Spatial Analysis of Urban Prosperity Indicators: Case Study of Gorgan City

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Abstract:

Urban prosperity, as a comprehensive approach, serves as a fundamental tool for measuring sustainability, distributive justice, and enhancing the quality of life in urban settlements. This applied research adopts a descriptive-analytical methodology based on field surveys to analyze the spatial distribution of urban prosperity indicators and explain their driving forces across the three districts of Gorgan. Data collection was conducted using a structured questionnaire comprising 59 items across 11 criteria and 5 main components. The statistical population included residents of the three districts of Gorgan, from whom a sample of 413 individuals was selected using Cochran's formula via stratified random sampling. Data analysis was performed using spatial autocorrelation tests (Global and Local Moran's I) and stepwise multiple linear regression. The findings of spatial autocorrelation analysis indicate an unequal clustered distribution pattern with positive and significant spatial autocorrelation across all five components ($p < 0.001$; Z-scores ranging from 5.46 to 8.77). Specifically, District 1 is situated in the high-high cluster (hot spot) and District 3 in the low-low cluster (cold spot), revealing severe spatial polarization. Furthermore, the multiple regression results demonstrated that "social and cultural infrastructure" ($\beta = 0.786$) and "information technology" ($\beta = 0.735$) are the strongest drivers explaining and predicting urban prosperity within the study area. Consequently, the equitable redistribution of infrastructural resources and prioritizing the development of soft infrastructure and neighborhood services in District 3 are fundamental strategies for mitigating spatial inequalities and achieving balanced urban prosperity in Gorgan.

Keywords: Gorgan City, Moran Spatial Autocorrelation, Spatial Analysis, Urban Prosperity.

1. Introduction

In recent paradigms of urban economics and planning, cities are regarded as far more than physical forms or mere sites of capital accumulation; rather, they function as multidimensional and dynamic systems of social, economic, institutional, and spatial interactions (Capello, 2013). With global urbanization surpassing the 55 percent threshold and projected to reach 68 percent in the coming decades, traditional models of urban steering and development—which primarily measured progress through single-dimensional economic growth metrics such as Gross Domestic Product (GDP) or per capita income—have proven inadequate in addressing contemporary structural crises (Pacillo, 2022). Experiences of past decades have demonstrated that an exclusive focus on economic growth, devoid of equitable distribution mechanisms, is intertwined with phenomena such as deepening class divides, social segregation, spatial fragmentation, and ecological instabilities (Alizadeh et al., 2021).

In response to these conceptual and procedural shortcomings, the United Nations Human Settlements Programme (UN-Habitat) formulated a comprehensive framework

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known as *Urban Prosperity*, which redefines development metrics from a sole focus on material prosperity toward a balance among multiple functions (Espey, 2025). Based on this concept, a prosperous city is a settlement where endogenous economic growth aligns with social equity, infrastructural adequacy, enhanced quality of life, environmental conservation, and participatory governance, ensuring that the benefits of the urban ecosystem are distributed equitably among all groups and districts via balanced mechanisms (Townshend, 2020).

From a theoretical standpoint, urban prosperity exhibits extensive overlaps with the theories of "spatial justice" and the "right to the city." Following Edward Soja's perspectives, socio-economic structures and conflicts are consistently manifested and spatialized across geographical settings, such that the structure of space itself can play a decisive role in perpetuating opportunities or entrenching deprivation (Gholami et al., 2023; Gillespie et al., 2025). Consequently, comprehending the phenomenon of urban prosperity necessitates an analysis of the spatial distribution patterns of opportunities and facilities across various urban fabrics and districts (Nazmfar & Rahimi, 2026). Based on the Urban Prosperity Initiative (UPI) model, the five dimensions of this paradigm—including economic productivity, infrastructure development, quality of life, social inclusion and equity, and urban governance and environmental sustainability—operate as an interconnected constellation, where disruption or stagnation in any single component can challenge the entire urban equilibrium (Arbab, 2025; Soleymani Moghaddam et al., 2024).

Within Iran's urbanization structure, the consequences of rapid growth driven by demographic trends, land market transformations, and centralized decision-making patterns have fueled heterogeneous configurations in service and physical zoning (Esmailpour & Shakibamanesh, 2019). Gorgan, serving as the central core and the administrative-economic hub of Golestan Province, has experienced profound spatial and demographic transformations over recent decades, driven by the influx of migrants from rural hinterlands and neighboring towns, land-use pattern changes, and peripheral sprawl (Badraghnezad & Memari, 2025). This magnitude of physical and demographic alterations underscores the imperative of understanding the configuration and dispersion patterns of multidimensional welfare and service variables across various districts of Gorgan. Despite general studies concerning urban per capita standards or quality of life in this city, precisely elucidating the "spatial configuration of prosperity indicators and the contribution of effective drivers" based on micro-level data from Gorgan's municipal districts still requires further comparative and spatial investigations, a gap this research endeavors to address.

