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An Approach to the Spatial Planning: The Examination of Mutual Effects on Development and Security in Border Regions; Case Study: Khuzestan, Iran, 1979-2009

Alireza Andalib[*]- Ph.D in Urban Planning, Tehran University, Tehran, Iran

Sharif Motawef - Ph.D in Urban Planning, University of Heriot-Watt, Edinburgh, UK

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Abstract

The following is a case report on a study was held on the border region of the province of Khuzestan, southwest of Iran. This border line with Iraq has experienced different events of conflict since the Islamic Revolution of Iran in 1979, such as the 8 year war between Iran and Iraq. Conflicts between Iran and Iraq at this region have been special to influence the security and development's interrelations within the development process of the region and the country as a whole. This has to be considered by any development planning for the region, especially Spatial Planning. This was the main subject for doing a research held for the region with the aim to examine interrelations between development and security indicators in this border region.

The main objective of this study is to answer questions on the mentioned above expected interrelations as they were set within the hypothesis. The hypothesis of the study examined in a term of 30 year between 1979- 2009, which has divided into two periods. This study is composed on the research methods and quantitative analysis conducted.

It was found in this research that many aspects in border regions are related to each other, and they affect each other in an interactive systematic way. Development is related to security status in border regions. Border areas with rich economic structure such as Abadan and Mahshahr had higher security indicators than other regions that suffer higher rates of unemployment and poverty. Rregions with high indicators regarding security, are also defendable regions, and they have experienced a successful development process. This can be explained in term that security attracts economic activities and investment that are necessary for a successful development program.

Keywords: Spatial planning, Border regions, Security, Khuzestan, Iran.

[*] E-mail: andalib110@yahoo.com

1. Introduction

Border regions have a special importance in development, security, and defense planning because they are connected to different national and international environments. Also, because of their geographical locations they have an ability both to limit and/or facilitate cross-border trade and other exchanges between two neighboring countries. Cross-border regions also can play critical role in the international relations because they can form the spatial linkages between nations and countries, facilitating all kinds of exchange and unifying spaces between neighboring countries (Counsell, 2009). Therefore, we can observe a fascinating development in the concept of 'border' from a "wall" that separates two neighboring countries, emphasizing the nationality, authority and sovereignty of nation-states, to a "continuous space" that links neighbors, arbitrarily separated by politics, and facilitating all kinds of exchanges between them. Thus, recent studies indicate that a transition in the concept of borderline from 'physical barrier', which could be identified by some solid materials such as fence or concrete wall, to an 'invisible line' that is recognized by regulations and international laws, such as national sovereignty and UN recognized authority (Driscoll, 2006).

The importance of border regions has increased on the basis of two factors. On the one hand, there is broad consensus on this issue that a country's national sovereignty is defined by its international boundaries; and on the other, that neighboring countries communicate with each other for many different purposes along their international borderlines, including most importantly development and security issues (Perkmann, 2003 and Driscoll, 2006). The concept of border poses a dilemma for national governments because it is both a barrier protecting national security, and also a gateway to neighbors, and indeed, to the whole world Prytherch, 2009 & Johnson, 2009). Despite the fact that a lot of attention has been paid and studies have been done in many countries on subjects relevant to these regions, and to their functional roles in the development and security planning process of a country, almost all of these studies have been done to explain a specific project or a work done in these regions.[1]

[1] There are number studies on their issues. They include:

- Border Link (1994) "Economic Profile of the San Diego- Tijuana Region" A joint program of Universidad Autonoma de Baja, California, USA.
- Buchanan, Ruth (1998) "Border Crossings: NAFTA, Regulatory Restructuring, and the Politics of Place" in Global Legal Studies Journal II; 2 Buchanan:
- Building the Economy; Building the Peace: Development of Border Areas and National Race; A Paper picked from the Internet.
- Alinaqi Amirhossein (1999) "Data Disbalance in Iranian Regions: Border regions"; in Strategic Studies Quarterly; Vol. 5-6; Strategic Studies Research Institute; Ministry of Higher Education, Tehran, Iran.

This study attempts to pave the way for a more comprehensive understanding of these regions. A quantitative analysis was conducted in order to examine interrelations between development and security, using correlations between their indicators.

The research includes four main parts. Part one is the introduction of the study, set out here. Part two introduce the border regions of Khuzestan's province. In the following parts, the indicators of the study are examined analytically. In the final part of the research, the conclusion is set out.

2. Case Study: The Region of Khuzestan

The province of Khuzestan, with Ahwaz as regional center, is the ninth largest province of Iran with 67,132-squire kilometer area, with more than 3 millions population, and located in the south west of the country (Gitashenasi, 1996; census 1996 and Social and Economic Images of Khuzestan, 1996) (Map. 1). Due to its pivotal location and huge oil reserves, Khuzestan has had a very dramatic history, before the Iraqis invaded a large part of it during the Iran-Iraq War (1990-1988) (Map.2).

