

# Explaining Arthur Lewis's Duality Theory in Free Industrial-Commercial Zones (Case Study: Chabahar City, Iran)

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## Abstract

The goal of establishing commercial-industrial zones in many developed or developing countries is to increase or expand exports, create employment, attract domestic and foreign investors, take advantage of regional relative benefits, and transform the backward sectors to the development poles. Hence, in this research, Arthur Lewis's duality theory in Chabahar, with the existence of a commercial-industrial free zone, is examined as an external factor affecting the physical, human, economic (commercial) duality in documentary and field studies. The results show that free trade-industrial zone has directly increased the business, physical, and manpower duality of Chabahar city. Other results also show that there is a significant relationship between sex, education, occupation, income level, place of residence and physical, commercial and manpower duality. Finally, in order to overcome these effects, factors such as economic security, supply of manpower by training courses, preventing the emergence of bureaucracy and excessive formalities, as well as the deployment of all agencies and organizations under unit management and based in the region, can help to reduce this duality.

**Key word:** Duality, Free trade-industrial zones, Chabahar city, Arthur Lewis

## INTRODUCTION

The development of free zones over the past 30 years has in fact been an initiative to address issues such as the economic power of countries at the international level, the fight against unemployment and poverty, acquisition of currency revenues, and transfer of management skills and technology. Many countries, especially the East and Southeast Asian countries, have been able to expand their maneuver in the global economy and impose the process of development on the basis of land-based equilibrium and ultimately reduce unemployment and finally improve welfare social. Emerging economic powers, such as China, Malaysia, South Korea and India,

have extensively used these tools. Today, free zones are considered as inclusive phenomena and tools for realizing outsourcing development strategies with an emphasis on export development policy. So that most developing countries have built one or more free zones. The purpose of the establishment and development of free zones is to increase and expand exports, create employment, attract domestic and foreign investment and technology transfer, increase public incomes, increase tourism, promote the economic status of the country and benefit from the competitive economy (Esfandiari et al., 2008). In Iran, due to lack of national economy in the field of global competition; the establishment of free zones as an effective factor in compensating for lost opportunities and export development, creating healthy and productive employment, promoting the economic status of the country and benefiting from a competitive economy consider by the policy makers of the country's economic system.

In this regard, the port of Chabahar, at the end of the southeast of Iran, has a strong potential and is considered in many ways (Ebrahimzadeh, 2009: 107). The Chabahar

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port can play a role in various aspects such as economic, social, political, military, etc. A series of factors have been collected and created a set of conditions influenced by the location and construction of this city, including geographical, geopolitical, geostrategic, geo-economic, transit positions along with natural conditions such as: Proper geology, topography and geomorphology, sea, gulfs and wetlands, and suitable and important beaches, special climate, Social structure and special economic structure can be considered effective in this regard. The construction of the city is influenced by these factors, in addition to local conditions and households living in this city have a multidisciplinary texture. So the different aspects and urban structures are not only equal, but also they are opposite and completely heterogeneous (Ebrahimzadeh, 2010: 96).

Chabahar city, before establishment of the free zone, had situational and natural potentials, but despite these potential, this city had a major problem for development. Compared to other ports and regions of the country, it had not much of the benefits of national development, so that the city in the national production chain and other economic activities were among the weakest economic and communication circles. But after the establishment of Chabahar commercial-industrial zone, there were significant effects such as the cultural and economic growth of Chabahar city, as well as the familiarity of the country's population with the economic and tourist potential of this region, consequently increase in the level of investment and leading the region in export and import in Iran.

The study intends to assess the performance of the Chabahar commercial-industrial zone in light of Arthur Lewis's duality theory in terms of adaptation to the primary economic goals in the modern (free zone) and internal and traditional sectors (Chabahar city).

