

COMPARATIVE STUDY OF THE IMPACT OF ECONOMIC, SOCIAL AND PHYSICAL DIMENSIONS OF BORDER MARKETS ON THE QUALITY OF LIFE OF BORDER RESIDENTS

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Abstract

Border markets at border points near authorized customs can provide a space for citizens on both sides of the border to conduct transactions while adhering to regulations. The effects of such border markets can affect the quality of life of border residents. This article aims to conduct a comparative examination of the economic, social and physical dimensions of border markets and their impact on the quality of life of border residents. The predominant research approach in terms of method is descriptive-analytical. Indicators and items have been determined based on the research questions and objectives in economic, social and physical dimensions, totaling sixteen indicators are determined for assessment and investigation. The SPSS software was utilized for data analysis and the statistical population consists of household heads working in the markets of Golestan province, Iran, 5621 individuals, with a sample size of 384 determined using Cochran's formula. The research results indicate that the performance of border markets in Golestan province has not uniformly influenced the examined indicators. Enter Regression results in ranking the impact of Golestan province's border market suggest that the economic variable explains the highest impact at 47%, followed by the social variable at 35%, and the physical variable at 21%. Golestan province's border markets have successfully influenced the improvement of the quality of life, as the calculated significance level is less than 0.05. This research can serve as a reliable criterion for regional planners, especially in border areas. To this end, recommendations are also provided.

Keywords: sustainable development, empowerment, job creation, quality of infrastructure and housing

JEL: Z32

Introduction

The functioning and role of borders are considered key factors in the development of border regions and cities. Borders can both act as barriers to development and cohesion of urban areas (Výboš'ok and Štefkovičová, 2023) and serve as a communicative bridge facilitating interactions and links between both sides of the border. Borders has been playing important roles in the history from the oldest ages (Obrusánszky, 2019). Understanding the inhibitory or communicative role of borders depends on how we interpret their function (Štefkovičová and Koch, 2022). In border cities, especially in countries like Iran, specific types of economic activities are encountered formal and informal, legal and illegal (Miakhil et al. 2022). Both aspects have specific impacts on the quality of life in cities (Connolly, 2011). Currently, in the borders of most developing countries, a significant portion of the needs of border residents is met through border exchanges (bazaars) (Dacko-Pikiewicz, 2019). Despite being informal and local, these exchanges play an important role in the transactions between neighboring countries and contribute to improving the quality of life for residents of border areas (Borzooie et al., 2019). Border markets, as a form of international markets, contribute to the development of political and diplomatic relations. Therefore, the establishment and creation of border markets have been well-received as desirable solutions for bridging the gap

in border regions and overcoming the current economic and social crises of border residents (Amin, 2007). Through these markets, people in border areas of countries can collectively utilize common opportunities and resources (Afrakhteh, 2006). A border market is an enclosed area located at border points and near authorized customs where residents from both sides of the border can trade their local products while adhering to export and import regulations (Bartlett and Beamish, 2018). The regional goals of establishing these markets include: 1) reducing apparent and hidden unemployment through creating healthy employment in retail, wholesale, and ancillary services; 2) strengthening and stabilizing government oversight of the flow of goods between neighboring countries and vice versa; 3) organizing informal transactions prevalent in the region; 4) enhancing the economic, social and cultural well-being of the region (Esparza et al., 2001). In summary, the establishment of border markets can lead to a fundamental transformation in production, job creation, population stabilization, income increase and ultimately improving the quality of life in both sides of the borders particularly in the neighboring countries of Iran and Afghanistan (Glinos and Baeten, 2014).