Map 1: The situation of Khuzestan Providence in the region

Map 2: The occupied regions of Khuzestan by Iraqi Army in 1980 (up to 20km south we st of Ahwas, the center of the province) Source: Rashid, 2000

Considering the indicators used in this study, the border region of Khuzestan has been divided into five sub-regions, to be studied as follows: (Map.3)

1. First sub-region (north) with the civic center of Shoush (Susa) city

This region consists mostly of desert land and sandy hills, resulting in a low population density. Human settlements in this region, on both sides of the border between Iran and Iraq are small and with long distances between them. Small towns, distant villages and weak infrastructure networks in this border region work against the integration of people as well as economic and social relations. Some nomad tribes live in this area, which based on their lifestyle, are not deeply dependent on land, and therefore, are not willing to have permanent homes, compared with the other regions.

2. Second sub-region (Dasht-e-Azadegan) with Susangerd civic center city

This region has different geographical characteristics from region one. Fertile soil and plain land with plenty of water have turned this region into

of the most important agricultural areas in the southwest part of Iran. There is a high population density, with many towns and villages close to the highly fertilize land and water resources.

3. Third sub-region (south to the second) with the center of Khorramshahr city

The economy of Khorramshahr is still affected by the destruction and depopulation of the city of the 1980's, during the first years of the war. The main activities are however the same as before the war; petroleum production and some exports and imports through the city port. This region has gained great attention from the Iranian government at national level because of the high importance of the port and its related installations close to the border with Iraq.

4. Fourth sub-region (south-east to the third) with the center of Abadan city

This region is one of the most important regions on the north of the Persian Gulf. The city of Abadan, with its great oil refinery, has played a dominant role in the region during the 20^{th} century. Although the formation of the city and its economic life was based on the oil refinery, the port of Abadan and the city market was growing to take a leading role during the two decades (1960s and 1970s) advanced to the War. Tourism and trade activities in Abadan were significant during the above-mentioned decades. Abadan was badly damaged during the war, but it is now reconstructed and enjoying a normal life.

5. Fifth sub-region (east to the fourth) with the center of Mahshahr port

This region is located on the north of the Persian Gulf and having maritime contact with world. This location has created a vibrant region, alive with commercial activities. Additionally, fishing and agriculture based on its related installations associated with Hindijan River are important in the region. Fishing as a major economic activity due to its good location on the mouth of the Persian Gulf; and agriculture based on the waters in the Zuhrah and Jarrahi Rivers is the other important activity in the region. This is an exceptionally prosperous region.

Map. 3: Border regions limits of Khuzestan and its case study division region

3. Methodology

The experimental works of this study aims to examine this hypothesis that:

"It seems that a direct correlation exists between development and security in border regions."

This examination was held on a theoretical base indicates that:

"Both, security and development topics, particularly in border regions correlate with each other. Also, materialization of logical relation between them necessitates special and comprehensive consideration of effective developmental components on security as well as security parameters on development. Such a correlation necessitates a systematic and coherent viewpoint between these two topics. On the one hand, lack of spatial regional balance between central and border regions can also result into reducing

favorable security in border regions. On the other hand, any kinds of developmental planning in border regions necessitates a consideration of different levels of local, regional, national, and transnational security. Therefore, all plans like this needs to provide necessary security infrastructures, both sides in defensible and improvement installation, in accordance with relevant location and time circumstances." (Andalib, 2001).

Generally, the method of experimental analysis in this study, considering its various fields, is a combination of qualitative and qualitative methods. Thus, the basic approach of the study builds up on four major steps: first, identification of indicators; second, qualitative calculation and analysis; third, qualitative analysis; and finally conclusion. These steps can be subdivided into seven sub-steps; which are used in a more detailed examination of the hypothesis (Fig.1).

Step 1: *Timing and locating the hypothesis Examination*

In this step, the sphere of hypothesis examination time and location recognizes for assessing the next steps.

Step 2: *Indicators' Distinguish and Identification*

In order to examine the study hypothesis easily, it needs to extract some general criteria into performance indicators. For this reason, in this study, the development and security criteria, as the main elements of spatial planning in border regions, were extracted in some detailed performance indicators as follows:

1. Development Indicators:

The eight indicators of development are identified and described in this study. (Table 1) These indicators and their definitions are sued of some different resources regarding development issues in international publications at UNDP and national organization, such as Statistic Center of Iran, Planning and Budget Organization. Thus, based on the object of the study, some useful indicators are concluded and/or some others added to them from the technical publications. (PBO, 1999).