### Research Purposes

- To demonstrate the role and impact of the free zone on commercial duality in Chabahar city
- Investigating the role and effect of free zone on physical duality in Chabahar city
- Expression of the role and effect of free zone on the duality of human resources in chabahar city
- Understanding the free zone and its effects on industrial development in the region

### Research Hypotheses

- The free trade-industrial zone has been influential in the duality of Chabahar's business.
- The free trade-industrial zone has played a role in the physical duality of Chabahar.
- The free-trade-industrial zone is affected by the duality of manpower in the Chabahar city.

- There is no relationship between gender and physical, commercial, and manpower duality.
- There is no relationship between education and physical, commercial, and manpower duality.
- There is no relationship between occupation and physical, commercial, and manpower duality.
- There is no relationship between the income level and the physical, commercial, and manpower duality.
- There is no relationship between the place of residence and the physical, commercial, and manpower duality.

## RESEARCH BACKGROUND

Hosseini (1999) in the dissertation examines the performance of free zones of Iran (Chabahar case study) based on cost-benefit analysis. According to this study, the precariousness of free zones from some of the mainland laws and, in some cases, the domination of the mainland laws on the legal approaches of the said areas, as well as the lack of capacity and missions of the free zones at the stages of drafting the general laws of the country, is a major weakness in the direction of execution Development assignments of the mentioned areas.

Esfandiari et al. (2008) investigated the performance of Iran's free trade zones and its impact on economic development in these areas. The studies showed that the major part of the cost of infrastructure and infrastructures was allocated to the Kish Free Zone, and this region has been attracted by foreign exchange earnings due to foreign tourism and attracting domestic and foreign investment to other leading regions. Qeshm Free Zone has been active in attracting 99% of foreign exchange earnings due to export of goods in the free zones of Iran.

Kamran (2002) explores the causes of underdevelopment in the free zones of Iran. The results show that Free Zone Strategy is an export strategy. Unfortunately, this issue has not yet occurred in the free zones of Iran. On the contrary, the import strategy has replaced it, which has damaged the interior of the country, especially small industries. This phenomenon is also in conflict with the goals of free trade-industrial zones.

Pourzamani and Naderi (2012) have studied the obstacles to the establishment of operational budget in organizations of free trade-industrial zones of Iran. The results show that inability to assess performance, human resource disability, lack of legal authority and lack of procedural authority and lack of acceptance motivation as obstacles to operational budget establishment were identified based on the model.

Eltejai (2009) explores the free trade zones of Iran with three other Asian countries. The results of the survey

show that South Korea and China have used free trade zone strategy within their overall economic development strategies, and have been the key to their success. While Iran did not follow a clear development strategy, especially export development, when considering the motivational policies of other countries and even better than them, they have not been able to make free zones an effective means of industrial development Increase exports and expand free trade.

## STUDY AREA

Chabahar city is located at the end of the southeastern part of Iran, next to the warm waters of Oman Sea, at 60° and 37' of east longitude and 25° and 17' of north latitude. This city is neighboring by Iranshahr and Nikshahr from the north, by the Oman Sea to the south, from the east by Pakistan and from the west by provinces of Kerman and Hormozgan of Iran. The area of the city of Chabahar is about 9739 square kilometers, the city's height is 7 meters above sea level, this city has 130-kilometer earth border and about 115 kilometers of sea border by Oman Sea. The population of Chabahar city is 291910, with 2 town –Chabahar and Negor, and 3 sections including Dashtyari, Pelan, Central part, and 8 districts.

## THE METHOD OF THE RESEARCH

The method of the research is descriptive-analytic and the way of gathering data is based on library and field method. Thus, in order to gather the required information, accurate library studies, documents, as well as the field assessments have been used. In this research, SPSS software will be used to analyze the data.

