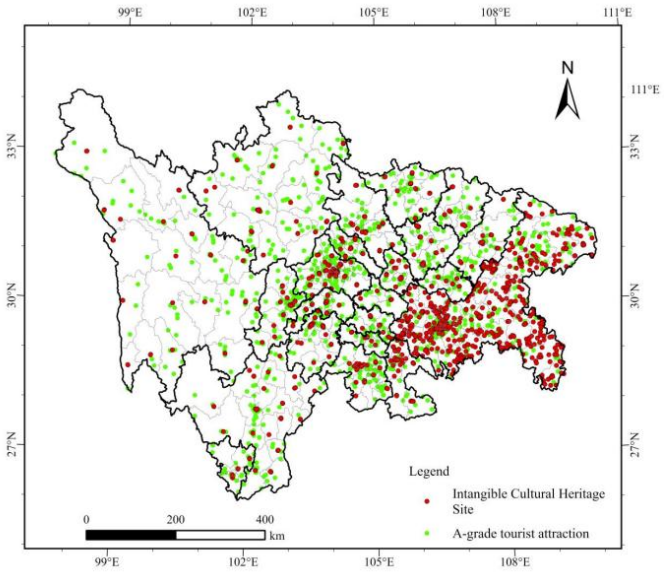


Figure 7. Intangible cultural heritage items and A-grade scenic areas.

2.2 Database Construction

All four categories take the names published in national and provincial inventories as the starting point, each record geocoded and verified by hand. Protected cultural relic sites are designated under the *Law on the Protection of Cultural Relics* (Standing Committee of the National People's Congress, 2024); A-grade scenic areas are assessed under *Classification and Evaluation of Quality Grades of Tourist Attractions* (General Administration of Quality Supervision, Inspection and Quarantine, 2003). The two systems have unrelated assessing bodies and standards, which is the premise for the comparison below. Table 1 reports the composition.

Table 1
Composition and Designation Structure of the Four Heritage Categories

Category	Records	Sichuan / Chongqing	Designation structure
Protected cultural relic sites	1,177	646 / 531	National 266, provincial 911
Intangible cultural heritage	2,205	1,390 / 815	National 206, provincial 1,999

Category	Records	Sichuan / Chongqing	Designation structure
Traditional villages	1,622	1,325 / 297	National 560, provincial 1,062
A-grade scenic areas	1,308	979 / 329	5A 30, 4A 514, 3A 648, 2A 113, 1A 3

Attribution follows three rules. Intangible heritage uses the location field, which corresponds to the 58 canonical units; relic sites are parsed from the address field; villages are parsed from the village name, the original prefecture field being discarded because of filling errors in the Chongqing rows. Development zones and abolished districts are merged under the current division, with Wansheng merged into Qijiang. Attribution reaches 100% and the eight subtotals match the source tables.

Coordinate quality sets the analytical scope. Distinct coordinates account for 92.2% of relic sites, 94.8% of villages and 96.5% of scenic areas, all site-specific. Intangible heritage reaches only 54.8%, its coordinates anchored at the declaring institution in the county seat rather than where the practice occurs. Point analysis therefore uses the three site-specific categories, 4,107 points.

Distances use an equirectangular projection referenced to 30.5°N, with 1° of latitude equal to 110.57 km and 1° of longitude to 95.9 km, giving errors below 2% at 20 km.

Names and levels come from inventory texts; area from the administrative area column of provincial yearbooks, matched by name, with the publication year lagging the reference year by one. No climatic or socioeconomic variables enter the unit analysis. All maps derive from the Standard Map Service System, approval number GS (2024) 0650, unmodified. Heritage coordinates were located and entered by the research team using the coordinate picker in Amap.

2.3 Three-Level Diagnostic

Spatial. For each scenic area the Euclidean distance to the nearest heritage point is computed, as in Equation (1):

$$d_i = \min_{j \in H} \sqrt{\left(x_i - x_j\right)^2 + \left(y_i - y_j\right)^2} \tag{1}$$

The criterion is the ratio of this distance to the spacing among heritage points, not the distance itself; comparable magnitudes indicate that supply is embedded in the heritage fabric. The level uses coordinates only, so it is immune to the modifiable areal unit problem.

Aggregate. Heritage is split by designation into a national contribution G and a provincial contribution L, as in Equations (2) and (3):

$$G_i = 3N_i^{I} + 2M_i^{n} + 2V_i^{n}, L_i = N_i^{II} + M_i^{p} + V_i^{p} \tag{2}$$

$$T_i = 5A_i^{5} + 3A_i^{4} + A_i^{3} + 0.5A_i^{2} + 0.2A_i^{1} \tag{3}$$

where N^{I} and N^{II} count national and provincial relic sites, M intangible heritage items, V traditional villages, and T is the supply score. Comparable coefficients on G and L would imply that designation adds nothing; a significantly lower coefficient on G would establish designation mismatch. No ratio is constructed.