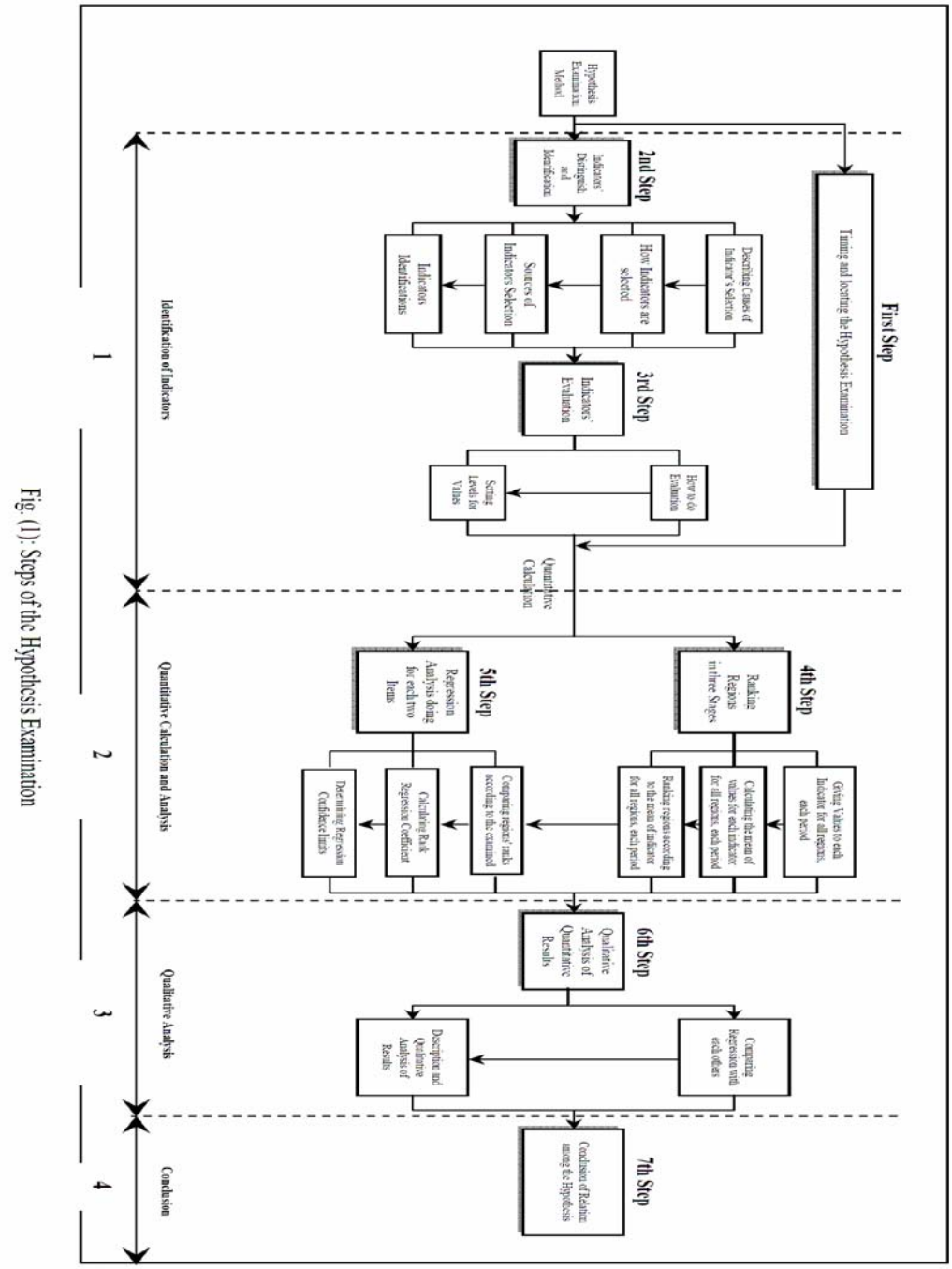

Fig. (1): Steps of the Hypothesis Examination

Table 1: Definitions of the Development Indicators in Border Regions

Indicator Name	Indicator Description
1. Product Rate	Annual Sum of Goods Product in a region; including Agriculture, Industry and Services; as average of years of the study period
2. Employment Rate	Number of annual employed people among active population in a giving year $Er=\frac{\text{Employed Population in one year}}{\text{Active Population in the same year}}\times 100$
3. Literacy Rate	Literate people among population over 6year in a given region $Lr=\frac{\text{L Population}}{\text{+6y Population}}\times 100$
4. Health Services Rate	Availability of Health Services such as doctor, hospital capacity,…, for 10.000 people in a given region $HSr=\frac{\text{Facilities}}{\text{Sum Population}}\times 100$
5. Social Services Rate	Availability of Social Services and Social Security for people of a given region $SSr=\frac{\text{People have access to SS}}{\text{Sum Population of the region}}\times 100$
6. Rate of living facilities and welfare	Availability of living facilities for households such as housing (households per house) and rate of access to healthy water, bath, kitchen; and availability of T.V., refrigerator, freezer, air conditioner, radio, … for households.
7. Access to Infrastructures	Rate of population that have access to Infrastructures such as roads, transportation facilities $Inf.r=\frac{\text{People have access}}{\text{Sum Population}}\times 100$
8. People Participation Rate	People participation in social affairs and being active to participate for examples rate of people vote in different pools $PP_r=\frac{\text{Number People vote}}{\text{Sum Population}}\times 100$

2. Security Indicator:

These indicators (Table 2) in addition to the foregoing features are defined after they checked and submitted by defense and security experts. The definition of security in this study is, materialization of positive aspects of the seven indicators, but these indicators as they defined in the table, are basically the indicators of lack of security in the region.