### Statistical Population and Sampling

The statistical population of the study is all population living in Chabahar city, which according to the census of 2011 includes 264051 people. The method of sampling was random and the Cochran formula used to obtain sample size (Hafeznia, 2009:142) which was at 95% confidence

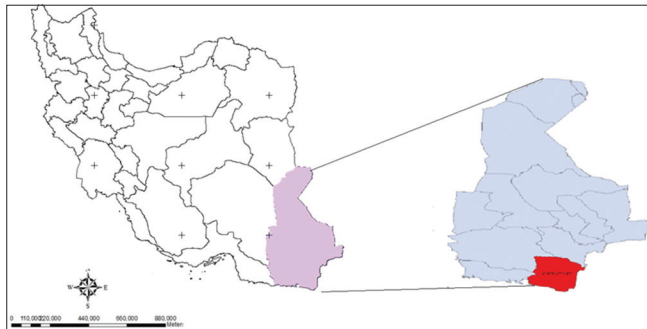


Figure 1: Location of study area in the province and country

level (5% error). Hence, 384 people were selected as the sample size.

## DISCUSSION AND CONCLUSION

### Performance of the Chabahar Free Zone in its Business Duality

- The free trade-industrial zone has been influential in the duality of Chabahar's business.

Pearson Correlation Coefficient was used to test the verification of this research section. To this end, the result of the Pearson correlation test can be found in Table (1).

Table 1: Test the first hypothesis

Indicator	Business duality	Relationship
Chabahar commercial-industrial zone	Pearson test 0.2012	Positive and meaningful
	Sig 0.000	
	N 384	

Pearson correlation coefficient shows that there is a significant correlation between Chabahar's commercial-industrial zone and Chabahar's commercial duality in the level of 95%. The correlation coefficient of 0.212 indicates that this relationship is positive and significant, it means that the existence of a free trade zone - industry directly enhances business duality in Chabahar city.

### Performance of the Chabahar Free Zone in the Physical Duality of this City

- The free trade-industrial zone has played a role in the physical duality of Chabahar.

Pearson Correlation Coefficient was used to test the verification of this research section. The results of the role of the Chabahar Free Zone in the physical duality of this city can be seen in Table (2).

Table 2: Test the Second hypothesis

Indicator	Physical duality	Relationship
Chabahar commercial-industrial zone	Pearson test 0.279	Positive and meaningful
	Sig 0.000	
	N 384	

Pearson correlation coefficient shows that there is a significant correlation between the free trade zone of Chabahar and the physical duality of Chabahar city at a level of 95%. The correlation coefficient of 0.279 indicates that this correlation is positive and significant, this means that the existence of a free trade-industrial zone has directly increased the physical duality of the city of Chabahar.

**Performance of Chabahar Free Zone, in the Duality of Manpower of this City**

The free-trade-industrial zone is affected by the duality of manpower in the Chabahar city

The results of the Pearson test calculations are shown in Table (3).

**Table 3: Test the Third hypothesis**

Indicator	Duality of manpower	Relationship
Chabahar commercial-industrial zone	Pearson test	0.287 Positive and meaningful
	Sig	0.001
	N	384

Pearson correlation coefficient shows that there is a significant correlation between the free trade zone of Chabahar with the duality of the human power of Chabahar in the level of 95%. The correlation coefficient of 0.287 indicates that this relationship is positive and significant, this means that the existence of a free trade-industrial zone has directly increased the dichotomy of the human capital of Chabahar.

**General Review of the Effect of Chabahar Commercial-Industrial Zone on the Commercial, Physical and Manpower Duality in Chabahar City**

ANOVA variance analysis method used to determine the impact of Chabahar commercial-industrial zone on business, physical and manpower duality in Chabahar city.

**Table 4: Effect of chabahar commercial-industrial zone on the commercial, physical and manpower duality in chabahar city**

Dimensions	R2	F	Sig
Performance of the Chabahar Free Zone in its business duality	0.540	316.212	0.000
Performance of the Chabahar Free Zone in the physical duality of this city	0.077	17.911	0.000
Performance of Chabahar Free Zone, in the duality of manpower of this city	0.119	54.674	0.000

The results of the calculations show that there is a significant effect of Chabahar commercial-industrial zone on each dimension ( $p < 0.05$ ).