Given that ambiguity regarding the spatial pattern of urban prosperity exposes policy-makers and urban managers to the risk of non-targeted decision-making in resource allocation and spatial planning, a scientific and methodological analysis of prosperity dimensions in Gorgan not only responds to existing gaps in the planning literature of Iran's intermediate cities but also provides an empirical foundation for enhancing development-steering approaches in urban management. Accordingly, adopting an explanatory-spatial approach, this study aims to analyze the spatial patterns of urban prosperity indicators and identify the most critical structural drivers influencing them across the three districts of Gorgan, addressing two core research questions: *How* is the spatial distribution pattern of prosperity indicators structured across Gorgan's districts

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based on spatial autocorrelation indices? and Which fundamental components hold higher weights and explanatory power in predicting and interpreting the derived pattern?

2. Theoretical Foundations and Conceptual Framework

The concept of urban prosperity, as a novel approach in sustainable development and urban planning literature, was first officially introduced by the United Nations Human Settlements Programme (UN-Habitat) in 2012 in response to economic challenges and urban crises (Sánchez de Madariaga & Boccia, 2025). Urban prosperity transcends mere economic growth and emphasizes equilibrium among physical, social, economic, and environmental dimensions (Kakavand et al., 2024). According to the UN-Habitat conceptual model, a prosperous city is a dynamic cycle centered around institutions and urban governance, where its five core dimensions—productivity, infrastructure development, quality of life, equity and social inclusion, and environmental sustainability—shape the physical and spatial structure of the city (Keshavarz et al., 2023).

The core dimensions of urban prosperity include:

1. **Productivity:** Pertains to economic growth, employment, capital formation, and citizens' capacity to attain standard living conditions (Ebrahimzadeh et al., 2025).
2. **Infrastructure:** The foundational bedrock of urban prosperity, encompassing access to water, energy, transportation, and information technology networks, which directly enhances the quality of life (Tahmas Nezhad et al., 2024).
3. **Social Inclusion and Equity:** A framework for the equitable distribution of development benefits, poverty reduction, support for vulnerable groups, and equal opportunity within the city (Rahimi & Nazmfar, 2026).
4. **Environmental Sustainability:** The preservation of resources for future generations, optimization of land use, pollution reduction, and prevention of destructive ecological developments (Babaei Elyasi et al., 2025).
5. **Quality of Life:** The ultimate outcome and synthesis of all prosperity dimensions, realized through the enhancement of public spaces, security, and social cohesion (Roshansar Toluie et al., 2021).

3. Theoretical and Empirical Background

A review of global literature concerning the assessment of urban prosperity indicates that the analysis of this concept has transitioned from purely physical and economic evaluations toward composite models and spatial analyses (Ghanbari & Nouraee Zadeh, 2026). The Urban Prosperity Initiative (UPI) model, introduced by the United Nations Human Settlements Programme (UN-Habitat), provides a multidimensional framework for evaluating urban performance, encompassing dimensions such as productivity, infrastructure, quality of life, environmental sustainability, equity, and governance (Espey, 2025).

At the global scale, recent studies—such as the research by Arbab (2022)—utilizing urban prosperity indicators in the metropolis of Tehran, demonstrated that the spatial assessment of urban prosperity serves as an efficient tool for revealing physical inequalities and prioritizing planning interventions. Conversely, Townshend (2021), emphasizing human-centric urban design, introduced the livability and enhancement of

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public spaces as a fundamental prerequisite for achieving sustainable prosperity. Furthermore, Gillespie et al. (2023) established that linking procedural justice with urban ecological dimensions forms the cornerstone of equitable resource distribution and the improvement of citizens' quality of life.

In the realm of domestic studies, the assessment of prosperity dimensions has also been addressed through various approaches. Safaeipour et al. (2017), in the metropolis of Ahvaz, demonstrated that quality of life holds the highest weight and inclusiveness, whereas social inclusion records the lowest rank in the realization of prosperity components, reflecting structural inequality in access to urban resources. In a more recent approach, Kakavand et al. (2024), through a longitudinal assessment of Tehran's 22 districts, found that disparities in prosperity persist, with the southern and western zones facing structural deprivation. Additionally, Tahmasebizadeh et al. (2024), in the city of Isfahan using scenario-based modeling, proved that economic deprivation and poverty indicators are the most influential components driving fluctuations in prosperity toward critical conditions.

