

Weight Sensitivity in Prioritizing Tourism FDI Protection Mechanisms: Evidence from Iran

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Abstract-- Prioritizing mechanisms that protect foreign direct investment (FDI) returns in tourism requires balancing implementation feasibility and policy impact. This study presents an aggregate multicriteria analysis of an expert-elicitation dataset covering 26 tourism-FDI protection mechanisms evaluated by 15 experts on two benefit criteria: feasibility and impact. Panel-mean criterion scores are combined using benchmark weights of 0.60 for feasibility and 0.40 for impact, followed by a one-dimensional sensitivity analysis over the normalized feasibility-impact weight interval. Under the benchmark weighting, pre-entry environmental impact assessment (M17) obtains the highest aggregate score. M17 remains the leading alternative across approximately 87.5% of the admissible weight interval, while financial guarantees and investment insurance (M4) becomes the leader only when feasibility receives less than approximately 12.5% of the total weight. The analysis provides a compact assessment of how aggregate priorities respond to alternative criterion-weight assumptions.

Keywords--Foreign Direct Investment; Tourism; Investment Protection; Multicriteria Prioritization; Sensitivity Analysis; Policy Feasibility

1. INTRODUCTION

Foreign direct investment (FDI) can support tourism development through capital formation, infrastructure development, managerial know-how, technology transfer, and access to international networks. Yet the policy challenge extends beyond attracting foreign capital. Tourism investments are often closely tied to local economic and institutional conditions, so the host-country environment shapes the conditions under which foreign investments operate over time [1] [2] [3] [4]. In tourism, investment decisions are also influenced by local infrastructure and the broader operating environment [5] [6].

Investment protection is multidimensional. Legal safeguards and dispute-resolution arrangements can reduce risk, but formal protection alone does not necessarily translate into stronger investment outcomes. Evidence on international investment agreements remains mixed and context-dependent [7] [8]. Policymakers therefore face a portfolio of legal, financial, informational, environmental, and managerial mechanisms whose relative attractiveness depends on multiple considerations.

Multicriteria decision analysis provides a structured way to combine such considerations, but rankings can depend on the weights assigned to the criteria [9] [10]. For a prioritization exercise based on feasibility and impact, it is useful to ask not only which mechanism ranks first under the benchmark weights, but also whether that conclusion changes when the feasibility-impact trade-off is varied.

This study focuses on that narrower question using panel-mean expert evaluations. It reports an aggregate weighted benchmark and a criterion-weight sensitivity analysis. Expert-level heterogeneity and broader robustness analyses are outside the scope of the present analysis.

II. METHODOLOGY

The analysis uses an existing expert-elicitation dataset originally collected as part of a broader master's thesis project on mechanisms for protecting tourism FDI returns in Iran. Fifteen anonymized experts evaluated 26 mechanisms on two five-point benefit criteria: feasibility of implementation under the Iranian institutional setting and impact on the protection of tourism-FDI returns. This yields 390 expert-mechanism evaluations and 780 criterion scores in total, with no missing values or scores outside the 1–5 scale. The original study produced aggregate criterion weights of 0.60 for feasibility and 0.40 for impact.

For each mechanism i , panel-mean feasibility and impact scores were calculated across the 15 equally weighted expert evaluations. The benchmark score was then computed as:

$$V_i = 0.60 \bar{F}_i + 0.40 \bar{I}_i$$

This produces an aggregate ranking based on the benchmark feasibility-impact trade-off.

A weight-sensitivity analysis was then conducted over the full normalized two-criterion weight interval. Let w denote the feasibility weight. It was varied from 0 to 1, while the impact weight was set to $1 - w$. For each admissible weight combination, the aggregate score was recalculated as:

$$V_i(w) = w \bar{F}_i + (1 - w) \bar{I}_i$$

The analysis tracks how the highest-scoring aggregate alternative changes as the relative importance of feasibility and impact varies. Because it is based on panel means, the result describes aggregate sensitivity and should not be interpreted as evidence of agreement among individual experts.

III. RESULTS

Under the benchmark weights, M17, pre-entry environmental impact assessment, obtains the highest aggregate weighted score of 4.187.

Changing the criterion weights alters the leading mechanism only over a limited part of the admissible interval. M17 remains the highest-scoring alternative across approximately 87.5% of the normalized feasibility-impact weight interval. M4, financial guarantees and investment insurance, becomes the leading alternative only when the feasibility weight falls below approximately 12.5%, corresponding to a strong emphasis on impact relative to feasibility.

This pattern shows that M17's aggregate lead is not tied to a single weight vector. At the same time, the switch to M4 under strongly impact-dominant weighting confirms that the leading aggregate choice is not completely weight-invariant.

TABLE I. AGGREGATE BENCHMARK AND CRITERION-WEIGHT SENSITIVITY

Condition	Leading mechanism	Result
Benchmark weights (0.60/0.40)	M17 – Pre-entry environmental impact assessment	4.187
Broad weight region	M17	Highest-scoring across $\approx 87.5\%$ of the interval
Impact-dominant region	M4 – Financial guarantees and investment insurance	Leader when feasibility weight $< \approx 0.125$

IV. DISCUSSION AND POLICY IMPLICATIONS

The aggregate analysis shows that M17 remains the highest-scoring mechanism across a broad interval of feasibility-impact weights. This matters for decision making because multicriteria rankings can change when the relative importance of competing criteria changes. A mechanism that retains its leading position across a wide range of alternative weights is less sensitive to the exact numerical specification of the feasibility-impact trade-off.

M4 becomes the leading alternative only when impact receives substantially greater weight than feasibility. The shift illustrates how the preferred aggregate policy instrument can change as decision priorities change, even when the underlying expert evaluations remain the same.

The findings should nevertheless be interpreted narrowly. The analysis aggregates expert evaluations before ranking and therefore does not establish whether the panel-average result reflects broad agreement among experts. It also considers only two criteria and does not incorporate implementation cost, time requirements, institutional capacity, or other policy dimensions that could affect prioritization.

The present analysis is therefore best viewed as an aggregate screening exercise. Further work could examine expert-level variation and additional sources of uncertainty before stronger conclusions are drawn about group-level priorities.

V. CONCLUSION

This study examines how criterion-weight assumptions affect the aggregate prioritization of 26 mechanisms intended to protect tourism FDI returns in Iran. Using panel-mean expert evaluations, M17 ranks first under the 0.60 feasibility / 0.40 impact benchmark. Across the normalized weight interval, M17 remains the leading mechanism for approximately 87.5% of the feasibility-impact trade-off, while M4 becomes the leading option only when feasibility receives less than approximately 12.5% of the total weight.

The identity of the leading aggregate mechanism is therefore relatively stable across alternative criterion weights, although it is not completely weight-invariant. Because the analysis relies on panel-mean evaluations, the results should be interpreted as an aggregate screening assessment rather than a complete account of group-level preferences.

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