

## **Town twinning in the region of North Economic Corridor development**

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### **Abstract**

The objective of this research is to determinate the development level of the region of North Economic Corridor through twinning cities policy. Main hypothesis is the twinning cities has a positive influence in the process of relation and development of the North Economic Corridor region. The method used is qualitative and quantitative through descriptive, documental, hemerographic, longitudinal and statistic descriptive analysis. The conclusion is Mazatlán and Durango twinning cities has brought economic benefits in Mazatlán, however, a big part of twinning success is by the connectivity given by the Mazatlán-Durango superhighway on the North Economic Corridor.

**Keywords.**North Economic Corridor, twinning cities, tourism, investments

### **1. Introduction**

In this research addresses the topics of twinning cities between Mazatlán and Durango under the Northern Economic Corridor (NEC). The development of X variables as City Twinning and Y as the region of Northern Economic Corridor, are given through indicators such as tourism, investment and influx road. In this paper, the relationship shown that both variables stored in qualitative terms and characteristics of each are described.

So, theories that link or support the formation of twinning and economic corridors and a brief review of empirical literature for the end to contrast with the hypothesis developed in this research is also mentioned.

The current global system requires modernization and competitiveness for countries of the world to be interconnected with each other (Rouva, et al., 2016). For developing nations such as Mexico, the challenge of integrating and staying in globalization is more difficult. In 2008, Mexico began construction of the Northern Economic Corridor, whose main purpose is to promote international trade and connect the Pacific to the Gulf of Mexico through a road network that will optimize resources. Although the latter is primarily of character, some of the projects and benefits to be achieved through the

corridor are also covered by the State Development Plans (Beraud Lozano & Olivarria Núñez, 2013).

The Northern Economic Corridor means for Mexico and mainly for States by traversing this corridor, greater interconnectivity, economic growth, competitiveness, reducing distribution costs and support for sectors that generate foreign exchange. The NEC incorporates the states of Sinaloa, Durango, Chihuahua, Coahuila, Zacatecas, Tamaulipas, Nuevo León and Nayarit (Coordinación General de Proyectos Estratégicos, 2013). In order to contribute to the development of the region of the corridor, it has been established the policy of town twinning.

Town twinning is designed unfortunately in practice simply as a cultural relationship, without going beyond it, when a solid twinning can also pursue goals that contribute to economic development. In the category of projects on Northern Economic Corridor, it is considered important the existence of twinning for the laid plans take shape and be put into practice together and with greater agility.

Currently one of the completed projects of the Northern Economic Corridor is the *õ*super via Mazatlán-Durango. However, projects first need is to enter goods from Asia as it is the structuring of the new port of Mazatlán, have not been developed. Therefore, the joint participation of the cities in the region of Northern Economic Corridor to reach the expected level of development is considered necessary. This is where the Sister Cities model has a positive impact on the level of development of the corridor area concerned.

Then, questions arise as influences How twinning cities in the development of the region of Northern Economic Corridor? How efficient are the infrastructure development programs for the mobility of goods? How does cultural promotion in tourism? What is the impact of investment in job creation?

To study the impact that has to use town twinning as a tool to contribute to the development of the region of Northern Economic Corridor, it is important for other regions of Mexico or another country seeking to achieve growth, seen this model as a way to get thereto. In this research, it arises to determine to what extent the twinning of the cities of NEC is benefiting the growth of the region and thus contribute knowledge as a real example of application of the tool mentioned.

The existing twinning between the city of Mazatlán, Sinaloa and Durango, Durango was chosen because they are cities of neighboring States, considered Mazatlán as the gate of the Corridor and because among them the super-road is Mazatlán-Durango, one of Corridor the most important infrastructure. Once shown the mutual benefits for both cities, will be of importance to investors from both regions and even foreign get interested in this area and the development of it continues to grow.