Notwithstanding these background studies, an analysis of the empirical literature reveals that prior research has predominantly focused on static assessments, metropolitan rankings, or scenario-based foresight, while overlooking the spatial analysis and spatial autocorrelation (hot and cold spot clustering) of urban prosperity indicators in intermediate cities (such as Gorgan)—a methodological and empirical gap that the present study aims to fill.

4. Methodology

In terms of purpose, this research is applied, and regarding its nature and method, it is a descriptive-analytical study based on a field survey. Accordingly, 59 items were defined and operationalized across 11 specialized indicators (social and cultural infrastructure, information technology, urban mobility, housing infrastructure, health and public hygiene, urban safety and security, social equity and fair distribution, environmental sustainability, education and human capital, economic concentration and entrepreneurship, and employment and economic dynamism) and 5 main dimensions, including "Infrastructure Development", "Quality of Life", "Inclusiveness and Social Inclusion", "Environmental Sustainability", and "Productivity" (Table 1).

The statistical population of the study comprises all citizens residing in the three municipal districts of Gorgan, which, based on the official census, accounts for a population of 350,664. Based on Cochran's formula for an infinite population, the minimum sample size was estimated at 384, which was increased to 413 to enhance statistical precision and reduce measurement error. Given the fundamental objective of the study to evaluate and comparatively balance urban zones, a stratified random sampling method with proportional allocation was employed. Accordingly, questionnaires were distributed and collected in a balanced manner across the three districts—comprising 138 questionnaires in District 1 (with a population of 101,950), 138 questionnaires in District 2 (with a population of 108,358), and 137 questionnaires in District 3 (with a population of 140,368)—at the neighborhood and urban block levels. This selection method ensures the equality of estimation error and the homogeneity of variances in spatial comparative tests.

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The data collection tool was a researcher-developed questionnaire based on a five-point Likert scale (ranging from 1 = very inappropriate/very poor to 5 = very appropriate/very good). The face and content validity of the instrument were verified through the opinions of experts and professors in urban planning and management, and its reliability was confirmed via Cronbach's alpha coefficient with a value of 0.86.

For data processing and analysis:

1. First, a one-sample t-test was employed to assess the significance of the difference between the empirical mean of the dimensions and the theoretical mid-point of the scale (value 3).
2. Second, to uncover the spatial structure and identify patterns of concentration, clustering, or dispersion of prosperity indicators at the district and neighborhood levels, the Global Moran's Index of spatial autocorrelation and Local Moran's spatial analysis (LISA / identifying High-High and Low-Low clusters) were utilized.
3. Finally, aiming to transition from descriptive analysis to causal explanation and to determine the relative share and driving forces affecting urban prosperity, multiple linear regression modeling was applied.

Table 1. Documentation of Dimensions, Indicators (Prior Criteria), and Urban Prosperity Items

Main Dimension	Indicator (Prior Criterion)	Number of Items	Supporting Sources and Theorists (In-text APA Citation)
Infrastructure	Social and Cultural Infrastructure	7	Espey, 2025; Safaeipour et al., 2017; Rahsepar Tolouei et al., 2021
	Information Technology	4	Keshavarz et al., 2023; Capello, 2013
Quality of Life	Urban Mobility and Transportation	8	Arbab, 2025; Tahmasebizadeh et al., 2024
	Housing Infrastructure	6	Espey, 2025
	Health and Public Hygiene	13	Rahsepar Tolouei et al., 2021; Townshend, 2020
Inclusiveness and Social Inclusion	Urban Safety and Security	3	Espey, 2025; Kakavand et al., 2024
	Social Equity and Fair Distribution	9	Gholami et al., 2023; Rahimi & Nazmifar, 2026; Alizadeh et al., 2021; Esmailpour & Shakibamanesh, 2019
Environmental Sustainability	Environmental Sustainability	2	Gillespie et al., 2025; Badrakhnezhad & Memari, 2025
	Education and Human Capital	5	Capello, 2013; Pacillo, 2022
Productivity	Economic Concentration and Entrepreneurship	2	Capello, 2013; Pacillo, 2022; Ebrahimzadeh et al., 2025
	Employment and Economic Dynamism	2	Arbab, 2025; Babaei Elyasi et al., 2025
Total	11 Indicators (Criteria)	59 Items	***