Table 2: Definitions of the Security Indicators in Boarder Regions

Indicator Name	Indicator Description
1. Illegal Border Cross Rate	Illegally crossing the borderline in a study border region with purposes such as fighting, bomb planting, arm smuggling results in insecurity.
2. Illegal Employment Rate	Number of people have Illegal jobs such as arm or human smuggling in a study region $IE_r = \frac{\text{People doing Illegal job}}{\text{Sum Employed People}} \times 100$
3. Crime Rate	Number of crimes committed in one year in a border region compared with the sum population of that region. $Cr = \frac{\text{Number of crimes}}{\text{sum population}} \times 100$
4. Social and Cultural Disparities Rate	Social and Cultural differentiations and contradictions during the study periods. Information collected from in - depth interviews, study events, analyzing and rating.
5. Military Threat Rate	Military Threats during study periods from neighbor countries analyzed and compared and rated according to each threat size and kind.
6. Threats Because of Geographical Aspects	Kind and size of military and security threats in a study border region because of loud claim geomorphology and/ or any other reasons related to geographical aspects.
7. Defense Inabilities Rate	Inability to defend military attacks, or preventing any military threats by obstacle – building or security preparation on a border region.

Note: it should be mentioned here that all rates described above are indeed, rates of Insecurity and lack of defense preparedness.

Step 3: *Indicators' Evaluation*

In the way of evaluating identifications indicators in border regions, the rate of effect of these indicators has categorized from 'Very Good or High Developed' to 'Very Bad or Low Developed' in the selected five sub-border regions of Khuzestan, and the period of time examining hypothesis. This was categorized by numeral values ranked I-5 for each status, in addition to making position of statistics circumstances; prepare its possibility to compare between them. (Tables 3and 4).

Table 3: Development Indicators Ranks

Rank	Meaning	Description
1	Not Developed	Sever Low Development Indicators
2	Under Developed	Low Development Indicators
3	Moderate situation	Moderate Development Indicators
4	Developed	Good Development Indicators
5	High Developed	Very Good Development Indicators

Table 4: Security Indicators Ranks

Rank	Meaning	Description
1	Very Insecure	Sever Recorded Insecurity Cases
2	Insecure	Many Recorded Insecurity Cases
3	Moderate	Some Recorded Insecurity Cases
4	Secure	Limited Recorded Insecurity Cases
5	Very Secure	Very Limited Recorded Insecurity Cases

Therefore, evaluating indicators considering below items has been distinguished:

1. Extraction crude numbers of documents in any case study region, related to any of the foregoing indicators.
2. Necessary calculations by the formulas of any indicators' definitions, for getting crude indicators in the indicated three-study period.
3. To calculate arithmetic mean for the three-study periods and its mean deviation.
4. Evaluating numeral values by grades 1-5, very good to very bad status.
5. The way of evaluating is that the value of number 3 is distinguished for the numbers indicators that are close to deviation mean. Also, value numeral 4 for the numbers that are one more than deviation mean, value numeral 2 for the numbers which are less one than deviation mean, value numeral 5 for the numbers that are two more than deviation mean, and value numeral one for the numbers which are two less than deviation mean are considered. Therefore, pertaining

numbers of indicators, they are changed into values from 1 to 5, so that can be used in the next calculations.

The library and observation data also were evaluated on the following ways: firstly, the number based on the documents compare with the number, which resulted by analyzing data related interview and observations. Then, the findings of comparing documentary, interview, and observation data with each other exhibit as a common value number for any period of time. In other words, in this step, the documentary studies that its credits are in doubt adjust and compare and cross checking with resulted findings of interviews, observations. Therefore, their final conclusion is being shown as the common numeral values in the related tables.

Step 4: *Ranking Regions*

In this step, to determine the rank cases study regions, it divides to three measures as follows: giving values, calculating the mean of values, and ranking regions according to the mean of indicators for all regions, in each period. The ranking mean of the study is based on the 'Spearman Method'[1].

Step 5: *Regression Analysis doing for each two Items (quantitative analysis)*

This step is the last quantitative analysis phase of the results of field studies based on the study indicators. Therefore, comparing regions' ranks according to the examined, calculating rank regression coefficient, and determining regression confidence limits are for each two items are done in the next phasesof this step [2].

Step 6: *Qualitative Analysis of Quantitative Results*

In this step is an analyzing the results of the quantitative calculations through a qualitative method is done. Also, the reason and/or causes of differences between the regression coefficients in quantitative calculations are compared and described.

[1]- For more information, refer to the statistics books such as: Mendenhall, William (1998) Statistics for Management and Economics; PWS-KENT publishing Company, Boston, USA.

[2] - In this step, using the 'Spearman Regression Coefficient' and the 'Confidence Limits Tables', which can found in statistics books, was the main job to be done.

Step 7: Conclusion of Relation among the Hypothesis

How and to what level indicators are examined and factors are connected to each other.