Therefore, the research hypotheses are:

- $H_1 = X_0 Y_0$ :Town twinning positively influences the relationship process and development of the region of Northern Economic Corridor
- $H_1 = X_1 Y_1$ :Development programs in infrastructure have a positive impact on the mobility of goods for domestic and international trade:
- $H_2 = X_2 Y_2$ :Cultural promotion has a positive impact on tourism:
- $H_3 = X_3 Y_3$ :Private investment has a positive relationship in job creation.

**Table 1.** Description of variables, dimensions and indicators of research.

Variable	Definition	Indicators
$X_0$ : Twinning cities	A technical-political instrument; as a mechanism that allows the relationship between local authorities from different nations seeking exponentiation of ties and capabilities internationally (Luna & Ballesteros, 2005).	<ul style="list-style-type: none"> <li>• Infrastructure development programs</li> <li>• Cultural promotion</li> <li>• Investments</li> </ul>
$Y_0$ : North Economic Corridor	The interrelationship of goods and services in a geographical area articulated by the cities, from the comparative advantages they have over other territories. The road network plays a central role, integrating the cities (Padilla et al., 2012). In this case the Northern Economic Corridor involves the states of Sinaloa, Durango, Chihuahua, Coahuila, and Tamaulipas. Zacatecas and Nayarit (Coordinación General de Proyectos Estratégicos, 2013).	<ul style="list-style-type: none"> <li>• Mobility of goods</li> <li>• Tourism</li> <li>• Jobs</li> </ul>

Based on the aforementioned analysis, the research aims to determine:

- the degree of development of the region of Northern Economic Corridor (Mazatlán-Durango) depending on the policy of town twinning.
- the degree of development of the region of Northern Economic Corridor (Mazatlán-Durango) depending on the mobility of goods.
- the development of the region of Northern Economic Corridor (Mazatlán-Durango) based tourism degree and,
- the level of development of the region of Northern Economic Corridor (Mazatlán-Durango) depending on the jobs created.

## **2. Theoretical and conceptual framework**

### 2.1. Twinning cities conceptual framework

In a simple concept it is said by Jean Bareth that a twinning is the meeting of two municipalities that want to proclaim their association to act in an area [...], confront their problems and developing between them friendly relations ever closer (Council of European Municipalities and Regions, 2007). Asociación de Ciudades Hermanas de América A.C. (2012) mentions that town twinning is a concept whereby towns or cities from different geographical areas and matching policies to encourage human contact and cultural links.

For De Villiers (2005) town twinning is a long-term strategic alliance between communities in different cities or towns in which their municipalities are the key actors. From another perspective is seen town twinning as a technical-political instrument; as a mechanism that allows the relationship between local authorities from different nations seeking exponentiation of ties and capabilities internationally (Luna & Ballesteros, 2005). The latter concept is used for this research.

### 2.2. Theories that promote town twinning

#### *Para-diplomacy*

Gonzalez Uresti (2016) to give a concept of para-diplomacy, quotes Cornago and Rodriguez, (2006) who described that para-diplomacy is the involvement of non-central governments in international relations through linking with external actors, seeking development in social, economic, cultural, among others. For Gonzalez Uresti (2016), para-diplomacy grants to entities within a State's ability to create links, twinning and negotiations beyond the interior of a country or region, and that this process should be regulated both within the borders and outside they. The same author also cites Aldecoa (2006) to refer to para-diplomacy as driven by economic, political, cultural, border and immigration purposes.

For this research in the variable X the following two theories are used.

#### *Complex interdependence*

The theory of complex interdependence describes that dependence is a condition influenced by external forces. In world politics, it refers to events characterized by having similar effects among countries or agents in different countries. Such effects can be produced by international trade and the results thereof will depend on involving limitations and costs. If interactions do not have significant impact on cost effects, it is said that there is only interconnection. Interdependence does not always cause mutual benefit (Keohane & Nye, 2005).