4.1. Study Area

Gorgan, the capital of Golestan Province, is located in the northeastern part of the country at 36° 50′ N latitude and 54° 26′ E longitude, with an average elevation of 155 meters above sea level. The city is bounded to the north by Aq Qala and Bandar-e Torkaman counties, to the south by the Alborz mountain

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range, to the west by Kordkuy county, and to the east by Aliabad-e Katul county. The regional climate is temperate Mediterranean-Caspian, featuring ecological characteristics resulting from the adjacency of forest areas and northern plains. Spanning an area of approximately 60 square kilometers, the legal boundary of the city comprises three approved municipal districts and, according to the official 2016 census data, accommodates a population of 350,676 (including 174,797 males and 175,879 females) across 111,099 households (Statistical Center of Iran, 2016; General Directorate of Roads and Urban Development of Golestan Province, 2024). Given the demographic and physical dynamics across Gorgan's three urban zones (District 1 with 101,950 residents, District 2 with 108,358 residents, and District 3 with 140,368 residents), examining spatial distribution patterns and evaluating the dimensions of urban prosperity in this settlement can provide a suitable foundation for understanding spatial transformations.

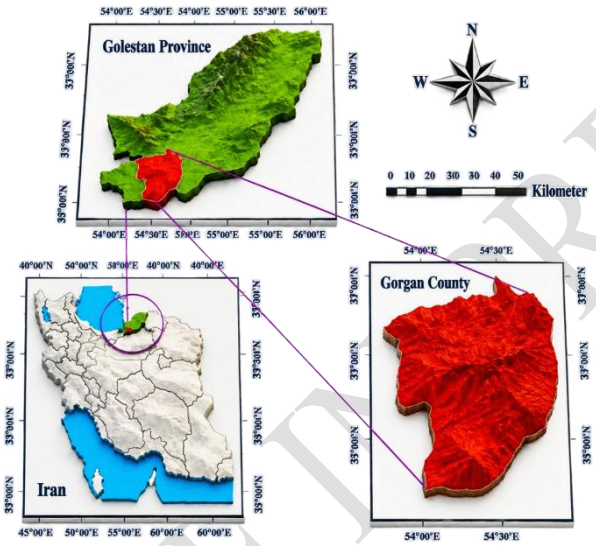

Figure 1. Geographic location of the study area.

5. Findings

5.1.Descriptive Characteristics of Respondents

Based on the findings obtained from the field survey, out of the 413 respondents across the three municipal districts of Gorgan, 206 individuals (49.87%) were male and 207 individuals (50.13%) were female, indicating an appropriate gender balance in the sample. Regarding age distribution, 4.12% were under 20 years old, 67.55% were between 20 and 40 years old, 24.94% were between 40 and 60 years old, and 3.39% were over 60 years old; therefore, more than 92% of the respondents fall within the economically and socially active age brackets of society. Furthermore, in terms of educational level, the highest share belongs to the bachelor's degree (36.08%), followed by the associate degree (27.58%), high school diploma (15.50%), master's degree (15.74%), doctorate (3.39%), and below high school diploma (1.45%), which reflects a favorable level of literacy and awareness among respondents in completing the assessment instrument.

5.2. Evaluation and Analysis of the Status of Urban Prosperity Dimensions at the City Level of Gorgan

To assess and analyze the current status of the five dimensions of urban prosperity in Gorgan, a one-sample t-test was employed with a hypothesized mean value of 3 (the mid-point of the Likert scale). The results presented in Table 2 indicate that the mean values of the dimensions "Infrastructure", "Quality of Life", and "Environmental Sustainability" are higher than the hypothesized mean (3) and exhibit a favorable status; conversely, the mean values of the

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dimensions "Inclusiveness and Social Inclusion" and "Productivity" were evaluated as lower than the value of 3. The overall mean of respondents' opinions regarding the general status of urban prosperity equals 2.99, which is very close to the hypothesized mean; nevertheless, considering the aggregate outcome of the indicators, it can be asserted that urban prosperity in Gorgan is at a moderate level and requires strategic intervention and planning.