The basic four steps of the hypothesis examination, which mentioned in the previous part, are used. As the state of relation between those steps and performance steps in the case study regions shows (Fig. 2), there are also four major steps. First, data collection, then, data calculation, next, data analysis, and finally conclusion are produced. These four steps it also divided to the seven sub-steps with more details as follows:

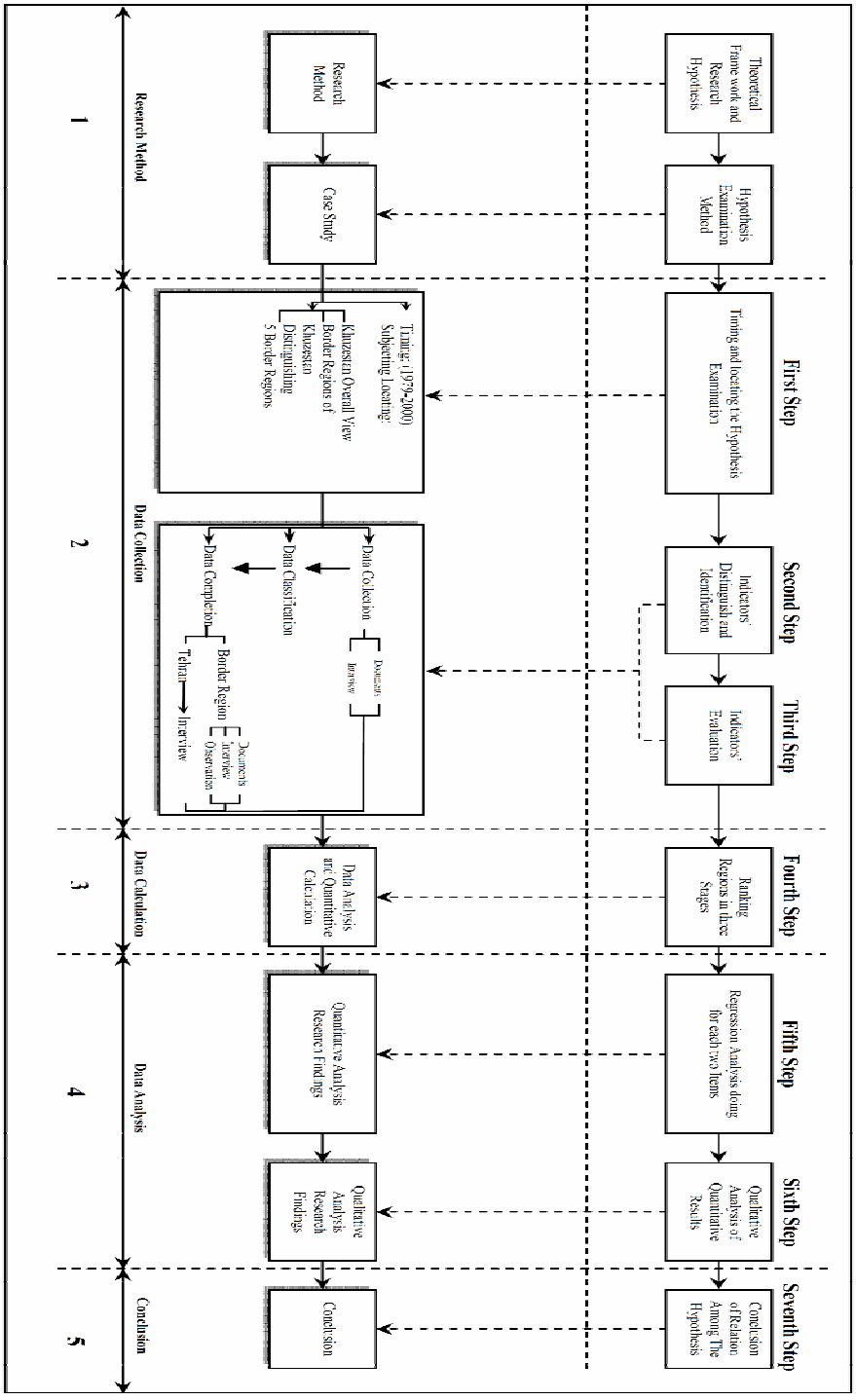

Fig. (2): The Examination Hypothesis Process of the Case Study, Khuzestan Border Regions

4. Data and Analisis

Step 1**:** *Timing and locating the hypothesis Examination*

The limit of timing study hypothesis examining, in quantitative method, has respected three phases during years 1979 to 2000. Each phase has some common features with a milestone and important event in the history of the country as follows:

1. First phase between 1979- 1980: its beginning milestone is the victory of Islamic Revolution of Iran, and its ending milestone is the start of the Iraq War against Iran. This period includes the following activities of the Iraqi regime: implementation sabotages, border insecurities, provoking Khuzestan Arab ethnicity, and achieving reconnaissance of the borders.
2. Second phase between 1980- 1989: its beginning milestone is the start of the war and its ending milestone is the end of the war. This period includes following topics: continuing war, the country's severe slump in development, absence of border peoples and their participation in the border regions' development plans.
3. Third phase between 1989- 2000: its beginning milestone is the end of the war, the start of reconstruction, and the beginning of the First Development Plan; and its ending milestone is the end of this experimental study in 2000. This period includes: implementing the country's reconstruction and development plan, in this border region.

Therefore, timing domain defines considering the above reasons, also according to the latest census in 1976, 1986, 1996, with a bit forbearance, can express three foregoing period of time. The year 1976 states the situation of the country before the start of the Iraq-Iran War; the year 1986 states the situation during the war; and the year 1996 states the situation after the war. In regard to the locating domain, as it pointed earlier, the Khuzestan region has been divided into five sub-regions with Shoush, Susangerd, Khorramshahr, Abadan, city centers and Mahshahr Port. (R. 3-2)

Step 2**:** *Indicators' Distinguish and Identification*

As it shown in figure 5, identifying the indicators based on the previous part at 3-3- step two, is a basis foundation to do the next step. Thus, this step is very close to get any kinds of data regarding the object of hypothesis examination in the case study region.