Cities for the reconstruction of their economies, require new ways to create employment opportunities and enhance the quality of life for their citizens. Since border markets can play a significant role in a city's economy, they can be utilized as a pathway to achieve economic goals (Gerber et al., 2017). Therefore, the economic development of border regions and the improvement of the well-being and living standards of border residents through healthy economic activities supported by government backing and investments, positively impact border security. On the other hand, the increase in healthy economic activities and government investments in border areas, conditional on avoiding drastic economic disparities on both sides of the border can also have a positive impact on border connectivity (Gilbert, 2007). Border markets, in a way, represent a fundamental transformation in increasing welfare prosperity and the development of local and handmade industries. They contribute to reducing the volume of smuggling achieving security goals and ultimately creating sustainable regional development (Kanwal et al., 2019). The establishment of border markets can be seen as a component in promoting regional cooperation and considered as part of an economic solution to reduce regional crises. They become a stabilizing factor in border areas fostering industrial and commercial activities (Khademi-Bujdosó, 2016). The growth and prosperity of trade and commercial activities have a significant impact on the development of border regions and can contribute to their expansion (Pena, 2005). The launch and establishment of border markets, as an economic activity lever in various regions especially in border areas of a country, have various economic, social, and political effects. Economically, creating markets in border regions can provide opportunities such as direct and indirect employment for the youth of the region (in transportation, restaurants, and related services) exporting agricultural and livestock products at reasonable prices to neighboring countries, increasing income, improving the quality of life for rural residents through the exchange of goods, reducing unemployment, formalizing transactions between Iran and neighboring countries and effectively increasing the number and diversity of businesses in rural areas (Knoop et al., 2023).

In recent decades, recognition, measurement and improvement of the quality of life have been major goals for individuals, researchers, planners and governments. It has become the basis for a novel classification of countries in recent years (Anderson, 2010). Quality of life is related to the individual's sense of happiness or dissatisfaction, satisfaction or dissatisfaction with life (Kamp, 2003), and reflects the well-being of individuals (Matušková et al., 2017). It is dependent on people's economic conditions and at the same time on relationships, social status, health, a sense of self-worth and environmental sustainability. In urban areas, the quality of life is a function of two

concepts: livability (services, environmental quality, and social networks) and people's livelihoods (how they earn income) (Szalontai, 2011).

Regarding urban quality of life, it should be noted that this concept is highly abstract and cannot be easily defined, as it is multi-dimensional, relative, influenced by time and place and individual and social values. Therefore, providing a comprehensive definition for it is not straightforward (Bergin and McGuinness, 2021). Urban quality of life is one of the most important areas of urban studies in various countries. This importance arises due to the increasing significance of quality-of-life studies in monitoring public policies and their role as an effective tool in urban management and planning. Urban quality of life is usually measured through mental indices obtained from surveys and evaluations of citizens' perceptions and satisfaction with urban life or less frequently using tangible indices derived from secondary data.

Due to these reasons, the economy of border regions can play a fundamental role in the economic development of border areas, improving the standards of living for the people, reducing poverty, ensuring equitable income distribution, initiating friendly relations, fostering familiarity, and accelerating greater cooperation between border regions (Chandoevrit, 2004). Improving the quality of life is a crucial goal of border economies, and the establishment of border markets is a tangible manifestation of people's involvement in economic affairs. These markets, in addition to engaging in non-oil exports, play an effective role in creating job opportunities and improving the quality of life (McAslan et al., 2013).

The development of border regions and the enhancement of the quality of life in urban areas require an understanding of the spatial, physical, regional balance and diverse dimensions involved in urban areas (Dávid et al, 2011, Gyurkó et al., 2024). Excessive emphasis on the concentration issue in development or spatial planning leads to regional-spatial imbalance and the emergence of central and peripheral areas (Anderson and Gerber, 2007). Considering the mentioned content, it can be stated that development and improvement in the quality of life as the most important goal of spatial and developmental planning systems require progress that is consistent and applicable to all geographical areas. The focus here is on the relationship between variables influencing urban development and how it can contribute to the development of border regions and the improvement of the quality of life. Having a desirable quality of life has always been and remains a human aspiration (Knippschild and Schmotz, 2018). In a general summary, it can be said that the quality of life is a holistic approach that emphasizes not only physical, mental, and spiritual well-being but also individuals' relationships with their surrounding environments and opportunities for maintaining and enhancing their skills (Mudey, 2011).

Given what has been discussed regarding the goals and benefits of border markets understanding the impact of border markets on the changes in the quality of life in urban areas becomes essential. Over the past several years, various measures have been taken to improve the quality of life in border regions. Since the mid-1990s, provinces like Golestan have consistently received attention from government officials as an important border region. Efforts have been made to enhance the quality of life in these provinces, particularly through the establishment and promotion of border markets, which directly affect the residents' quality of life. Golestan province, covering an area of 2,043,774 square kilometers, constitutes 24.1% of the country's total area. The province is located between 36 degrees and 24 minutes to 38 degrees and 5 minutes north latitude and 53 degrees and 51 minutes to 56 degrees and 14 minutes east longitude from the Greenwich Mean Time. It shares borders with Turkmenistan to the north, Semnan province to the south, the Caspian Sea and Mazandaran province to the west, and Khorasan province to the east. This province consists of 14 counties, with 4 of them being border counties.