The three levels are not three tests of one hypothesis but an ordered decomposition, and the order matters. A spatial measure answers whether the two sets of objects occupy the same ground. An aggregate measure answers whether the quantity of provision rises with the quantity of heritage. A structural measure answers which attribute of heritage, if any, governs the ratio between them. Each later level presupposes the earlier: a volumetric relation is uninterpretable if the two sets occupy different ground, and an attribute effect is uninterpretable if provision simply scales with stock. Reading the levels out of order produces the familiar confusion in which a correlation between shares is taken as evidence about placement.

Structural. Designation structure, category structure and a provincial dummy are entered in turn after heritage stock and area, as in Equation (4):

$$ln(T_i + 1) = \alpha + \beta_1 ln(N_i + 1) + \beta_2 lnA_i + \beta_3 Z_i + \varepsilon_i \quad (4)$$

2.4 Estimation

Point distances are described by medians and interquartile ranges and compared across scenic grades, standard practice in point-pattern analysis (Diggle, 2013). Because absolute distance is confounded by background density, a relative distance is computed as in Equation (5):

$$d_i^{rel} = \frac{d_i}{0.5/\sqrt{\lambda_i}}, \lambda_i = \frac{k_i}{\pi R^2} \quad (5)$$

where k_i counts heritage points within radius R (25 km) and λ_i is local density. A value of one indicates no departure from randomness. Radii of 15 km and 40 km serve as checks.

Equation (4) is estimated by least squares, then by a spatial lag model where residual Moran's I is significant, as in Equation (6):

$$ln(T_i + 1) = \rho \sum_j w_{ij} ln(T_j + 1) + \beta_1 ln(N_i + 1) + \beta_2 lnA_i + \beta_3 P_i + \varepsilon_i \quad (6)$$

Weights are row-standardised over the four nearest units (Anselin, 1995; Getis & Ord, 1992), and estimation is by two-stage least squares with spatial and second-order lags as instruments (Kelejian & Prucha, 1998). Spatially robust standard errors use a Bartlett kernel with a 150 km cutoff (Conley, 1999), and both versions are reported.

Clusters are identified by DBSCAN with a 15 km radius and ten-point minimum (Ester et al., 1996), checked at four alternative settings. Clusters spanning administrative units raise questions of boundaries and governance scale (Newman, 2006; Paasi, 1996) and of inter-jurisdictional collaboration costs (Feiock, 2013), but here they describe spatial form only.

The unit models use relic sites and villages only. With 54.8% of intangible heritage coordinates distinct and anchored at county institutions, explaining scenic counts with them is a low-precision proxy explaining a high-precision variable. Intangible heritage therefore appears only in descriptive statistics and institutional discussion.

3. Results

3.1 The Heritage Base

Totals are substantial and structure uneven. The national contribution G peaks in Ganzi Prefecture, followed by Aba and Chengdu, and is lowest in Dianjiang, Bishan and Chengkou. Heritage records range from 13 to 687 weighted points, a 53-fold span, with high values in the western plateau and southern Sichuan and low values in western Chongqing and the margins of the Chengdu Plain.

Type structure varies more. Ganzi holds 302 traditional villages, 55% of its records, against only 48 relic sites. Yuzhong holds 71 relic sites and no villages. Luzhou has 87 intangible heritage items and 34 scenic areas. These are not differences in quantity but the historical coupling of heritage form with regional modes of activity: heritage in the highlands persists as settlement, heritage in the urban core as buildings and modern historical sites.

Scenic areas are equally uneven, densest in the Chengdu Plain and around the Chongqing core, with western Sichuan dominated by high-grade natural attractions.

3.2 Supply Sits Close to Heritage

Where heritage is dense, any location lies close to it, so a small absolute distance reflects background density rather than preference. The relative distance corrects for this by comparing the observed distance with the value expected under local density. Results by grade appear in Table 2.

Table 2
Relative Distance From Scenic Areas to the Nearest Heritage Point, by Grade

Grade	*n*	Median absolute distance (km)	Median relative distance	Interquartile range	Share below 1
5A	30	1.81	0.309	0.122–0.854	80%
4A	514	2.51	0.445	0.127–1.049	74%
3A	648	4.98	0.691	0.231–1.227	66%
2A	113	5.96	0.783	0.283–1.286	58%
All	1,308	4.11	0.596	0.171–1.140	69%

The median relative distance is 0.596, so actual distances are six-tenths of the random expectation, and 69% of scenic areas fall on the nearer side. Once local heritage density is removed, supply still displays a clear preference for proximity to heritage.

The grade gradient is monotonic: 0.309 at 5A against 0.783 at 2A, and the share below one falls from 80% to 58%. Higher-grade supply tends to locate where heritage is dense, and this tendency does not vary with local density. Checks at radii of 15 km and 40 km give medians of 0.526 and 0.586 with 73% and 68% below one. Figure 8 shows the cumulative distributions, which preserve the ordering at every distance.