Step 3: *Indicators' Evaluation*

The indicators, which identified in step two, are evaluated by data collection, data classification, and data compilation in step three. These indicators are used through different documents and deep interview with key figures in various groups in regional and national levels. Also, during the active observation in the case study region, in order to getting better analysis and evaluation, observation was accompanied by some of the local authorities and informed persons (Tables 5& 6).

Table (5): Results of Evaluating Development Indicators in the Five Border Regions during the three phases of the study.

Indicator	Region 1			Region 2			Region 3			Region 4			Region 5		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Production Rate	3	2	3	3	2	3	3	1	2	4	3	3	4	3	10
Employment Rate	4	2	3	4	3	1	4	1	2	4	3	2	4	2	3
Literacy Rate	3	4	2	2	3	3	4	1	2	4	3	3	3	4	2
Health service Rate	2	3	2	2	3	2	3	1	2	3	2	3	4	2	3
Social service Rate	1	1	2	1	1	2	1	1	1	2	2	2	1	1	2
Living Facilities Rate	3	3	4	3	2	4	2	3	4	2	3	4	3	3	4
Infrastructures Capacity Rate	2	2	2	3	3	2	2	2	3	2	3	4	3	3	3
Public participation level	2	3	3	3	4	3	3	4	3	3	4	3	3	4	4

Table (6): Results of Evaluating Security Indicators in the Five Border Regions during the three phases of the study.

Indicator	Region 1			Region 2			Region 3			Region 4			Region 5		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Illegal Border Crossing	2	4	3	1	4	2	2	5	4	3	4	4	4	5	4
Illegal Employment	2	4	4	1	3	2	3	3	2	3	4	2	2	4	3
Crime Rate	3	4	3	2	5	2	4	5	3	4	5	3	5	5	5
Social & Ethnicity Disparities	3	4	4	2	5	3	4	5	4	4	4	4	5	5	5
Military Threat Vulnerability	3	2	3	3	3	3	1	2	2	2	4	2	4	4	4
Geographical Threating Vulnerability	3	4	4	4	4	4	2	1	2	3	4	2	5	5	5
Defense Disorder	2	3	2	3	4	3	3	3	1	3	4	4	3	4	4

Step 4*: *Ranking Regions

In step four, after data analysis, quantitative calculations, and the indicators' arithmetic mean calculating, ranking regions in three stages of development (Table 7) and security (Table 8) are done.

Table (7): Val uses of Development Indicators and Ranking of the Five Border Regions during the three phases of the study.

Region5	Region 1			Region 2			Region 3			Region 4			Region 5		
	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Total ∑	20	20	21	21	21	20	22	14	19	24	23	24	25	22	25
Arithmetic mean X	2.50	2.5	2.62	2.62	2.62	2.5	2.75	1.75	2.37	3	2.87	3	3.12	2.75	3.12
Rank	5	4	3	4	3	4	3	5	5	2	1	2	1	2	1

Table (8): Values of Security Indicators and Ranking of the five border Regions during the three phases of the study.

Indicator	Region 1			Region 2			Region 3			Region 4			Region 5		
	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Total ∑	18	25	23	16	28	19	19	24	18	22	29	21	28	32	30
Arithmetic mean X	2.57	3.57	3.28	2.28	4	2.71	2.71	3.42	2.57	3.14	4.14	3	4	4.57	4.28
Rank	4	4	2	5	3	4	3	5	5	2	2	3	1	1	1

Step 5*: *Regression Analysis doing for each two Items (quantitative analysis)
Quantitative analysis research findings were examined by regression coefficient analysis between security and development through ranking regions in three stages. (Tables 9, 10, and11) The results of calculations in this step express that generally, the ranks of five regions regarding development and security indicators are very close to each other and show narrow differences.

Table (9): Ranking Comparison Regarding Development and Security during the phase1 and Correlation Coefficient Analysis.

Region	Development	Security	d	d^2
1	5	4	1	1
2	4	5	1	1
3	3	3	0	0
4	2	2	0	0
5	1	1	0	0

Development and Security Correlation Ranking Coefficient Analysis:

$$R = 1 - \frac{6\sum d^2}{N^3 - N} \qquad R = 1 - \frac{6(1+1)}{125-5} = 1 - \frac{12}{120} = 1 - 0.1 \longrightarrow R = 0.9$$

Table (10): Ranking Comparison Regarding Development and Security during the phase2 and Correlation Coefficient Analysis

Region	Development	Security	d	d^2
1	4	4	0	0
2	3	3	0	0
3	5	5	0	0
4	1	2	1	1
5	2	1	1	1
Development and Security Correlation Ranking Coefficient Analysis: $R = 1 - \frac{6\sum d^2}{N^3 - N}$ $R = 1 - \frac{6(1+1)}{125-5} = 1 - \frac{12}{120} = 1 - 0.1 \longrightarrow R = 0.9$				

Table (11): Ranking Comparison Regarding Development and Security during the phase3 and Correlation Coefficient Analysis.