Table 2. Evaluation and Analysis of the Current Status of Urban Prosperity Dimensions

Dimensions	Number of Items	Mean	Standard Deviation	Hypothesized Mean	T-Statistic	Significance Level (Sig.)
Infrastructure	25	3.06	0.533	3	2.35	0.001
Quality of Life	16	3.11	0.525	3	2.14	0.000
Inclusiveness and Social Inclusion	9	2.84	0.559	3	-5.45	0.000
Environmental Sustainability	2	3.12	0.637	3	3.94	0.000
Productivity	7	2.83	0.488	3	-6.71	0.000

5.3. Spatial Analysis of Urban Prosperity Dimensions Using the Global Moran's I Spatial Autocorrelation Model

To identify the geographical redistribution of urban prosperity dimensions and determine the governing pattern of Gorgan's spatial organization (random, clustered, or dispersed), the Global Moran's I spatial autocorrelation test was employed. The calculation outputs indicate that the Moran's index for all five dimensions is positive, and the standard score (Z-score) values at the 99% confidence level ($p < 0.001$) significantly exceed the critical value of $+2.58$:

- Quality of Life ($Z = 8.77$)
- Infrastructure ($Z = 8.33$)
- Environmental Sustainability ($Z = 8.23$)
- Inclusiveness and Social Inclusion ($Z = 7.39$)
- Productivity ($Z = 5.46$)

By rejecting the null hypothesis, these findings imply the existence of a strong clustered pattern and positive spatial autocorrelation in the distribution of all prosperity dimensions across Gorgan; meaning that citizens' levels of attainment are influenced by geographical location and physical context, and phenomena are not distributed randomly or homogeneously across space. The high intensity of standard scores in the two dimensions of quality of life and infrastructure demonstrates that the mechanism of spatial concentration has been reproduced primarily through access to superstructure services, transportation infrastructure, and welfare and health facilities.

In line with the global test, the analysis of spatial linkages at the local scale (Local Moran's Index) indicates the emergence of clear spatial polarization in Gorgan's urban structure:

- **Municipal District 1 (High-High Cluster / Hot Spot):** Serving as a focal point of concentration surrounded by high values, this urban zone—characterized by the establishment of modern infrastructure, favorable housing quality, appropriate environmental quality, and a concentration of human and physical capitals—has emerged as the pole driving urban prosperity at the macro scale.
- **Municipal District 2 (Not Significant / Neutral Zones):** This district exhibits an intermediary and heterogeneous structure; such that the juxtaposition of new textures with peripheral textures has prevented its spatial autocorrelation relationships from

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reaching the threshold of statistical significance, thereby playing a transitional role between developed and deprived poles.

- **Municipal District 3 (Low-Low Cluster / Cold Spot):** In contrast, this zone is prominently consolidated as a cold spot of deprivation. The establishment of informal settlements, physical deterioration, shortage of public spaces, environmental infrastructure crises, and the economic isolation of residents have given rise to a self-reproducing cycle of inequality.

Overall, the reconciliation of spatial results reveals that the urban development planning and guidance system in Gorgan faces a structured spatial gap between the north and the south (District 1 versus District 3), and resource allocation streams in recent decades have exacerbated spatial imbalances.

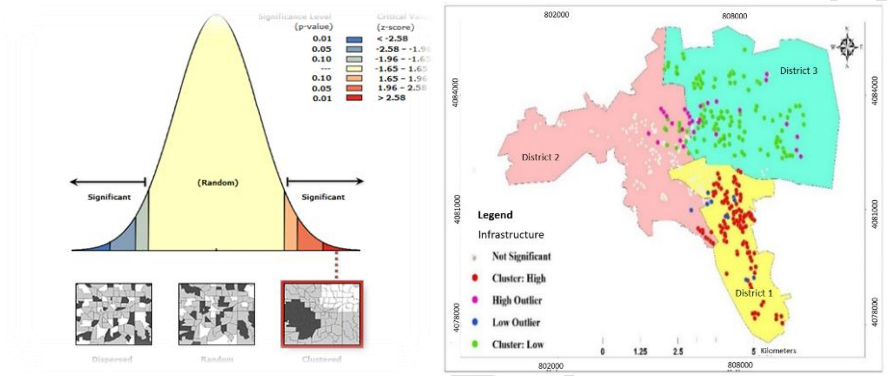

Figure 2. Spatial distribution map of infrastructure in Gorgan based on the Moran's model.



Figure 3. Spatial distribution map of quality of life in Gorgan based on the Moran's model.

