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OPTIMISING THE TERRITORIAL ALLOCATION OF INVESTMENT IN REGIONAL TOURISM INFRASTRUCTURE (THE CASE OF JIZZAKH REGION)

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Abstract:

This paper examines how investment in tourism infrastructure should be distributed across the districts of a region, using the Jizzakh Region of Uzbekistan as a case study. Official district-level data on fixed capital investment for 2025 and January–September 2026, population and the activity of accommodation facilities are used to compare where capital is being invested with where tourism demand and state tourism priorities are located. The analysis shows a strong spatial mismatch in 2025: districts that host almost nine-tenths of officially accommodated visitors received less than a quarter of regional investment, while the largest share went to a district with marginal tourist activity. A transparent three-pillar allocation rule is proposed that combines current demand, designated development zones and a population-based service component, and is tested under three weighting scenarios. The dissimilarity index between the recommended and actual distributions fell from 32.5 to 22.2 percentage points between 2025 and 2026, indicating that the allocation is moving in the right direction but is not yet aligned. Practical recommendations for regional investment planning are formulated.

Keywords: *tourism infrastructure; investment allocation; regional disparities; spatial mismatch; dissimilarity index; scenario analysis; tourism development zones; Jizzakh Region.*



1. Introduction

Tourism infrastructure — roads, utilities, accommodation and visitor services — is expensive, long-lived and tied to a specific place. Once a hotel, an access road or a water pipeline has been built in one district, the same resources cannot be used in another. For this reason, the question of where to invest is as important for regional tourism policy as the question of how much to invest. An allocation that follows administrative inertia or the availability of individual investors, rather than demand and development priorities, leaves some destinations overloaded and others underused.

Uzbekistan's tourism sector is growing rapidly: the country received 11.7 million foreign visitors in 2025, 46.8% more than a year earlier (Statistics Agency, 2026). The Jizzakh Region combines mountain resorts in the Turkestan range, the Aydar–Arnasoy lake system and a transit position on the main road and railway corridor between Tashkent and Samarkand. The state has recognised this potential: the Zomin tourist and recreational zone was created in 2021 (President of the Republic of Uzbekistan, 2021), and in 2026 a programme for the accelerated development of the region envisaged the creation of large tourism complexes in several districts and a dedicated department for tourism projects and infrastructure under the regional administration (President of the Republic of Uzbekistan, 2026). The same resolution allows proceeds from land auctions in tourism districts to be used for infrastructure of tourism complexes until the end of 2027, which creates a dedicated funding envelope whose territorial distribution has to be decided.

The aim of this study is to assess the current territorial distribution of investment in the Jizzakh Region against the location of tourism demand and state tourism priorities, and to propose a transparent rule for allocating tourism infrastructure investment among districts. The study addresses three questions: how investment is distributed across districts; how well this distribution matches tourism activity; and what allocation would better reflect demand and development goals.

2. Literature Review

The debate on the spatial allocation of investment goes back to the theories of balanced and unbalanced growth. Hirschman (1958) argued that scarce resources should be concentrated in leading sectors and places that generate the strongest linkages, while Myrdal (1957) warned that such concentration triggers cumulative causation, in which leading areas attract further capital and lagging areas fall behind unless public policy counteracts these "backwash" effects. Both views are relevant to tourism: concentration supports the formation of competitive destinations, but excessive concentration deepens regional disparities.

Aschauer (1989) showed that public infrastructure capital raises the productivity of private capital, which explains why the location of public investment shapes the location of private investment. In tourism research, Khadaroo and Seetanah (2008) found that transport infrastructure is a significant determinant of tourist flows, and planning literature stresses that infrastructure provision should be sequenced and located according to destination plans rather than individual projects (Inskeep, 1991; Hall, 2008). Dwyer, Forsyth and Dwyer (2010) emphasise that public spending on tourism should be evaluated by its effect on visitor demand and local economic benefits, not only by the amount spent.

To compare two spatial distributions — for example, the distribution of investment and the distribution of demand — the index of dissimilarity is widely used; it shows the share of the total that would have to be reallocated for the two distributions to coincide (Duncan & Duncan, 1955). Despite the policy attention given to tourism in Uzbekistan, studies that link district-level investment data to the location of tourism demand and of designated tourism zones are rare. This study addresses this gap with a simple, reproducible framework built entirely on official data.