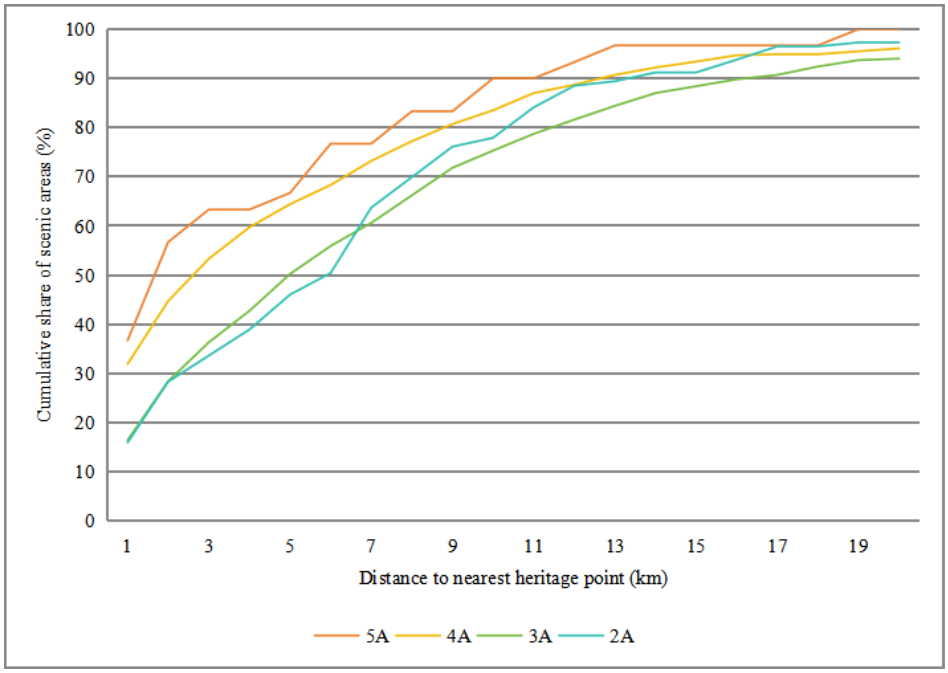


Figure 8. Cumulative distance distribution from scenic areas to the nearest heritage point, by grade.

Vertically the pattern repeats. Across nine elevation bands the largest deviation between the shares of heritage points and scenic areas is 2 percentage points: 43.9% against 41.9% in the 0–500 m band, 25.9% against 24.2% in the 500–1,000 m band, and under 10% above 1,000 m (Figure 9).

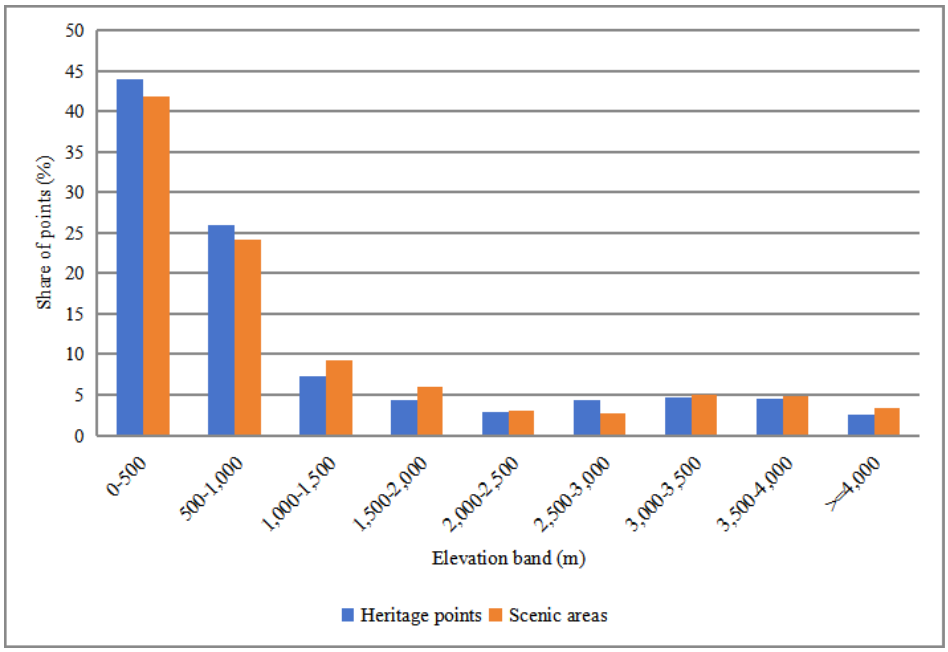


Figure 9. Elevation-band distribution of heritage points and scenic areas.

Scenic areas include many natural attractions, which also lie close to heritage; natural and cultural attractions are intermingled rather than substituting for one another.

3.3 Supply Grows With Heritage Stock

Counting all 1,308 scenic areas into the supply score includes many natural attractions — Jiuzhaigou, Huanglong, Yading and Mount Siguniang in western Sichuan, Jinfoshan and the Wulong karst in southeastern Chongqing — none dependent on cultural heritage. Regressing a variable thus contaminated on heritage-only predictors means that the provincial term is likely to capture natural landscape.

Scenic areas within 1 km of site-specific heritage are therefore treated as heritage-anchored: 355 in all, or 27.1%, the remaining 953 non-anchored. By province, Sichuan has 245 of 979 anchored (25%) and Chongqing 110 of 329 (33%). Chongqing's total scenic count is one-third of Sichuan's, yet its anchored share is higher.