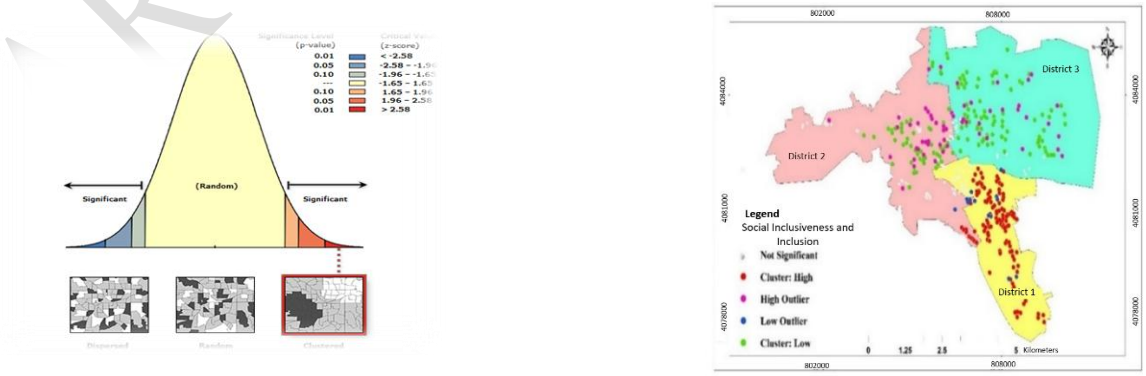

Figure 4. Spatial distribution map of inclusiveness and social inclusion in Gorgan based on the Moran's model.

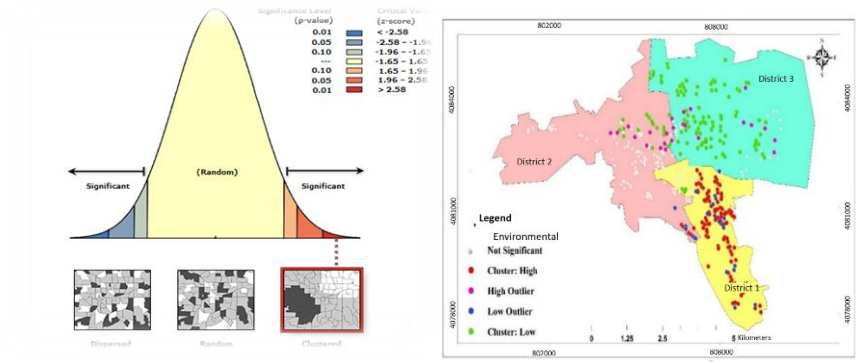

Figure 5. Spatial distribution map of environmental sustainability in Gorgan based on the Moran's model.

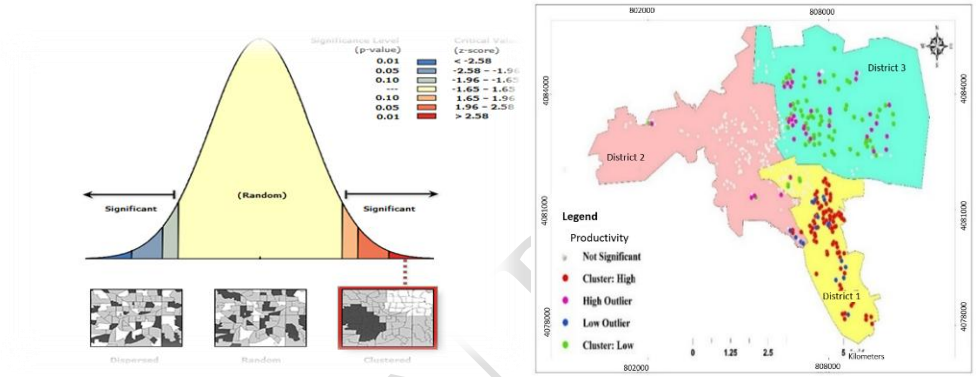

Figure 6. Spatial distribution map of productivity in Gorgan based on the Moran's model.

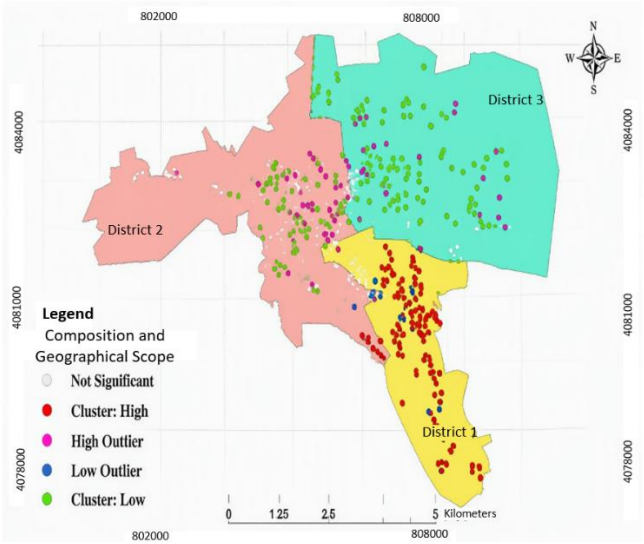

Figure 7. Spatial distribution map for all urban prosperity indicators.