The cities in Golestan province have consistently faced challenges in urban development indicators, ranking at the bottom of the country's provinces. It seems imperative to focus on the quality of life in this region of the country. Border areas in the province, due to the existence of border markets, have the potential to significantly enhance the quality of life for residents. One of the border counties in Golestan province is Gonbad Kavous, where the Inche Borun border market, with an area of 60,000 square meters, was approved by the government in the 1970s and has since become a vital commercial center in the region. Therefore, this study aims to analyze the impacts of border markets on the changes in the quality of life for the residents of border cities.

Considering the economic challenges in Golestan province, the population faces issues such as widespread unemployment, poverty, rural migration, and informal employment. It appears that the development and expansion of border markets have been able to improve the quality of life for the residents. The creation of security, employment opportunities and the development of border regions, given the unemployment rates in these areas, has brought a ray of hope for economic development for many people. The cities of Gomishan, Maraveh Tappeh, Aq Qala, and Bandar Turkmen, classified as border cities, have been selected as the study area to examine the impact of border markets on the changes in the quality of life for residents in these regions.

One of the most important issues related to the impact of markets is finding criteria and a combination of evaluation indicators for assessing the level and measurement of changes in the quality of life. One of the criteria that can be used to measure the quality of life is the extent of the citizens' susceptibility to the indicators and variables of market impacts. The main issue of this research is the assessment and evaluation of the impact of markets on the quality of life for citizens in border areas since studies on the quality of life can help evaluate policies, formulate management strategies, and plan for sustainability.

Research Questions

- Is there a significant difference in the quality of life of citizens in the period before and after the establishment of border markets?
- On which dimensions of citizens' quality of life in border areas have border markets had the most significant impact?

Research Hypotheses

- There is a meaningful relationship between the impacts of border markets and changes in the quality of life for citizens in border areas.
- The establishment of border markets has had the most significant impact on the development of the economic and social quality of life for citizens in border areas of Golestan province.

Materials and methods

The dominant research approach is descriptive-analytical in terms of (nature and method). In the current research, the indicators and items investigated have been selected according to the

questions and objectives of the research in economic, social and physical dimensions. In fact, the research subjects are a combination of objective and subjective indicators to measure the level of quality of life. The purpose of the research is the impact of the border market on the quality of life of the residents of these areas is measured.

Research criteria

Indexes and items have been determined according to the questions and objectives of the research in economic, social and physical dimensions, each of them was divided into more detailed items and a total of sixteen items were evaluated and investigated.

Table 1. Evaluation Criteria for Assessing the Impact of Establishing Border Markets on Improving Citizens' Quality of Life

Dimensions	Measured items
Economic	<ul style="list-style-type: none"> -Increasing income and satisfaction with it; -Increasing prosperity and reducing poverty and inequality; -Recruiting surplus labor in the agricultural sector; -Improving job diversity; -Access to financial services in order to set up a small workshop; -Increasing service jobs related to border markets; -Increasing purchasing power and institutionalizing the possibility of income generation.
Social	<ul style="list-style-type: none"> - Reducing migration and permanence in border areas. - Reducing social inequalities. - Hope for a better future. - The feeling of belonging to the place of residence
Physical	<ul style="list-style-type: none"> -Access to better quality residential units; -Access to required services; -The authorities pay more attention to the urban environment; -Centralized supervision of urban officials on urban constructions; -Satisfaction from an urban perspective

Source: Compiled by the authors, 2025

Statistical research population

The sample size was determined using Cochran's formula at the 95% level, equal to 384 heads of households working in border bazaars of northern Iran. Cronbach's alpha of the research was 0.798, which shows the validity and reliability of the questionnaire .

Characteristics of the statistical population

This section presents the demographic characteristics and socio-economic attributes of the research sample. In analyzing the table below, it is important to note that the higher percentage of male respondents compared to females, as well as the higher percentage of married individuals compared to singles, is due to the fact that the target group of this study consists of household heads. Therefore, these groups (men and married individuals) represent a larger proportion of the sample.

