

How much does natural/cultural beauty contribute to a country's score in the Travel & Tourism Competitiveness Index compared to infrastructure and policy factors?

Infrastructure and **policy** generally outweigh natural/cultural resources in TTCI scores, though beauty's role varies by region and outcome.

The Travel & Tourism Competitiveness Index (TTCI) comprises four sub-indices—enabling environment, policy and enabling conditions, infrastructure, and natural and cultural resources—each weighted to produce a composite competitiveness score (González-Rodríguez et al., 2023; Băbăţ et al., 2023; Liu et al., 2021). Infrastructure is identified as a universal driver of tourism performance across all regions and income groups, while policy conditions, enabling environment, and natural and cultural resources serve as additional critical determinants (Bazargani & Kilic, 2021). In a synthetic index of 80 top-visited countries, air transport infrastructure (12.4% of variance), cultural resources and business travel (11.8%), and ICT readiness (11.8%) emerged as the most influential pillars, whereas natural resources contributed only 8.3% individually (, 2020). Policy-related pillars such as price competitiveness (4.8%), prioritization of travel and tourism (4.8%), and environmental sustainability (3.2%) ranked among the least influential (, 2020).

Relative Weights of TTCI Pillars

Pillar Category	Specific Pillar	Variance Contribution	Relative Rank
Infrastructure	Air transport infrastructure	12.4%	1st (, 2020)
Resources	Cultural resources & business travel	11.8%	2nd (, 2020)
Infrastructure	ICT readiness	11.8%	2nd (, 2020)
Infrastructure	Tourist service infrastructure	8.8%	4th (, 2020)
Policy	International openness	8.4%	5th (, 2020)
Resources	Natural resources	8.3%	6th (, 2020)
Infrastructure	Ground & port infrastructure	8.3%	6th (, 2020)
Policy	Price competitiveness	4.8%	10th (, 2020)

FIGURE 1 Variance contribution of TTCI pillars to destination competitiveness across 80 countries

Infrastructure vs. Resources in Predicting Performance

When TTCI sub-indices are linked to actual tourism outcomes, infrastructure and policy often outperform natural/cultural resources. The infrastructure index is positively associated with tourism receipts, while the T&T policy and enabling conditions index predicts tourist arrivals (Uyar et al., 2022). At the sub-index level, price competitiveness, air transportation infrastructure, and cultural resources positively associate with arrivals, but only ground and port infrastructure predicts tourism receipts (Uyar et al., 2022). ICT readiness and natural resources actually drive a negative change in tourist arrivals, and no sub-index drives a change in tourism receipts (Uyar et al., 2022). Transport and tourism infrastructure show strong positive relationships with international arrivals and positive impacts on revenue-based revealed comparative advantage, while correlations of natural and cultural resource indicators with arrivals and revenues are inconclusive (Bacsi et al., 2023). Previous studies indicate the priority of tourism infra- and superstructure over natural and cultural appeal in the TTCI (Bacsi et al., 2023).

Regional Heterogeneity and Exceptions

The contribution of natural and cultural resources varies considerably by region. In Eastern Africa, natural heritage positively influences tourism revenues while cultural resources do not, because cultural tourists demand better serviced environments that developing destinations often lack (Bacsi et al., 2023). Cultural heritage has a positive impact on tourism performance only in Sub-Saharan Africa, while Asia and the Pacific benefit mainly from protected areas and species abundance (Bacsi, 2024). In Europe and the Americas, decreasing competitive advantage is paradoxically associated with greater focus on endangered species and environmental treaties (Bacsi, 2024). Low-performing countries in global clusters often excel in natural and cultural resources but face deficits in enabling environments, infrastructure, and service quality (Allahverdi et al., 2025). In Serbia, natural and cultural resources rank as the best-rated competitiveness factor, while infrastructure and tourism policy score lowest (Pavluković et al., 2024). Turkey scores "very good" in natural and cultural resources but only "good" in infrastructure and policy (Göral & Yurtlu, 2021). International tourism receipts are more responsive to policies, natural resources, and cultural heritage than to infrastructure in some cross-country analyses (Joshi et al., 2017), and cultural uniqueness and ecology rank as the two most essential country-level competitiveness attributes in expert-based models (Liu et al., 2021).

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