Region	Development	Security	d	d^2
1	3	2	1	1
2	4	4	0	0
3	5	5	0	0
4	2	3	1	1
5	1	1	0	0
Development and Security Correlation Ranking Coefficient Analysis: $R = 1 - \frac{6\sum d^2}{N^3 - N}$ $R = 1 - \frac{6(1+1)}{125-5} = 1 - \frac{12}{120} = 1 - 0.1 \longrightarrow R = 0.9$				

The findings of this research show that in the first period, in the first and second regions (Shoush and Dasht Azadegan), there were small differences between development and security indicators with respect to their rankings. In regard to the third and fourth regions in terms of development and security indicators, there were no considerable differences (Table 9). Therefore, there was a 0.9 regression coefficient between ranking of five regions regarding development and security indicators. In the light of confidence limit to this statistical finding, the 'Values of Spearman Rank

Correlation Coefficient Critical' shows 0.5, the rate of not confidence. In other words, until this stage of the study, (with 95% level of confidence) could not deny the direct, positive, and mutual relations between development and security indicators in the five regions of Khuzestan, in the first period of time.

The findings of the research in the second period show that rankings of regions one, two, and three in terms of development and security indicators were the same and there were not serious differences between them, but there were small differences in the between rankings of regions four, and five. (Table 10) Also, regression coefficient as the first period shows 0.9; therefore, until this stage of the study with 95% level of confidence the hypothesis is confirmed without question.

Also, the same result was repeated in the third period, so there were small differences between rankings of development and security for regions one, and four; whereas, there were no differences between the above indicators in this period in the regions two, three, and five. Also, the regression coefficient is 0.9, which is the same as two foregoing periods of time. Therefore, with 95% level of confidence, a direct, positive, and mutual relation between development and security indicators in the five border case study regions was established(Table 11)

Step 6**:** *Qualitative Analysis of Quantitative Results*

Following, in the sixth step, the qualitative analysis of the research findings, on the base of the quantitative calculations are resulted.

1. The study findings in region one, Shoush, indicated lower values of development indicators in the first period (before the eight year war), compared with other study regions, therefore, the region occupied the last and the fifth place among the five border regions. These findings indicate that security and defense indicators of this region were also low and they occupied the fourth place. This study indicates that development indicators during the war were slightly improved moving Shoush to fourth place. At the third period (after the war ended), both development and security indicators were improved to occupy the third and the second places respectively.

As mentioned earlier, the whole situation at the first border region was influenced by the geographical structure of the region. This increased insecurity as well as spying activities and terrorist attacks. The Iraqi army during the war was present in this region, some time attacking the Iranian

side and in securing the whole region. But, after the war, during the third period, because of implementation of some agriculture and water projects at the north and northeast of this region, agriculture productivity increased and development indicators improved there. Security indicators were also improved following the improvement of the development ones. Development and security indicators were increased in this region, because of infrastructure improvement mainly by roads built during the war to support military actions and subsequently contributing to economic growth.

2. In the second region, Dashte-Azadegan province, development indicators in the first and the second periods were in fourth place. But they improved in the third period to gain the third place, and then they quickly dropped again to the fourth place. Among the reasons for low levels of development and security, some factors can be mentioned, such as lack of basic development and infrastructures installation. The tribal society system and its primitive manufacturing methods had negative impacts on the regions and hindered the development process. Moreover, the general insecurity and the lack of production encouraged trade in contraband goods and smuggling while negatively impacted the economic growth of the region.

Security indicators, during the second period of the study, the wartime, were high because the Iranian military troops were present in the region to defend the country against the enemy. This presence helped security in the region, and consequently, economic activities such as agriculture and animal husbandry were able to advance.

In third period, Iranian military troops left the region. The infrastructure was still in bad conditions and reconstruction proceeded slowly. This situation had negative impacts on agriculture and animal husbandry, which declined in importance. Another reason that had negative impacted on the development process was related to some multi-purposes defense and development projects, which they were still not completed and/or faced problems with their maintenance. The consequent effect was the increasing of illegal jobs such as drug dealing and arms smuggling, which resulted in increase of insecurity rate.

3. The findings of the study reveal that at the stage advanced to the war by Iraq, region three, Khorramshahr region, in terms of development and security indicators was in third place between border regions of the case study. Development indicators of this region had been affected mainly by the economic situation of Khorramshahr and its port. That is why the city

and its port had been active until the beginning the war. Meanwhile, two major items including employment rate and high-income level of Khorramshahr port, Khorramshahr market, and the related institutes of the city increased the development indicators in the city. Also, the north rural areas and the areas west of Khorramshahr city though were undeveloped, and their low rate of employment impacted the whole region of Khorramshahr.

In the second period of the study, the war period, both the development and security indicators declined, and the rank of this region compared to the other five cases dropped to the fifth place. This position maintained in the third period of the study, mainly as a result of the steep drop in development and security indicators in the region. In terms of development indicators, such as rate of employment, income, literacy, and health drooped down abruptly. One reason was that Khorramshahr port and the main parts of the city were destroyed. The other reason was that the war terminated all activity at the port. Another important reason was that the residents left the city, particularly experts, educated people, and the high-income groups. Consequently, when major parts of the region and the city of Khorramshahr were occupied, so the defense and security indicators were simultaneous reduced in the great rapidity.