The above table shows that the free trade zone of Chabahar in business duality factor has greater effect than other factors by coefficient of determination about 0.54. After business duality, it has more effect on the duality of manpower and, ultimately, on physical duality.

Finally, the impact of the commercial-industrial free trade area of Chabahar on the city's commercial, physical and manpower duality is in the table below.

**Table 5: Impact of the commercial-industrial free trade area of Chabahar on the city's duality**

Sig	F	R2
0.000	258.813	0.511

Totally, according to the calculations and data obtained, it was determined that the performance of Chabahar commercial-industrial free zone has a significant effect on city duality in general (with a significant level of 0.00 and determination coefficient of (0.511).

The following chart, based on the estimation curve, shows the effect of the performance level of Chabahar commercial-industrial zone on city duality.

As can be seen, according to the value of 0.511, the total capacity of the commercial-industrial free trade zone of Chabahar has a relatively high value on the city duality.

**Relationship Between Gender and Duality in Business, Physical and Nanpower in Chabahar City**

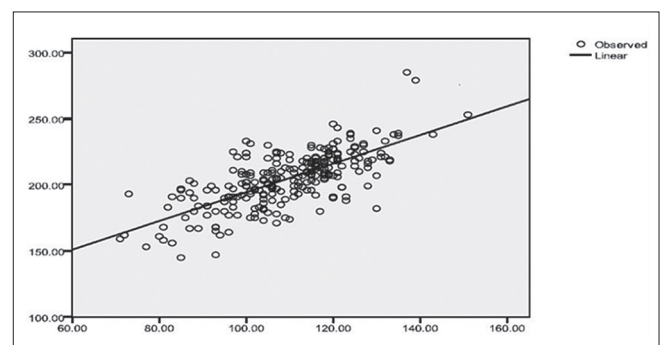
- There is no relationship between gender and physical, commercial, and manpower duality.

The Pearson correlation method has been used to determine the relationship between gender and business, physical, and manpower duality in Chabahar.

**Table 6: Test the Fourth hypothesis**

Dimensions	Pearson coefficient	N	Sig
Relationship between gender and business duality	0.158	384	0.002
Relationship between gender and physical duality	0.362	384	0.000
Relationship between gender and manpower duality	0.331	384	0.000

The results of the calculations indicate that there is a significant correlation between gender and business,



**Figure 2: Impact of the commercial-industrial free trade area of Chabahar on the city's duality**

physical, and manpower duality in Chabahar ( $p < 0.05$ ). According to the above table, it can be concluded that there is a positive and significant correlation between gender, trade, physical and manpower duality in Chabahar city. The above table shows that gender and physical duality with 0.362 determination coefficient have a greater relation than other dimensions.

**Relationship Between Education and Duality in Business, Physical and Manpower in Chabahar City**

- There is no relationship between education and physical, commercial, and manpower duality.

The Pearson correlation method has been used to determine the relationship between education and business, physical, and manpower duality in Chabahar.

**Table 7: Test the Fifth hypothesis**

Dimensions	Pearson coefficient	N	Sig
Relationship between education and business duality	0.112	384	0.000
Relationship between education and physical duality	0.582	384	0.000
Relationship between education and manpower duality	0.619	384	0.000

The results of the calculations indicate that there is a significant correlation between education and business, physical, and manpower duality in Chabahar ( $p < 0.05$ ). According to the above table, it can be concluded that there is a positive and significant correlation between education, trade, physical and manpower duality in Chabahar city. The above table shows that education and physical duality with a 0.619 determination coefficient have a greater relation than other dimensions.

**Relationship between Occupation and Duality in Business, Physical and Manpower in Chabahar City**

- There is no relationship between occupation and physical, commercial, and manpower duality.