Table 3
Heritage-Anchored Scenic Areas and Supply Scores

Province	Scenic areas	Anchored	Anchored share	Supply score, all	Supply score, anchored	Anchored share of score
Sichuan	979	245	25%	1,710.9	482.5	28%
Chongqing	329	110	33%	686.2	273.2	40%

Table 4
*Structural Model of Heritage-Anchored Supply (Dependent Variable: ln(*T + 1*),* n = *58)*

Variable	OLS	Conley *t*	SAR	SAR *t*
ln heritage records	0.742	5.66	0.710	5.22
ln area	−0.234	−3.34	−0.171	−1.78
Sichuan (dummy)	0.700	2.34	0.162	0.46
Wy (spatial lag)	—	—	0.558	2.82
Residual Moran's *I*	0.081		−0.145	

Note. OLS = ordinary least squares; SAR = spatial autoregressive (spatial lag) model.

Anchored supply scales with heritage stock at 0.710 (t = 5.22). Area turns negative (−0.171): larger jurisdictions have thinner anchored supply per unit area.

The provincial term is decisive. With all scenic areas the Sichuan coefficient is 0.615 (t = 4.02); with anchored supply the OLS coefficient is 0.700 (t = 2.34), but once a spatial lag enters it falls to 0.162, with t = 0.46.

The earlier difference therefore has another source. Table 3 shows Sichuan's total count is 2.98 times Chongqing's while its anchored count is 2.23 times; Chongqing's anchored share is higher. Measuring heritage tourism supply on the full count reads natural endowment as institutional difference. The gap disappears once natural attractions are removed.

3.4 Type, Position and Level

If supply were allocated by designation rank, more scenic areas should cluster around higher-level heritage. Two independent approaches test this, and their apparently contradictory results are reconciled by distributional structure.

Treating each heritage point as an observation, Table 5 reports count models of scenic areas within 5 km. Of 2,799 points, 1,539 (55.0%) have none, and the variance-to-mean ratio of 9.68 indicates pronounced overdispersion and zero inflation.

Table 5
*Count Models of Scenic Areas Within 5 km (*n = *2,799)*

Model	National dummy	Robust *SE*	*z*	IRR	Diagnostics
Poisson	−0.134	0.088	−1.52	0.87	—
NB2	−0.134	0.464	−0.29	0.87	α = 3.21; LR = 6,781.0
ZIP	−0.244	0.094	−2.59	0.78	π = 0.528; Vuong = 10.18

Note. NB2 = negative binomial; ZIP = zero-inflated Poisson; IRR = incidence rate ratio; LR = likelihood ratio.

The Vuong test favours ZIP over Poisson (10.18 > 1.96) and the likelihood-ratio test favours NB2 over Poisson (LR = 6,781.0). The two models differ on significance but agree on direction. In all three the national dummy is negative: national-level points do not have more scenic areas around them than provincial-level points. Whether the difference is significantly negative or indistinguishable depends on the treatment of zero inflation and overdispersion; both are reported without adjudication. The proposition that national-level heritage attracts more scenic areas is rejected under all three.

A lower global mean does not mean national-level heritage plays no role in clusters. Table 6 groups points by distance to the nearest national-level heritage and reports mean scenic counts within 5 km.

Table 6
Mean Scenic Areas Within 5 km, by Cluster Position

Distance to nearest national heritage	Provincial points	Mean	Distance to nearest other national heritage	National points	Mean
0–1 km	387	3.80	0–1 km	119	4.55
1–2 km	135	3.20	1–2 km	74	2.20
2–5 km	277	1.86	2–5 km	131	0.95
5–10 km	405	0.55	5–10 km	208	0.49
10–20 km	473	0.44	10–20 km	205	0.58
Beyond 20 km	296	0.49	Beyond 20 km	89	0.53

Both curves are steep and converge beyond 5 km to between 0.44 and 0.58. Provincial points at the core average 3.80 against 0.49 beyond 20 km, nearly eightfold; the national gap runs from 4.55 to 0.53. Heritage of the same level attracts several times more supply depending on cluster position, and that gap far exceeds the difference between levels.