Table 2: Individual and Socio-demographic Characteristics of the Participants

Gender		Age		Marital Status		Education Level		Employment	
Male	83%	24-34	30.2	Single	24%	Illiterate	22.71	Market Employment	82%
		35-44	22.97			Below High School Diploma	37.85	Transportation Services	11%
		45-54	21.93			Diploma	19.84	Industry	5%
Female	17%	55-64	19.39	Married	76%	Associate Degree	6	International Driver	2%
		+64	5.48			Bachelor's Degree	11.48		
						Master's Degree and Above	2.08		

Source: Authors' calculation, 2025

Data collection method

The method of access to the samples was by questioning the heads of households living in the border areas of northern Iran working in the border bazaars of northern Iran, which were distributed among the heads of the households by a stratified method and then simple random.

Analysis method

To measure the impact of the creation of a border market on each of the items of economic, social and physical dimensions, the prioritization of the items (average) and the opinions of the respondents have been used. After determining the economic, social and physical indicators, SPSS software was used to analyze the effect of each of the above variables, and parametric and non-parametric statistics were also used to analyze the effect of each of the mentioned indicators.

Results and discussion

To assess the effectiveness of the market on improving the quality of life, economic, social, and physical indicators have been used. For each of these indicators, relevant criteria have been evaluated.

Table 3. T-Test Results of the Comparison of the Average Impact of Quality of Life Dimensions on the Sample Population (Before and After Employment in Border Markets)

Average	Standard error of the mean			T	Df	Sig
Economic	Before employment	After em-	1.21	9.5	265	0.000
	employment difference in averages		3.28			
			2.9			
Social	Before employment	After em-	1.1	6.7	265	0.000
	employment difference in averages		2.3			
			2.2			
Physical	Before employment	After em-	1.8	8.2	265	0.000
	employment difference in averages		2.7			
			2.1			

Source: Authors' calculation, 2025

Statistical Analysis of Table 2 indicates a significant difference at the 0.05 level and an improvement in the quality of life for the sample population before and after employment in economic ($T=9.5$), physical ($T=8.2$), and social ($T=6.7$) dimensions. Based on the information extracted from the questionnaire, the radius of the impact of establishing the market on improving job diversity and service-related jobs dependent on border markets also shows that this influence extends up to a radius of 30 kilometers. In other words, the creation and prosperity of border markets introduces a new approach to activities in the service sector of surrounding cities, leading to an increase in income derived from business development. The analysis of averages before (1.21) and after employment (3.28), as well as the T-statistics (9.5), indicates significance and an enhancement in the quality of life for employed individuals in the period before and after employment. Then, there is evidence of a significant and positive relationship between employment dependence on the market and satisfaction with the improvement in social dimensions of quality of life.

Considering the border situation of cities in the northern regions of Iran, human resources have mainly shifted towards service-related jobs dependent on the market. The increase in street vending is one of the aspects related to employment performance in these markets. Statistical results in Table 3 assess the positive effects of establishing markets on improving economic dimensions in the quality of life, indicating that all seven examined components have been confirmed by household heads. Each of these indicators is significant at the 99% confidence level, with the significance level of all seven components being less than 0.1 (0.000). From a statistical perspective, the establishment of border markets has led to an improvement in the quality of life for households in economic dimensions, and the one-sample T-test confirms this point at the 99% confidence level in terms of the relationship between the two variables (establishment of the market and improvement in economic quality of life).

Table 4. Positive Effects of Establishing Markets on Improving Economic Dimensions in the Quality of Life from the Perspective of Household Heads Using One-Sample T-Test

Row	Quality of life issues in economic dimensions	Average	Standard deviation	T	Sig
1	Increase in income and satisfaction from it	4.38	1.6712	5.23	0.000
2	Increasing prosperity and reducing poverty and economic inequality	4.32	9485	5.18	0.000
3	Absorption of surplus labor in the agricultural sector and job satisfaction	4.12	8887	5.19	0.000
4	Improving job diversity	3.19	98489	4.83	0.000
5	Access to financial services in order to set up a small workshop	3.10	7861	4.82	0.000
6	Increasing service jobs related to the border market	3.11	7511	4.71	0.000
7	Increasing purchasing power and institutionalizing the possibility of income generation	2.10	7118	4.70	0.000