5.4. Analysis of the Effect of Research Indicators on Urban Prosperity Using Multiple Regression

To measure the simultaneous effect of independent variables (the eleven indicators) on the dependent variable (urban prosperity), a stepwise multiple regression model was applied. Based on the statistical outputs presented in Table 3, the multiple correlation coefficient for the entire model was estimated at $R = 0.68$, and the adjusted coefficient of determination at $R^2 = 0.44$; meaning that approximately 44% of the variance in urban prosperity is explained by the eleven indicators. Among the entered indicators, social and cultural infrastructure, with a standardized beta coefficient ($\beta = 0.786$),

accounts for the highest share in explaining and predicting the level of urban prosperity in Gorgan, and all indicators demonstrated positive and significant effects on the dependent variable ($p < 0.01$).

Table 3. Evaluation of the Effect of Indicators on Urban Prosperity

Independent Indicators	Correlation Coefficient (R)	Coefficient of Determination (R^2)	Unstandardized Coefficients (B)	Standardized Coefficient (β)	T-Statistic	Sig.
Social and Cultural Infrastructure	0.786	0.618	0.460	0.786	36.101	0.000
Information Technology	0.735	0.540	0.441	0.735	29.790	0.000
Urban Mobility	0.701	0.491	0.454	0.701	27.857	0.000
Housing Infrastructure	0.681	0.464	0.496	0.681	26.406	0.000
Education	0.690	0.476	0.460	0.690	27.065	0.000
Health	0.731	0.534	0.549	0.731	30.358	0.000
Safety and Security	0.676	0.457	0.439	0.676	26.029	0.000
Social Equity	0.688	0.473	0.487	0.688	26.878	0.000
Environmental Sustainability	0.694	0.481	0.454	0.694	27.320	0.000
Economic Agglomeration	0.436	0.190	0.341	0.436	13.729	0.000
Employment	0.403	0.162	0.280	0.403	12.477	0.000

6. Discussion and Interpretation of Findings

The analysis of findings derived from the field survey and statistical-spatial modeling subjects citizens' multi-dimensional perception of urban prosperity status in Gorgan to critical scientific evaluation. The overall aggregate of data, with a total mean of 2.99, establishes that the city is positioned at the median and vulnerable threshold of attainment—a status that, upon entering the endogenous analysis of the five dimensions, reveals severe heterogeneity in the foundations of urban development. On the one hand, the dimensions of "environmental sustainability" (3.12), "quality of life" (3.11), and "infrastructure" (3.06), with statistical significance ($Sig < 0.05$), stand at a level higher than the threshold limit (hypothesized mean of 3). The supremacy of the environmental dimension is influenced by the natural-ecological endowments of adjacency to the forest matrix in the southern zone of the city, while the enhancement of quality of life and infrastructure dimensions reflects the physical-oriented policies of Gorgan Municipality in recent years regarding the development of green spaces, pavement rehabilitation, and basic services. This physical and infrastructural superiority is entirely consistent with the theoretical framework of UN-Habitat and the empirical findings of Capello and Pasiu, who regard physical infrastructure as the primary foundation and skeleton of spatial organization in transitional cities.

On the other hand, the sharp and significant decline of two fundamental dimensions—namely "economic productivity" (with a dimensional mean of 2.83 and $t = -6.71$) and "inclusiveness and social inclusion" (with a dimensional mean of 2.84 and $t = -5.45$)—unveils the core of Gorgan's structural crisis. The perceptible and significant weakness in employment and economic dynamics indices, alongside social equity and fair distribution, demonstrates the inability of Gorgan's urban economy to diversify

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employment, its reliance on low-yielding traditional services, the erosion of social capital, and the emergence of a sense of marginalization among low-income groups. This finding completely aligns with Arbab's research in the international arena and the domestic studies of Safaeepour et al. (2017) and Ebrahimzadeh et al. (2025), confirming the perspective that physical urban growth does not necessarily lead to the fair distribution of wealth, employment dynamics, and social equity.