The degree of benefit and costs of interdependence, obey the interests of the actors and the type of relationship. To analyze the costs and benefits of that relationship, it can be done from two angles: gains or losses on common parts and relative gains and distribution issues. The measures taken in terms of profit gains in the relationship, do not exempt from conflicts over distribution. Therefore, one must be wary of the idea that greater interdependence leads to free cooperation of international disputes (Keohane and Nye, 2005). In the case of twinning of cities, municipalities come to take the role of countries and their joint cooperation would generate dependency between them, so that what benefit or harm one, also influence others.

#### *Decentralized cooperation*

Decentralized cooperation is one that is given directly or indirectly between decentralized or local authorities such as municipalities directly or indirectly, which are supported by other non-governmental institutions to carry out projects. It is in direct decentralized cooperation where the model twinning (Ruiz Seisdedos, 2013) enters.

#### *Empirical literature*

At this point, it is relevant to review the empirical literature to update the analysis on this subject, the theory and methodology used and the conclusions, results and findings of those previous research. Table 2 shows this analysis.

### **3. The Economic Corridor**

#### 3.1. Conceptual framework

An Economic Corridor is also one which is able to attract investment and generate economic activities throughout the area or region less developed. Physical and logistics facilitation links should take place in the corridor as a prerequisite (Banomyong et al., 2010).

Guina (2008) mentions that the economic corridors are geographic areas that cross national borders where converge production and trade activities along well-defined routes of transportation. Padilla, Garcia de Leon and Castillo (2012: 68) define Economic Corridor as *"the interrelationship of goods and services in a geographical area articulated by the cities, from the comparative advantages they have over other territories. The road network plays a central role, integrating the cities "*. For this research this concept is used.

**Table 2.** Review of the empirical literature for the variable X.

Authors	Used theory	Used method	Conclusions/Results/Findings
Guillén Gaibor (2013)	Para-diplomacy and decentralized cooperation	Documentary research	What has searched through twinning is that cities work actively and jointly to achieve greater international projection. However, in the case of the city Cuenca concluded that the local government is weak in the operation of international strategies such as twinning cities to have a positive impact. This on the basis that the total number of twinning that city, there are few who have demonstrated their commitment to meet common objectives. Some causes lie in local authorities as their lack of evaluation and continuation of promising projects, informal agreements and little involvement by the central government to support decentralized initiatives. It is proposed a restructuring in how to implement these para-diplomatic instruments.
Franco & Marmelo (2014)	It does not make any mention	Case study	The sister city relationship in the Portuguese context, owes its success to the exchange of experiences, sharing common problems, friendly relations, transparency, cultural awareness, among others. It was concluded that this form of cooperation between local authorities is controlled by joint support, where the result is always greater when individual actions add up. In fact, without the existence of relations of friendship, loyalty and truth, observed in the studied twinning arrangements it would not be possible for local authorities to reach such success. Such relationships can gain recognition and projection at national and international levels.

De Villiers, De Coning and Smit (2007)	Decentralized cooperation	Descriptive analysis, statistical, Spearman Rank Order Correlations	Twinning principles have evolved to focus on cultural exchange and friendly to a powerful instrument of regional unity relations, sharing of experiences and development. It could not be confirmed the hypothesis that the existence of a strategy of twinning by municipalities or population leads to greater success in the alliance. There is no significant correlation to support the hypothesis that town twinning is most successful when citizen participation is higher. The key factors for the success of twinning are: appropriate selection of the twinning partner, promoting active participation for twinning, twinning must be supported by a good business plan.
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### 3.2.Theories that promote economic corridors

#### *Competitiveness of nations: Porter's diamond*

Porter (1990), developed the diamond of national advantage to explain why certain companies are able to constantly innovate, why they seek further competitive advantage and why break the barriers to change and achieve success. This theory of Porter consists of the following four attributes of a nation:

- a. Conditions of the factors: essential production factors to compete in a particular category, such as skilled labor and infrastructure.
- b. Demand conditions: the product or service into the market.
- c. Related and ancillary sectors: existence of suppliers with international competitiveness.
- d. Strategy, structure and rivalry of companies: determinants of creation, organization and management of enterprises, and the characteristics of domestic competition.