Source: Authors' calculation, 2025

The results of Table 3 indicate that among the examined components, the indicators of the market's impact on improving the economic dimensions of quality of life, including the impact on income increase and satisfaction with an average of 4.38, the impact on increased well-being and reduced economic poverty and inequality with an average of 4.32 and the effectiveness in attracting surplus labor from the agricultural sector with an average of 4.12, are ranked first to third, respectively. Analytical findings show that the establishment of the market is significantly effective (0.000, 99% confidence level) in improving the quality of life, especially in terms of income increase, well-being, labor attraction, job improvement and diversity, access to financial services, and the growth of service-related jobs, resulting in an enhancement of purchasing power. The Z-statistic value (-28.4), with a confidence level of 99% being less than the rejection region at the 5.0 level indicates a significant relationship between establishing the market and increasing the level of quality of life.

Table 5. Result of the Kendall Correlation Test - Positive Impact of Economic Dimensions on Improving Quality of Life

The number of positive effects of creating a bazaar on improving the quality of life in economic terms	Kendalls tub-b	
1.000	Correlation coefficient	The number of positive effects of creating a bazaar on improving the quality of life in economic terms
0.000	Sig-(2tailed)	

384	N	
0.649-	Correlation coefficient	Direct influence and significant relationship between indicators
0.000	Sig.(2tailed)	
384	N	

Source: Authors' calculation, 2025

The information in Table 4, which pertains to the correlation between the impact of establishing the market and the improvement of the economic level of quality of life, is also confirmed through the Kendall correlation coefficient test. The calculated Kendall correlation coefficient (-0.649) and the error level less than 0.01% indicate a significant relationship between the indicators studied. According to the statistical analysis of the above tables, it can be concluded that border markets have successfully played their role in improving the quality of life in economic dimensions. The calculated significance level is less than alpha (0.05), suggesting that, according to the statistical community's belief, the desirable performance of these border markets in promoting the economic quality of life for more than 50% of the statistical population has been achieved. Thus, with 95% confidence, the positive effects of border markets can be confirmed.

Employment in the border market has been an important factor in enhancing the quality of life, and its impact can also be examined in the social dimensions of quality of life. The establishment of border markets with positive social effects has transformed the urban space into a more prosperous environment and created a sense of belonging among residents to the geographical area of residence. Field studies indicate that in previous years border residents witnessed an increase in migration to larger cities and the exacerbation of this trend in the long term will intensify security problems with the decline in border capabilities. Therefore, strengthening positive effects in the long run can lead to a reduction in emigration from border areas and even immigration receptiveness and population stability.

Table 6. Evaluation of Social Impact Indicators of Establishing Border Markets in the Northern Regions of the Country on Improving the Level of Quality of Life

Row	Social indicators	Average	Standard deviation	T	Sig
1	Reducing immigration and permanence in border areas	3.89	6831	5.383	0.000
2	Reducing social inequalities	3.60	5232	5.189	0.000
3	Hope for the future	3.63	6483	4.353	0.000
4	A sense of belonging to the place of residence	3.70	6791	5.995	0.000

Source: Authors' calculation, 2025

The information in Table 5 indicates the social impacts of establishing border markets in the northern regions of the country on the indices of improving the quality of life. In this table, four indicators have been evaluated, with the components of reducing migration and settlement in border areas having an average of 3.89, a sense of attachment to the place of residence with an average of 3.70, and having motivation and hope for the future with an average of 3.63 and reducing special inequality with an average 3.60, showing the highest and lowest impacts, respectively, as reported by the respondents. These social components are significant at the 99% confidence level (sig = 0.000), indicating that border markets have led to positive changes for the employed individuals.

To confirm the effects of employment on the social dimensions of quality of life, a paired T-test has also been used, and the results are presented in Table 6.

Table 7. Results of Paired T-test Comparing the Means on the Improvement of Social Indicators of Quality of Life Before and After Employment

Indicators	Average	Standard error of the mean	95% confidence interval		T	F	Sig
			lower limit	Upper line			
Social	Before 1.22 Dimension	0.045	0.172	0.428	9.5	422	0.000
	3.85						
	Mean difference 0.349						

Source: Authors' calculation, 2025

Statistical analysis of Table 6 indicates that the development of border markets has reduced social inequalities and led to a decrease in the social costs of migration from cities. Therefore, it is necessary for authorities to focus more on local and regional capacities and potentials of these markets to address social changes and development by paying more attention to the improvement of quality of life. Examining the status of physical factors, which are among the most important factors in understanding the impact of border markets on the improvement of the quality of life of workers reveals that the improvement of physical and environmental indicators is closely related to the establishment of border markets.