3. Research Methodology

The study covers the 13 administrative units (12 districts and Jizzakh city) of the Jizzakh Region. Three groups of official data were used: (1) fixed capital investment by district for January–December 2025 and January–September 2026 from the releases of the Jizzakh Regional Department of Statistics (2026a, 2026c); (2) the permanent population by district at 1 January 2025 and 2026 (Jizzakh Regional Department of Statistics, 2026b); (3) the number of persons accommodated in hotel-type and specialised accommodation facilities by district in 2024 (Jizzakh Regional Department of Statistics, 2025). The location of designated tourism development areas was taken from Decree PF-6201 (2021) and Resolution PQ-35 (2026).

The analysis proceeds in three steps. First, the distribution of investment is described by district shares, investment per capita and the ratio of the highest to the lowest per-capita value. Second, the correspondence between investment and tourism activity is measured by the mismatch coefficient $K = s(I) / s(A)$, where $s(I)$ is the district's share of regional investment and $s(A)$ its share of accommodated persons; $K < 1$ indicates that a district receives less investment than its tourism role would suggest. Third, a recommended allocation is derived from three pillars:

$$R = \alpha \cdot s(A) + \beta \cdot s(Z) + \gamma \cdot s(P),$$

where $s(A)$ is the district's share of accommodated persons (current demand), $s(Z)$ is its share among districts designated as tourism development areas (equal shares for the seven designated units: Zomin under PF-6201; Arnasoy, Bakhmal, Gallaorol, Sharof Rashidov, Zafarobod and Forish under PQ-35), $s(P)$ is its share of the population (a basic service and transit component), and $\alpha + \beta + \gamma = 1$. Because the weights are a policy choice, three scenarios were tested: demand-led S1 (0.6/0.3/0.1), balanced S2 (0.4/0.4/0.2) and development-led S3 (0.2/0.6/0.2). The gap between recommended and actual distributions is measured by the dissimilarity index $DI = \frac{1}{2} \Sigma |R - s(I)|$. Total fixed capital investment covers all sectors, so the comparison indicates



the direction of misalignment; the recommended shares are intended for the tourism infrastructure envelope (budget funds, land-auction proceeds and public–private partnership projects).

4. Results and Discussion

4.1. Territorial distribution of investment

In 2025 fixed capital investment in the region amounted to 24,889.9 billion soums, 0.8% more than in 2024 in real terms; in January–September 2026 it reached 21,206.9 billion soums, a real increase of 5.2% (Jizzakh Regional Department of Statistics, 2026a, 2026c). Foreign investment and loans accounted for 75.5% of the total in 2025 and 67.5% in January–September 2026, so the territorial pattern is largely shaped by individual large projects. As Table 1 shows, in 2025 two units — Forish district (22.2%) and Jizzakh city (19.5%) — received more than two-fifths of all investment. In Forish, 97.2% of investment came from foreign sources.

Investment per capita differed by a factor of almost 11 between Forish (55.0 million soums) and Zomin (5.0 million soums), while the regional average was 16.0 million soums. Notably, the three units with the lowest investment per capita — Zomin, Bakhmal and Zarbdor — include the two main mountain tourism districts of the region. The picture changed noticeably in 2026: the share of Zomin rose from 3.8% to 11.7% and that of Bakhmal from 3.7% to 9.6%, while the share of Forish fell to 6.5% after the completion of large projects.

Table 1. *Fixed capital investment by district, Jizzakh Region*

District	2025, bn soums	Share 2025, %*	Per capita 2025, mn soums*	Share Jan–Sep 2026, %*
Jizzakh city	4,861.7	19.5	24.1	16.4
Arnasoy	1,371.5	5.5	27.5	5.9
Bakhmal	909.7	3.7	5.2	9.6
Gallaorol	2,572.4	10.3	13.4	9.9
Sharof Rashidov	3,006.3	12.1	11.9	11.3
Dustlik	801.0	3.2	11.2	3.9
Zomin	936.5	3.8	5.0	11.7
Zarbdor	531.2	2.1	5.5	3.4

Mirzachul	1,344.9	5.4	23.7	5.0
Zafarobod	1,004.7	4.0	18.3	4.8
Pakhtakor	961.8	3.9	11.6	7.6
Forish	5,520.4	22.2	55.0	6.5
Yangiobod	1,067.8	4.3	35.2	4.0
Region, total	24,889.9	100.0	16.0	100.0