In the realm of spatial analysis, obtaining high standard score (Z-score) values in the Global Moran's test, including quality of life ($Z = 8.77$), infrastructure ($Z = 8.33$), environmental sustainability ($Z = 8.23$), social inclusion ($Z = 7.39$), and productivity ($Z = 5.46$), rejects the hypothesis of random distribution with 99% confidence and proves significant spatial concentration. Local distribution analysis indicates that this concentration has resulted in the formation of a deep spatial polarization between the north and the south of the city; such that Municipal District 1 serves as a hot spot carrying the accumulation of investments, land desirability, and modern urban services, whereas Municipal District 3 remains trapped as a cold spot in the trap of structural deprivation, concentration of inefficient fabrics, and severe shortage of service per capita, while District 2 experiences a transitional and neutral status. This polarized spatial pattern aligns with the results of Badragh Nezhad and Memari (2025), Gholami et al. (2023), and Rahsepar Tolouei et al. (2021), demonstrating that Iran's intermediate cities, alongside metropolises, are driven toward socio-spatial segregation under the influence of the political economy of space and the exchange value of land.

The results of the multivariate regression model complete this argument, where the highest standardized effect coefficients are allocated to the indices of "social and cultural infrastructure" ($\beta = 0.786$), "information technology" ($\beta = 0.735$), and "health and hygiene" ($\beta = 0.731$). This statistical prioritization, in line with the findings of Ahmadi et al. (2024) and Townshend, proves that in the perception of Gorgan's citizens, urban prosperity is inextricably linked to the development of soft infrastructure, interactive spaces, digital justice, and collective vitality. It demonstrates that the dominance of rigid physical approaches without strengthening social foundations, productive employment, and interactivity lacks the necessary efficacy in enhancing the sense of prosperity.

7. Conclusion

The present study, employing the conceptual framework of the Urban Prosperity Initiative (CPI), put to the test the spatial distribution and structural relationships of urban prosperity dimensions in Gorgan. The synthetic aggregate of findings demonstrates that urban prosperity within the context of Gorgan is neither a uniform nor a space-neutral phenomenon; rather, it is strongly reproduced under the logic of spatial segregation and uneven development patterns. Although the supportive ecological setting and past physical interventions have maintained environmental and infrastructural components at a level higher than the theoretical mean, the chronic decline of social inclusion and economic productivity indices has positioned the city's overall livability at a fragile and vulnerable threshold. The scientific and theoretical contribution of this article is proving the fundamental proposition that single-dimensional, physical-oriented management in intermediate cities will remain incapable of addressing livability challenges; because the unequal concentration of investments in the southern zones (District 1) in the absence of economic empowerment

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and social integration of residents in underprivileged zones (District 3) has practically deepened the intra-urban structural gap and threatened the long-term sustainability of development. Accordingly, Gorgan's urban management and planning require a strategic pivot from a focus on rigid civil engineering projects toward equity-oriented urban governance, the regeneration of marginal textures, and the direction of resources toward the empowerment of the deprived.

Based on the analytical findings of the research and in line with mitigating spatial gaps and achieving inclusive prosperity, the following policy and applied recommendations are proposed for Gorgan's urban managers and planners:

- Reforming the municipal budgeting structure by purposefully prioritizing spatial cold spots (District 3) through pavement upgrades, the development of public spaces, and basic neighborhood-level services.
- Investing directly in the development of social and cultural infrastructure and inclusive neighborhood centers (*Sarayan-e Mahalleh*) in deprived textures, considering the precedence of this variable in explaining the regression model.
- Enhancing economic productivity by supporting micro-neighborhood economies, facilitating knowledge-based businesses, and utilizing ecotourism and sustainable urban tourism potentials to curb the employment crisis.
- Establishing digital infrastructure and smart city frameworks to ensure equitable access to modern urban services for citizens in peripheral areas.
- Institutionalizing facilitation offices and participatory planning to enhance inclusiveness and revive social capital in the city's vulnerable neighborhoods.

Furthermore, future researchers are recommended to examine the consequences of land rent and property value mechanisms on the reproduction of spatial prosperity clusters within the framework of Geographically Weighted Regression (GWR) and institutional sustainability scenarios.

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Authors' Contributions

First author: 40%; Second author: 40%; Third author: 5%; Fourth author: 15%.

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Conflict of Interest

No conflict of interest has been reported by the authors.

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