Information in Table 7 indicates that access to higher-quality residential units, with an average rank of 9.46, has been the most desirable indicator according to respondents. In other words, from the statistical perspective of the community, the positive impact of the northern border markets on improving citizens' access to better housing is fully apparent in the physical dimensions of quality of life. It is worth noting that the indicators of the impact on the centralized supervision of urban officials (with an average of 8.21) and citizen satisfaction (with an average of 6.29) as well as greater attention by officials to urban environmental issues (with an average rank of 4.24) are ranked in the next places. In examining the differences in each of the physical aspect items with the Kruskal-Wallis's test, the research results show that there is no significant difference in all items. In other words, respondents did not mention the impact of the market uniformly in all dimensions, and in these areas, the difference is statistically significant at a confidence level of 95%.

Table 8. prioritizes the physical items from the perspective of respondents

Indicators	Average	Standard deviation	Priority	Kruskal Wallis	
				Chi-square	Sig
Satisfaction from an urban perspective	6.29	0.452	3	18.53	0.000
Centralized supervision of city officials on city construction	8.21	0.531	2	23.55	0.000
Officials pay more attention to the urban environment	4.24	0.458	4	16.10	0.000

Access to better quality residential units	9.46	0.641	1	37.56	0.000
Access to required services	3.31	0.621	5	14.3	0.000

Source: Authors' calculation, 2025

To demonstrate recognition and prioritize the impact of creating the border market on improving threefold aspects of quality of life, enter regression analysis has been employed. The results are presented in Table 8 below.

Table 9. Results of Enter Regression for Monitoring and Classifying the Effects of the Market on the Improvement of Quality of Life in Economic, Social, and Physical Dimensions

The effect of the border market on dimensions of quality of life	R Square			Beta coefficient	T	F(df)
Economic	0.47	0.14	0.14	0.47	8.32 **	73.8** (2.29)
Social	0.35	0.11	0.11	0.35	6.52**	52.2** (1.83)
Physical	0.21	0.10	0.10	0.21	4.23**	3.51** (1.1)

** (p<0.001) *Source: Authors' calculation, 2025*

The Enter regression results in Table 8 indicate the prioritization of effects in descending order. The economic variable (0.47) explains the most significant impact of creating the market on improving the quality of life. The social variable (0.35) and the physical variable (0.21) indicate the second and third priority of positive and meaningful correlations with the market, respectively. It's worth noting that the standardized Beta coefficient in the economic dimension (0.47) shows a noticeable difference compared to the physical dimension (0.21). Therefore, the result of the test with 0.47 Beta, $P < 0.001$ in the table above confirms the direct relationship between creating the market with the improvement of quality of life.

Table 10. The Difference in the Improvement of Quality of Life Resulting from the Creation of the Border Market

Indicators	Number of respondents	Average rating	Chi value	DF	Sig
Physical	383	95.3	38.5	4	0.000
Economic	383	179.8	53.1	4	0.000
Social	383	123.1	47.2	4	0.000

Source: Authors' calculation, 2025

According to the non-parametric statistical analysis in Table 9 and the ranking of averages in economic dimensions (179.8) and the Kruskal-Wallis's value (53.1), it is evident that the market's impact on the economic dimensions of citizens' life quality is more substantial than other dimensions.

Research Limitations

One of the most significant limitations of this study is its restricted geographical scope. The research was conducted exclusively in a specific province in northern Iran, which shares a border with only one neighboring country. Therefore, the geopolitical, economic, and cultural interactions examined in this study are limited to a particular pattern of border relations that may not fully represent the diverse conditions present in other border regions of Iran. Considering that Iran shares borders with multiple countries, each with distinct political, economic and regulatory frameworks, the findings of this study cannot be fully generalized to all border areas of the country. Consequently, while the results provide valuable insights into the impact of border markets on the quality of life in the studied region caution should be exercised when interpreting and applying these findings to other regions.