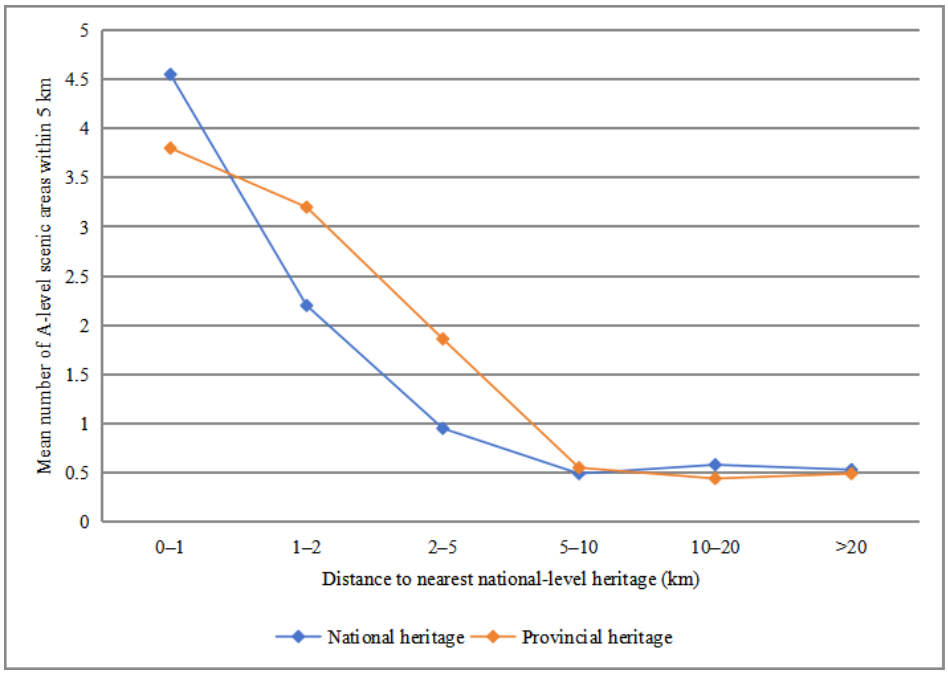


Figure 10. Mean scenic areas by cluster position.

The curves cross: national points lead in the core band, provincial points in the 1–5 km bands, and the two converge beyond 5 km. Provincial points are numerous and form a dense secondary ring, while national points are either concentrated at the core or scattered at the periphery. Either way, the gap within 5 km is far smaller than the gap each curve shows between 0 and 20 km.

The banded presentation also displaces an earlier approach that excluded provincial sites near national heritage at a fixed radius, where the resulting mean varied with the radius (0.96 at 1 km, 0.75 at 2 km, 0.59 at 3 km) and the threshold had no justification.

Table 7
Distributional Structure of National-Level and Provincial-Level Heritage

Grouping	National	Provincial
Share at cluster core (within 1 km)	14.4%	19.6%
Mean scenic areas at the core	4.55	3.80
Mean scenic areas, full sample	1.328	1.517

Only 14.4% of national-level heritage lies at a cluster core, against 19.6% of provincial-level heritage. National-level heritage is more often isolated, which lowers its full-sample mean, yet inside a cluster its pull is stronger. The two pathways together produce the negative coefficient in Table 5 and the core lead in Table 6.

One qualification. For national-level points the distance to the nearest national-level heritage excludes the point itself, while for provincial-level points no exclusion applies, so the asymmetry inflates the national distance distribution. The negative coefficient should be read as national-level points being less often adjacent to other national-level heritage, not as national-level heritage suppressing supply.

Grade matching is weak. Grouping scenic areas by the level of the nearest heritage gives 44.3% at 5A or 4A for national-level and 40.3% for provincial-level, a difference of 4.0 percentage points. A chi-square test returns $\chi^2 = 1.93$ ($df = 1$), or 1.77 with continuity correction, both below 3.84, so the difference does not hold.

Table 8
Grade Composition of Scenic Areas by Nearest Heritage Level

Nearest heritage level	*n*	5A	4A	5A + 4A share	Mean grade
National	436	11	182	44.3%	1.89
Provincial	872	19	332	40.3%	1.80

Type composition is the remaining explanation. Convertibility differs across types: an ancient building can be adapted for exhibition, an archaeological site or tomb cannot. Hard-to-develop types make up 35.3% of national-level and 25.1% of provincial-level relic sites. More important, traditional villages account for 68.0% of national-level and 53.8% of provincial-level heritage, and villages have far fewer scenic areas around them.

Table 9
National Versus Provincial Comparison After Stratifying by Heritage Type

Sample	National (*n*)	Mean	Provincial (*n*)	Mean	Difference
All heritage points	826	1.326	1,973	1.516	−0.191
Relic sites only	266	3.094	911	2.796	+0.298
Relic sites, developable types	172	3.820	682	2.616	+1.204
Traditional villages only	560	0.486	1,062	0.419	+0.067

The negative sign disappears once type is stratified. The pooled coefficient is entirely a matter of composition: villages are 14 percentage points more prevalent among national-level heritage and have one-seventh the scenic count of relic sites. Within relic sites national-level heritage is higher, and among developable relic types it is 46% higher. At 10 km the comparison is 7.058 against 4.982.

The earlier judgement based on the pooled sample is therefore overturned. Designation operates within a category; the conclusion that it does not matter was an artefact of pooling villages with relic sites. Type matters most, with a sevenfold gap between villages and relic sites; position comes next, with several-fold differences within a type; designation matters least, with gaps between zero and 40% within a type.

The ordering carries an implication for how the heritage system should be understood. Villages and relic sites are not variants of one thing whose difference can be netted out by weighting; they are different kinds of object with different relations to land, ownership and use. A village is inhabited, and turning it into a scenic area requires negotiating with the people who live there. A relic site is usually an enclosed object with a managing institution. The sevenfold gap between them is not a difference of degree but a difference in what conversion entails, and no reweighting of the two will make them comparable. This is why the pooled coefficient, however precisely estimated, described an object that does not exist.

The split between the two designation contributions is not identified. G and L correlate at 0.94; with all scenic areas the national contribution is significant (0.657, $t = 5.01$) and the provincial one is not, while with anchored supply the reverse holds (0.064, $t = 0.61$; 0.754, $t = 4.31$). Opposite conclusions from one dataset under two dependent variables indicate that the independent effects cannot be separated from 58 units, and no claim is made about their relative magnitude.