*Source: Jizzakh Regional Department of Statistics (2026a, 2026b, 2026c); * — author's calculations (per capita values use the average of population at 1 January 2025 and 2026).*

4.2. Correspondence between investment and tourism activity

Tourism activity in the region is highly concentrated (Table 2). In 2024 Jizzakh city and Zomin district together accounted for 88.5% of all persons accommodated in district-reported accommodation facilities, and seven of the 13 units reported no accommodated guests at all. Jizzakh city serves mainly business and transit visitors, while Zomin, where most specialised (resort and sanatorium) accommodation is located, is the region's leisure destination; administrative data of the regional khokimiyat also show that Zomin's share of the regional tourist flow rose from 23.9% in 2024 to 35.7% in 2025.

Table 2. *Tourism activity and investment mismatch by district*

District	Persons accommodated, 2024	Share, %*	Mismatch coefficient K, 2025*	Designated tourism area
Jizzakh city	56,559	58.9	0.33	–
Arnasoy	0	0.0	–	PQ-35
Bakhmal	2,945	3.1	1.19	PQ-35
Gallaorol	7,183	7.5	1.38	PQ-35
Sharof Rashidov	0	0.0	–	PQ-35
Dustlik	0	0.0	–	–
Zomin	28,443	29.6	0.13	PF-6201
Zarbdor	0	0.0	–	–
Mirzachul	165	0.2	31.4	–
Zafarobod	0	0.0	–	PQ-35
Pakhtakor	0	0.0	–	–
Forish	723	0.8	29.5	PQ-35
Yangiobod	0	0.0	–	–

*Source: Jizzakh Regional Department of Statistics (2025, 2026a); Decree PF-6201 (2021); Resolution PQ-35 (2026); * — author's calculations; K is not defined for districts without accommodated persons.*

The mismatch coefficient confirms the imbalance. In 2025 Zomin received only 0.13 of the investment share that its accommodation share would imply, and Jizzakh city 0.33, whereas Forish and Mirzachul received about 30 times more. The correlation between district shares of accommodated persons and investment was 0.44 in 2025 and rose to 0.80 in January–September 2026, which shows that capital is beginning to move towards the places where tourism demand already exists. The seven designated tourism areas received 61.6% of investment in 2025 and 59.8% in 2026, but within this group the distribution was very uneven.

4.3. Recommended allocation and scenarios

Table 3 presents the recommended shares under the three scenarios. In all scenarios Zomin and Jizzakh city receive the largest shares, which reflects their dominant role in current demand; the development-led scenario shifts resources towards the designated new destinations (Arnasoy, Bakhmal, Zafarobod, Forish, Sharof Rashidov, Gallaorol), and the population component ensures a minimum allocation for basic visitor and roadside services in all districts.

Table 3. *Recommended shares of tourism infrastructure investment by scenario, %*

District	S1 demand-led	S2 balanced	S3 development-led	Actual 2025	Actual Jan–Sep 2026
Jizzakh city	36.6	26.2	14.4	19.5	16.4
Arnasoy	4.6	6.4	9.2	5.5	5.9
Bakhmal	7.3	9.2	11.5	3.7	9.6
Gallaorol	10.0	11.2	12.5	10.3	9.9
Sharof Rashidov	5.9	9.0	11.8	12.1	11.3
Dustlik	0.5	0.9	0.9	3.2	3.9
Zomin	23.3	20.0	16.9	3.8	11.7
Zarbdor	0.6	1.3	1.3	2.1	3.4
Mirzachul	0.5	0.8	0.8	5.4	5.0

Zafarobod	4.6	6.4	9.3	4.0	4.8
Pakhtakor	0.5	1.1	1.1	3.9	7.6
Forish	5.4	7.3	10.0	22.2	6.5
Yangiobod	0.2	0.4	0.4	4.3	4.0
Dissimilarity index vs 2025	40.8	32.5	32.1	–	–
Dissimilarity index vs 2026	31.9	22.2	21.4	–	–

Source: author's calculations based on Tables 1–2.