The Pearson correlation method has been used to determine the relationship between occupation and business, physical, and manpower duality in chabahar.

**Table 8: Test the Sixth hypothesis**

Dimensions	Pearson coefficient	N	Sig
Relationship between occupation and business duality	0.124	384	0.000
Relationship between occupation and physical duality	0.207	384	0.000
Relationship between occupation and manpower duality	0.095	384	0.000

The results of the calculations indicate that there is a significant correlation between occupation and business, physical, and manpower duality in chabahar ( $p < 0.05$ ). According to the above table, it can be concluded that there is a positive and significant correlation between occupation, trade, physical and manpower duality in chabahar city. The above table shows that occupation and physical duality with a 0.207 determination coefficient have a greater relation than other dimensions.

**Relationship between Income Level and Duality in Business, Physical and Manpower in Chabahar City**

- There is no relationship between the income level and the physical, commercial, and manpower duality.

The Pearson correlation method has been used to determine the relationship between income level and business, physical, and manpower duality in chabahar.

**Table 9: Test the Seventh hypothesis**

Dimensions	Pearson coefficient	N	Sig
Relationship between income level and business duality	0.312	384	0.000
Relationship between income level and physical duality	0.613	384	0.000
Relationship between income level and manpower duality	0.364	384	0.000

The results of the calculations indicate that there is a significant correlation between income level and business, physical, and manpower duality in chabahar ( $p < 0.05$ ). According to the above table, it can be concluded that there is a positive and significant correlation between income level, trade, physical and manpower duality in chabahar city. The above table shows that income level and physical duality with a 0.613 determination coefficient have a greater relation than other dimensions.

**Relationship Between Place of Residence and Duality in Business, Physical and Manpower in Chabahar City**

- There is no relationship between the place of residence and the physical, commercial, and manpower duality.

The Pearson correlation method has been used to determine the relationship between place of residence and business, physical, and manpower duality in chabahar.

**Table 10: Test the Eighth hypothesis**

Dimensions	Pearson coefficient	N	Sig
Relationship between place of residence and business duality	0.204	384	0.000
Relationship between place of residence and physical duality	0.503	384	0.000
Relationship between place of residence and manpower duality	0.198	384	0.000

The results of the calculations indicate that there is a significant correlation between place of residence and business, physical, and manpower duality in chabahar ( $p < 0.05$ ). According to the above table, it can be concluded that there is a positive and significant correlation between place of residence, trade, physical and manpower duality in chabahar city. The above table shows that place of residence and physical duality with a 0.503 determination coefficient have a greater relation than other dimensions.

## CONCLUSION

In this research, Arthur Lewis's duality theory in Chabahar, with the existence of a commercial-industrial free zone, is examined as an external factor affecting the physical, human, economic (commercial) duality in documentary and field studies. The results show that free trade-industrial zone has directly increased the business, physical, and manpower duality of Chabahar city. Other results also show that there is a significant relationship between sex, education, occupation, income level, place of residence and physical, commercial and manpower duality.

Therefore, according to the hypothesis, 1, 2, and 3 are confirmed, and other hypotheses are rejected.

## SUGGESTIONS

- Construction of modern architectural buildings and good amenities through the participation of citizens and municipalities will have a significant impact on the elimination of duality.
- The construction of a green belt with a view to using rocky and sandy beaches, the transfer of

traffic from inside the city, and the prevention of marginalization will reduce duality.

- Proper distribution of economic, commercial and city-based education centers, especially in proposed areas to reduce duality.
- Establishing green spaces and forest and sea parks and various entertainment centers, using natural seas capacities and setting up a natural pool, establishing sea sports centers will eliminate physical discrimination and duality.
- Determining the strategies and performance indices of the Chabahar Free Zone in a specific way and the free areas in general, according to global experiences.
- Facilitation the guarantee of major investment in free zones.

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