3.5 Robustness

With all scenic areas the global Moran's *I* of OLS residuals is 0.155, falling to −0.029 under SAR; with anchored supply the values are 0.081 and −0.145. The supply score itself has a Moran's *I* of 0.445 with a permutation *p* of 0.001 over 999 replications.

Conley standard errors raise the t on heritage stock from 5.10 to 5.66 and change that on area from −2.34 to −3.34. The provincial dummy has $t = 4.16$ on the full count and 2.34 on the anchored count, but 2.67 and 0.46 under SAR. The conclusion is highly sensitive to whether spatial lag is controlled, which is why Section 3.3 concludes that the inter-provincial difference does not hold.

Reclassifying the anchoring threshold at 0.5 km or 2 km gives 213 and 512 anchored areas, an elasticity between 0.68 and 0.74, and SAR t values of 0.52 and 0.38. VIFs for G and L are about 8.6, and all variables in Table 4 fall below 2.5.

At the 15 km and ten-point setting, 4,107 site-specific points form 61 clusters with 1,063 noise points (25.9%), and 82.5% of points lie in clusters spanning two or more administrative units. Because Sichuan units are prefectures and Chongqing units are districts, the span appears as inter-prefectural in one and inter-district in the other. Both are units immediately below the provincial government, but their territorial scale differs greatly, so the description is confined to spatial form. Figure 11 maps the distribution and cluster membership.

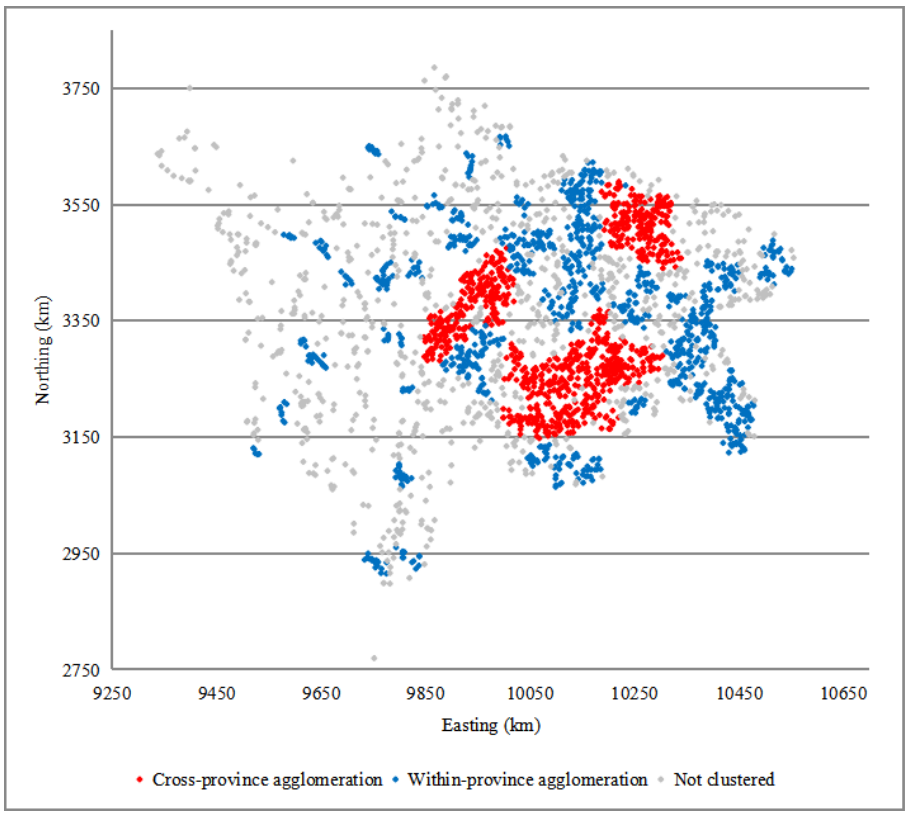


Figure 11. Spatial distribution and cluster membership of site-specific heritage points and scenic areas.

4. Discussion

4.1 Proximity Is Not Conversion

Spatial proximity indicates attachment in locational choice; it does not imply that heritage value has been benignly converted. Over-commercialised development immediately adjacent to a protection area is proximal in exactly the same sense, and such cases are commonly treated as the archetype of tourism displacing culture. A small relative distance shows that supply has not abandoned heritage for

another location; it says nothing about how supply intervenes, still less about whether the intervention is appropriate.

A high supply score does not mean many visitors either. A-grade assessment measures facilities and management, and a newly built scenic area with sparse traffic can be accredited provided its facilities meet the standard.

Within these boundaries, the judgement that can be established is that local governments have generally not abandoned heritage to build elsewhere, nor allocated by designation rank. This overturns two popular judgements — that heritage and tourism are spatially detached, and that local governments favour national designations while neglecting provincial ones — but it does not evaluate whether development is good or bad.

The limitation is not incidental to the finding; it inverts the policy reading. A system in which provision is sparse around important heritage invites the inference that more provision is needed. A system in which provision is dense around it invites the opposite inference, that the question is what kind of provision and on what terms. The same measurement that refutes detachment also removes the warrant for expansion, and this is the sense in which the descriptive result has practical content despite making no causal claim.