#### *Competitiveness of local areas*

Blacutt (2013) presents a scheme in which partially amends Diamond Porter (2001) showing the factors influencing the competitiveness of a given geographical area, these refer to:

- a. Location factors: natural and human resources, infrastructure, financial and capital resources among others.
- b. External and internal macroeconomic environment linked to local business factors.
- c. The stage of competition of enterprises.
- d. Actions and agents that cause effect on the development of a geographical area.

*New Economic Geography*

Based on the work of Krugman (1995), Tello (2006) notes that in the new economic geography, concentrations of cities and markets are determined by two factors: the provision from the beginning of the geographical areas as population, resources, infrastructure, and aspects related to agents and technology as consumption of manufactured goods, degree of economies of scale, transportation costs, among others.

From this perspective, it can be determined that the presence of an economic corridor in an area where are concentrated different types of industries, is conducive to regional development focus. On the other hand, if the industries are scattered, an economic corridor as part of infrastructure conducive to reducing transport costs of goods traded between them, somewhat offsetting the lack of agglomeration. This theory is used as a framework for this research.

*Clusters*

Clusters are sets of interconnected companies and institutions, geographically close and that specialize in a subject. Among them there are industries supplying inputs and infrastructure. Much of the clusters integrate government agencies and other institutions responsible for providing training, education and technical support. The clusters foster competition but also cooperation between member institutions. A cluster can be considered as an alternative to coordinate the value chain. Although the link of a cluster is informal, it means a form of strong organization, which benefits in efficiency, flexibility and efficiency. The formation of a cluster causes effects on the way to compete in the following: increases the productivity of companies in that geographical area, set the path to innovation and encourages the development of new businesses, achieving this further strengthen the cluster (Porter, 1999).

3.3. Empirical literature

Table 3 shows a review of the empirical literature.

**Table 3.** Review of empirical literature for the variable Y.

Authors	Used theory	Used method	Conclusions/Results/Findings
Soto Plascencia (2006)	Clusters or conglomerates	Quantitative Methods: Matrix EFE, least squares	Infrastructure investments foster economic growth. Corridors influence the growth of agriculture and create opportunities in markets for goods, labor, etc. The problem with lemon production focuses on small producers who do not have access to basic infrastructure.

Dey & Grappi (2015)	It is not mentioned	Qualitative analysis	The integrated corridor concept reveals the inner nature of the corridor as a complex and technical partner structure that does more than simply connect entities. A thorough investigation shows that corridors are a form of reorganization of the physical and social landscapes in the emergence of new political constellations. The areas acquired new importance thanks to the corridors. While technological areas remain limited to certain specialized areas within a state, the economic corridor through dedicated logistics to transport links and rail networks, aims to connect industrial centers and new cities across strategic routes. In this regard, the runners try to respond to disorderly growth of capitalist development. Corridors are neoliberal institutions and as such, its establishment is a sovereign act which expresses the strict relationship between neoliberal policies. In that sense, they are the new frontiers of capital.
Spit, Wiegmans Witte & Van Oort, (2014)	Not mentioned.	Exploratory analysis and econometric models.	The general hypothesis is that regional economic growth is higher than in European corridors outside them, this agglomeration advantages. Growth in productivity in Europe's regions is related to specialization by sector, but there is little evidence that this relationship is stronger than there is within the corridors outside them. A little support for the hypothesis is found, arguing the main function of corridors is the advantage of agglomeration.

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More relevant and critical analysis have been developed by the empirical research, as it is listed below.