In the third period, because of a lack of reconstruction of the economy in the region, the rate of unemployment grew and income level remained at its lowest ever level. This issue heightened to spread the insecure factors and indicators, such as crime rate, and social security service. Hence, it is remarkable that when development indicators of the city and the region are relatively high, security indicators also are also at a high level. And, when development indicators had dropped down, then security indicators also are reduced.

4. The findings of the study on region four, Abadan province put it in second place with respect to security and development indicators (in the three study periods of time), after region five. This place is based on some published documents of the Planning and Budget Organization of Iran. The development indicators of Abadan province made it one of the most developed regions of the country before the war. That is why, in the current era, reconstitution of the Abadan oil refinery is the basis of renewed prosperity. The great influence of the oil company on Abadan city (advance to the Islamic Revolution of Iran) produced many different types of physical development, such as infrastructural services, buildings, and

streets, as well non-physical indicators, such as literacy, employment, and health. Therefore, with the city's economic boom, service activities, especially in relation to this region's prosperity, foreign commerce through Abadan port and city market, and the economic development indicators have grown substantially.

In terms of security and defense, the Iranian government has been highly aware of the vital security and defense of the region, for two reasons. First, the region lies next to Iraq. Second, the importance of the Abadan oil refinery installation. As a result, the Abadan oil refinery has produced increasing development indicators, such as employment rate and income. Also, it had resulted to improve defense sensitivities of its installations and to secure the main activities in the region. Therefore, it was necessary and competitive to expend security and defense expenses for keeping Abadan safe.

5. The findings of the study reveal that region five, Mahshahr Port, possessed the highest development and security indicators in the first and third period of times. In the second period, war period, this region had been in the second place, after the fourth region, Abadan. Although, Mahshahr has no ground border with Iraq, it was under the attacks of the Iraqi air forces, and threatened by U.S. military air force during the Iraq - Iran war. Yet, during the study period, and among all the case study regions, it had the first and the highest place of security indicators. Also, in terms of development indicators, this region was in the first place during the first and third periods (before and after Iraq-Iran war), but during the second period (Iraq-Iran war), it gained the second place. The reason of these results is that this region due to its geographical situation has been a prosperous region in terms of commercial activities possessing many basic infrastructural features.

Consequently, the region five having Mahshahr and Imam Khomeini Ports as well as Hindijan and their related installations have helped the economic growth rate and the rate of employment in the region. Also, these ports have expanded their related services, installation, and infrastructure elements in the region. In addition to port functions, Imam Khomeini petrochemical center and its related units have had a strong impact on the growing employment rate and income, as well as attracting expert manpower to the region. As a result, all of the development indicators in this region are higher than the other case study border regions.

Regarding the impact of development indicators on security situation, it seems that establishment of the installation mentioned above causes defense

and security sensitivity in region five. As a result, the country's civilian authorities have been committed to provide a safe situation for increasing general security coefficient and preparing better circumstances for attracting experts.

Step 7*: *Conclusion of Relation to the Hypothesis

In the final step, the rate and state of relation between effective elements in the study hypothesis is concluded. Discussing the above-mentioned investigation and hypothesis examination, it should be concluded here that all findings support the hypothesis that stated: "There is direct and positive correlations between indicators of development and security in the border regions", and research in the western border regions of Iran support this hypothesis.

5. Conclusion

This research sought to answer the following question: "Is there any direct relations between 'Development' and 'security' components in border regions"? Several tests were undertaken to examine this hypothesis for three periods: first period, before the Iraq-Iran War in 1980; second, the War Period (1980-1988); and after the war (1980-2000). The area examined included the border regions of the Iranian southwestern province, Khuzestan. The whole border between Iran and Iraq in the province of Khuzestan was studied into five sub-regions in order to do this examination properly. There were: the first region on the north with Shush town as its regional center; the second, south to the first, with Susangerd as regional center; the third, south to the second, with Khorramshahr as its regional center; the fourth, south-east to the third, with Abadan as its regional center and the fifth, east to the fourth, with Mahshahr as its regional center.

The examination of the hypothesis was based on testing items taken as development and security indicators. Development indicators including items, such as rate of product and rate of employment and security indicators were identified with some others, such as illegal jobs, high unemployment rate, illegally crossing borderlines with arm or drug smuggle. These indicators were examined in the five defined border regions, in the three mentioned periods, and the results were evaluated in terms of whether they supported the hypothesis, or to reject it.

The results of the research support the hypothesis, which indicates that 'development' and 'security' are related to each other, and they have direct

and positive effects on each others. In other words, test of relations between development and security indicators in the case study regions mainly show a high regression coefficients between ranking of five regions regarding development and security indicators. This means that, while one or more development indicators are improving, reflecting good social and economic conditions in a region, security indicators are much the same. And when insecurity is significant in a region, development indicators also show a poor situation. Thus, conclusion of this study indicates full support for the hypothesis, and there are direct and positives relations between 'development' and 'security' in any border region and any development and security circumstances.

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