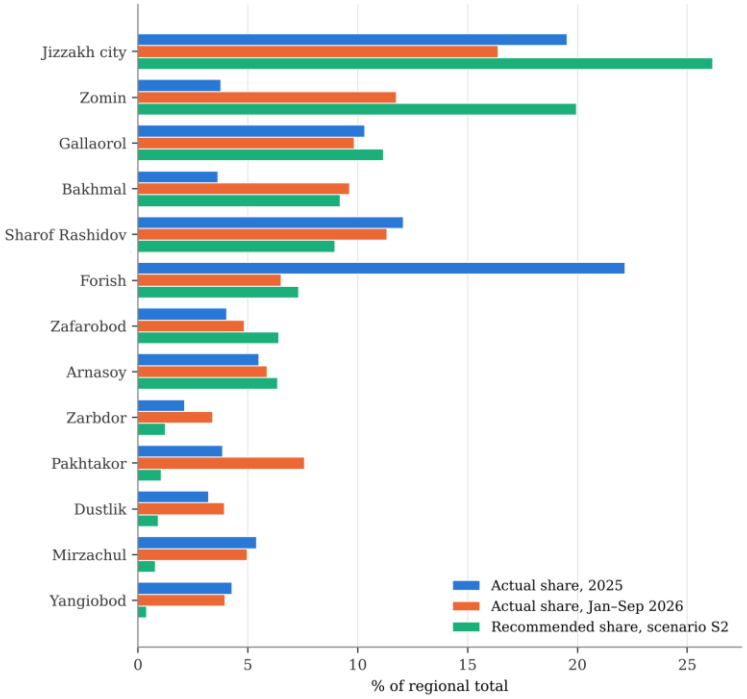


Figure 1. *Actual and recommended (scenario S2) district shares, % of regional total*

Source: compiled by the author based on Tables 1 and 3.

Under the balanced scenario, about a third of investment (DI = 32.5) would have had to be reallocated in 2025 to match the recommended distribution; in 2026 this figure fell to 22.2. The main gaps are the under-investment of Zomin (20.0% recommended against 11.7% actual in 2026) and Jizzakh city (26.2% against 16.4%), and the comparatively high shares of districts with no tourist activity, such as Pakhtakor, Yangiobod and Mirzachul, whose investment is driven by industry and agriculture rather than tourism. The results of the three scenarios differ in magnitude

but agree in direction, which makes the conclusion about Zomin and Jizzakh city robust to the choice of weights.

4.4. Discussion

The findings illustrate the dilemma described by Hirschman (1958) and Myrdal (1957). Concentrating tourism infrastructure investment in Zomin and Jizzakh city would strengthen the destinations where demand already exists and where returns on infrastructure are highest, as suggested by Aschauer (1989) and Khadaroo and Seetanah (2008). At the same time, the state has designated six further districts as future tourism areas, and without priority infrastructure investment these designations will not attract private capital. The proposed rule makes this trade-off explicit: the weights α, β and γ express policy priorities, and their effect on each district can be seen in advance.

Two limitations should be noted. First, total fixed capital investment includes all sectors; tourism-specific investment by district is not published, so the comparison shows the direction rather than the exact size of the misallocation. Second, district accommodation data reflect officially registered facilities and do not capture day visitors and informal accommodation. Publishing tourism infrastructure investment by district would allow the framework to be applied with greater precision.

5. Conclusion and Recommendations

The territorial distribution of investment in the Jizzakh Region in 2025 did not correspond to the location of tourism demand: the districts that accommodate most visitors received the smallest investment per capita. In 2026 the distribution moved closer to the location of demand, but a significant gap remains. A simple allocation rule based on official data — current demand, designated development areas and population — allows the regional administration to justify the distribution of tourism infrastructure funds and to monitor its alignment over time.

Recommendations:

— use a formalised allocation rule with publicly stated weights when distributing land-auction proceeds, budget funds and public–private partnership support for tourism infrastructure among districts;

— give priority to engineering and transport infrastructure in Zomin district and to visitor and business services in Jizzakh city, where current demand is concentrated;

— link investment in the six designated districts to the readiness of master plans and land plots, so that public infrastructure precedes and attracts private projects;

— calculate the dissimilarity index between recommended and actual allocations annually as a monitoring indicator of regional tourism investment policy;

— publish fixed capital investment in tourism-related activities by district to improve the precision of planning.

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