Nonetheless, this research plays a crucial role in providing a deeper and more accurate understanding of the economic, social, and physical conditions of the rural and urban border communities within the studied province. Its findings can serve as a reliable foundation for designing local and regional development plans tailored to this specific area and assist policymakers in devising more effective strategies to improve the quality of life for border residents. Therefore, it is recommended that future research undertake comparative studies across different border provinces to achieve a more comprehensive and robust understanding of the role of border markets in enhancing quality of life.

Conclusions

The aim of establishing border markets in northern Iran has been to enhance the quality of life for citizens. In recent years, we have witnessed the implementation of border markets on various scales, each leaving different effects and consequences on geographical environments. So, one of the major necessities in urban planning is understanding the outcomes and impacts of such projects from various dimensions and aspects. To spatially analyze the influential effects of markets on improving quality of life in the studied area, it has been scrutinized and analyzed based on physical, economic and environmental dimensions.

The research findings indicate that from the respondents' perspective, the most significant impact of market establishment is on enhancing the economic dimensions of life quality. In the economic aspect, the creation of markets has had the most influence on "income increase, poverty and inequality reduction, absorption of surplus labor in the agricultural sector, and job satisfaction," respectively. The results of this study show that the analysis of the average index before (1.21) and after (3.28) employment, as well as the t-statistic (9.5), demonstrate a significant and improved quality of life for the employed population before and after engagement. Border markets in northern Iran have been remarkably effective in bringing about changes in selected components (in this study) in the economic dimensions of citizens' life quality.

In the economic quality aspect, satisfaction and the respondents' perception are significantly dependent on market development. The research provides substantial evidence of the direct and indirect positive impact of these markets in creating jobs and absorbing additional labor from the agricultural sector. The results show a meaningful relationship (at a 95% confidence level) between the creation and development of the market and the improvement of citizens' physical life quality dimensions.

It is noteworthy that the highest impact of the marketplaces on the physical dimensions of life quality from the statistical community's perspective is reflected with an average rank of 9.46 in relation to how citizens access better housing. The Beta coefficient in economic dimensions (0.47), compared to physical dimensions (0.21), reveals a significant difference. The findings demonstrate that border markets in northern Iran play a crucial role as a driving factor in improving economic aspects of life quality.

Employment in border markets has proven to be a significant factor in improving the quality of life with positive social effects transforming urban spaces into meaningful environments and fostering a sense of belonging among citizens. The creation of border markets in northern Iran has had a substantial positive impact on social dimensions and this has led to a reduction in social migration costs from cities. Therefore, it is necessary for authorities to focus on local and regional capacities to address changes and social development through improving the quality of life.

Recommendations

Given that the primary objective of this study was to conduct a comparative analysis of the economic, social and physical impacts of border markets on the quality of life of residents in northern Iran's border regions, the findings underscore the pivotal role these markets play in enhancing various urban and rural development indicators. Border markets have not only contributed significantly to employment generation and income growth among border communities, but they have also created new spaces for social interaction, thereby reducing migration tendencies and yielding positive outcomes in the social and cultural domains. Furthermore, the improvement of infrastructure and access to basic services has had a tangible impact on the physical and spatial quality of life for residents in these peripheral areas. In alignment with these findings, the following recommendations are structured into three dimensions economic, social and physical to strategically strengthen positive effects and mitigate challenges associated with the development of border markets:

- **Economic**

- Promote sustainable and diversified employment opportunities in market-related sectors such as transportation, agro-processing and cross-border trade to increase household income and reduce unemployment.
- Attract public and private investments to expand the capacity of border markets and increase the number of active units, thereby absorbing surplus labor and facilitating migrant integration.

- **Social**

- Implement targeted support programs to empower vulnerable groups, especially women, youth, and residents of disadvantaged border areas, through vocational training and improved access to financial and social services.

- Strengthen local community participation in decision-making processes to enhance social cohesion, foster a sense of belonging and increase public trust in governing institutions.
- **Physical (Spatial)**
- Upgrade and expand the physical infrastructure of border markets, including market facilities, transportation routes, and essential services such as water, electricity, internet and healthcare to improve efficiency and community satisfaction.
- Improve and develop adequate housing and welfare services near market zones to enhance the overall living standards of border residents and facilitate better migrant accommodation.

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