4.2 Why Type Dominates

The pooled negative coefficient disappears under stratification. Traditional villages make up 68.0% of national-level and 53.8% of provincial-level heritage, and villages have one-seventh the scenic count of relic sites (0.49 against 3.09). Within types the ordering reverses.

The claim that designation does not matter is thus an artefact of pooling. It also illustrates the risk, in heritage research, of placing designation outcomes for different types into a single regression: composition effects will be misread either as an effect of designation or as its absence.

Interpretation of position requires caution. The distance variable is defined by the spatial geometry of the heritage points, so where national-level heritage is dense, every point's distance to the nearest national-level heritage is shorter by construction. Short distance and abundant supply are in part two statements of the same fact.

Two categories of cost face a local government creating a scenic area: resource consolidation — land acquisition, demolition, resettlement, inter-departmental coordination — and infrastructure, including roads, visitor centres, parking and sanitation. An isolated heritage point bears both in full and cannot appropriate the returns exclusively, whereas a point inside a cluster can share roads, visitor centres and joint applications, diluting per-unit provision cost. If this mechanism holds, agglomeration internalises the externalities of dispersed points.

The logic has a corollary that distinguishes it from a simple density story. Under a density story, provision would rise smoothly with the number of nearby heritage points. Under a cost-sharing story, provision should rise discontinuously at the threshold where a group of points becomes jointly developable, and the jump should be larger where the points are heterogeneous enough to complement one another — a relic site supplying the interpretive centre, a village supplying accommodation and labour. The gradient in Table 6 is steep between the first and third bands and flat thereafter, which is consistent with a threshold rather than a smooth density response, though the data cannot distinguish the two.

Transaction costs and shared infrastructure serve here only as an interpretive framework: there are no transaction-cost data, no records of shared provision and no archives of joint applications. At least two competing explanations are equally plausible. The Chengdu Plain is both heritage-dense and economically developed with good transport and a large visitor base, so concentration may reflect market conditions. Natural and cultural attractions are also intermingled in space, so proximity may simply reflect both falling in habitable, accessible and densely populated terrain. Until economic, transport and accessibility variables are controlled, the mechanism remains a hypothesis.

The implications for critical heritage studies should be narrowed as well. The authorised heritage discourse concerns the selectivity of designation — what is designated and whose memory is included (Smith, 2006). What is tested here is whether a given designation level predicts development location. Allocation not following designation and the selectivity of designation are questions at different levels, and a finding on the former cannot serve as a correction to the latter.

What the finding does bear on is a narrower but still consequential claim within that literature. The claim is that the hierarchy of designation organizes practice beyond the administrative sphere, so that a site designated at national level can expect treatment commensurate with its rank across the whole range of uses. The evidence here suggests otherwise. Rank organizes the allocation of conservation resources, where it is legible and enforceable, and loses force where allocation is governed by the geometry of clusters and the composition of types. The hierarchy is thus better described as a partial ordering that holds within domains rather than a general principle of valorisation.

4.3 Why the Provincial Difference Is Spurious

With all 1,308 scenic areas, supply in Sichuan is significantly higher than in Chongqing (0.615, t = 4.02), and the difference survives spatially robust standard errors (t = 4.16). With anchored scenic areas the conclusion reverses: Sichuan has 245 against Chongqing's 110, only 2.23 times as many, while the total counts differ 2.98-fold; Chongqing's anchored share of 33% exceeds Sichuan's 25%. The provincial coefficient falls from 0.700 under OLS to 0.162 with a spatial lag.

The source of the problem lies in the dependent variable. Jiuzhaigou, Huanglong, Yading and Mount Siguniang, and Jinfoshan and the Wulong karst, are natural attractions unrelated to cultural heritage. Counting them as heritage tourism supply substitutes natural abundance for heritage conversion, and Sichuan's natural endowment is more pronounced. The problem is general: undifferentiated use of scenic counts is likely to read resource endowment as institutional performance, and the anchored subset should at least be separated out.

4.4 Policy Implications

Supply sits close to heritage and very close indeed: the median relative distance is 0.596, and one-fifth of scenic areas lie at less than three-tenths of the random expectation. The risk lies not in absent development but in density. Instruments should shift from quantitative encouragement or restriction towards spatial use regulation — buffer zones in heritage-dense areas, constraints on bulk, height and activity mix, limits on constructed landscapes.

Regulatory units should be defined by area rather than by point. The basis is the cluster-position gradient, not the cluster boundaries themselves, which are sensitive to parameter choice. The descriptive fact is that supply responds to clusters rather than to individual points, whereas regulation is bounded by individual protection scopes and construction control zones. The causal direction between position and supply remains unidentified, so this is an inference from spatial pattern rather than a corollary of causal finding. Specific areas must be determined through local planning rather than derived from clustering.

Designation rank should not serve as the allocation basis. Supply does not differentiate by designation in location and grade matching is not significant, so differential allocation in the name of prioritising important heritage lacks foundation. Regulatory intensity should be set by heritage density instead.

A regulatory regime keyed to clusters rather than points would also change what counts as compliance. Under point-based regulation, a development is assessed against the protection scope of the site it adjoins, so a facility sited just outside several scopes faces no single assessment. Under cluster-based regulation, the unit of assessment would be the group, and the cumulative load across a group of adjacent sites would become visible in a way that separate assessments cannot reveal. This is a modest

proposal: it does not require new statutory categories, only that existing instruments be applied to a differently drawn unit.

The requirement to prevent tourism displacing culture needs specification. In the Bashu region tourism supply is generally built close to heritage and has not systematically bypassed it, so the emphasis is probably not on limiting quantity but on constraining the manner of intervention. Integrated protection of linear heritage such as the Shu Road and the Ancient Tea-Horse Road likewise has a spatial foundation, since facilities along these corridors already exist.

Sequencing matters as much as the choice of instrument. The supply response is concentrated near the cluster core. A phased approach — designating the core of each cluster as a regulated zone first, then extending outward as monitoring capacity allows — would therefore cover most of the exposed supply at a fraction of the administrative cost. Evaluation should follow the same logic. Indicators that count scenic areas per administrative unit cannot detect whether regulation changed the manner of development, whereas indicators recording construction volume and activity mix within a buffer can. The distinction between counting and monitoring is the practical form of the argument that proximity is not conversion.

4.5 Scope Conditions

Measurement. Supply is measured by the number and grade of A-grade scenic areas, without visitor numbers or tourism revenue. Unit-level visitor and revenue figures differ in definition and are scattered across sources, and demand statistics carry considerable error at district scale. The discussion therefore concerns the spatial allocation of supply rather than the actual use of heritage, and the results should be read as statements about supply structure.

Identification. Cluster position is defined by the spatial geometry of the heritage points and shares a coordinate dataset with the dependent variable, so short distance and abundant supply are in part the same fact. Economic level, transport accessibility, population density and visitor markets are uncontrolled, and no instrument, boundary discontinuity or matching design is deployed. Two reports of the same spatial fact cannot support a causal reading, and none is offered: a reliable description is preferred to an unreliable causal claim.

Parameters. The 1 km anchoring threshold, the grade weights behind the supply score and the number of spatial neighbours are conventional choices. Substituting 0.5 km or 2 km, unweighted counts, or five and six neighbours leaves the direction of every result unchanged, but the values themselves are approximations rather than findings.

Sample. With $n = 58$ the insignificance of the provincial dummy indicates that this sample provides no supporting evidence, not that the difference is zero. Intangible heritage is excluded because its coordinates are anchored at county-level institutions, which restricts the heritage system to the tangible and settlement dimensions, and the four inventories cover designated heritage only.

5. Conclusion

Drawing on 6,312 heritage points and 1,308 A-grade scenic areas, the spatial correspondence between heritage and tourism supply is characterised at spatial, aggregate and structural levels. Four findings emerge, all descriptive.

Supply sits close to heritage. Once background density is removed, distances to the nearest heritage point are 0.596 times the local random expectation, with 69% nearer than random; the ratio runs from 0.309 at 5A to 0.783 at 2A, holding at radii of 15, 25 and 40 km.

The supply pattern is associated with heritage type and cluster position, with designation operating within type. The national dummy is negative in the pooled sample but the sign disappears under stratification, the negative value arising from composition: villages make up 68.0% of national-level and 53.8% of provincial-level heritage and have one-seventh the scenic count of relic sites. Among

developable relic types national-level heritage averages 3.82 against 2.62. Within a type, cluster position adds a several-fold gap, with provincial points within 1 km of national-level heritage averaging 3.80 against 0.49 beyond 20 km. That designation does not matter is an artefact of pooling types.

The inter-provincial difference is not supported in this sample. With all scenic areas Sichuan is significantly higher (0.615, $t = 4.02$); once natural attractions are removed and spatial dependence controlled the coefficient falls to 0.162 with $t = 0.46$. Given that the full count incorporates natural endowment, the earlier significance more likely reflects endowment than institutional difference.

Anchored supply grows with heritage stock, at an elasticity of 0.710 ($t = 5.22$).

Two implications follow. The claim that important heritage is neglected is a judgement to be tested rather than presumed, and no evidence supporting it appears here. Measuring heritage tourism supply by total scenic counts also requires correction, since without removing natural attractions resource endowment is read as institutional performance. On policy, absence and excess must be distinguished: proximity shows that facility provision has not detached from heritage, and if a concern exists its form should be over-dense rather than absent development. The buffer zones and use regulation proposed on this basis are inferences from spatial pattern, not corollaries of causal finding.

Beyond the specific results, the exercise carries a methodological lesson that extends to any study relating a protected stock to an infrastructure that serves it. The ratio of one to the other is the natural summary and the one most often computed, yet it embeds the stock in both numerator and denominator and so manufactures the association it is meant to detect. Working with levels, separating the serving infrastructure by whether it serves the stock at all, and stratifying by the kind of object concerned are not refinements to be added after the fact; they determine whether the resulting number describes anything. In the present case each step changed the answer: removing natural attractions reversed the provincial comparison, and stratifying by type reversed the sign of the designation coefficient.

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