A study conducted by the Asian Development Bank, by Banomyong,(2007) on Logistics Development Study of the North-South Economic Corridor. Background Notes, using a methodology based on logistics system scorecard complemented by a logistics cost distance-model as a framework, found that the overall assessment of infrastructure is fair,

the institutional framework is weak, local logistics services providers at a disadvantage, and shoppers face difficulties. Finally, the study proposes several projects in an action plan to promote development of the corridor.

Another analysis conducted by Luanglatbandith & Mission (2007) titled *Development Impacts of the GMS East-West Economic Corridor (EWEC) on Savannakhet Province of Lao PDR*, analyses the impact and challenges of the EWEC that has the objective to develop a highly efficient system allowing freer movement of goods and people, reducing transport costs and time. Some of the challenges that analyzes the study are the weak transport and logistic services, weak tourist infrastructure and services, weak human resource and entrepreneurial skills, and weak customs procedures, regulations and standards.

An analysis of the failure of a tourist site in the township of Stellenbosch in South Africa is presented by Cubizolles (2011) in his paper entitled *Marketing identity and place: The case of the Stellenbosch Kayamandi economic corridor before the 2010 World Cup in South Africa*. Through an approach of the football context, the analysis shows that using sports identity as a lever for tourism has limited effects. The result was the failure of the project because its disconnection with the local sports context had not enlisted any institutional and community support.

A review concerning the movement of people, cars and border trade on the North-South economic corridor is conducted by Tsuneishi (2013) in the chapter *Border trade and economic zones on the North-South economic corridor: Focusing on the connecting points between the four countries*, published in *Border Economies in the Greater Mekong Sub region*. The research findings revolve on the increasing movement of people across the borders using the institution of border passes and not passports. Also, border trade and investment are increasing steadily although the formation of economic zones has been initiated as national projects. Still, logistics has not been developed equally between the participating countries: Thailand, Laos, Myanmar and China.

An analysis of the prosperity of the economic corridor formed along China and Myanmar by Zhao & Yang (2012), shows that it is the result of the increasing Chinese investment in oil and gas pipelines as a strategy to diversify sources of energy.

The BCIM Forum for Regional Economic Cooperation, also known as the *Kunming Initiative* has been launched the *BCIM Economic Corridor* analyzed by Uberoi (2014) on presents a review of the theory and the practice of the concept of economic corridor which she refers to the soft and hard infrastructure facilitating national and regional economic activities, implying linear connectivity along a physical transportation to link various nodes of production. Distribution and consumption. Also, the paper describes features, functions and benefits attached to economic corridors.

The lessons presented by Uberoi (2014) are derived from her research as the principle of national project with regional implications, the economic corridor as a long-term project, the calculation of the feasibility in terms of economic costs and benefits, the economic nodes as a step for the spatial planning, successful corridors have links with ports and the identification of potential stakeholders.

Continuing the proposal of ADB, Srivastava (2011) proposes a framework of a dynamics of regional economic corridor development in two basic dimensions, as being regional or national and broad or narrow to model four distinct zones.

#### 4. Contextual framework

The states of Chihuahua, Nuevo Leon, Durango, Coahuila, Tamaulipas, Sinaloa, Zacatecas and Nayarit, make up the area where the Northern Economic Corridor is located. In Figure 1 is observed his geographic location. This region accounts for 60% of trade flows in North America and is a market of more than 21 million people. Its GDP per capita is US \$ 9,505, which is higher than in Colombia, five times higher than that of India and 70% more than the Philippines. Upon completion of the entire infrastructure of the Corridor, they may be transported goods from Asia to the North American market (Conferencia Nacional de Gobernadores, 2014).



**Figure 1.** Location of Northern Economic Corridor. Source: Comité Municipal Ciudades Hermanas Mazatlán, Sinaloa. (Sister Cities Municipal Committee Mazatlán, Sinaloa.)

Municipalities by traversing the Northern Economic Corridor and currently are twinned, are: Monterrey, Saltillo, Zacatecas, Mazatlán, Matamoros, Reynosa, Nuevo Laredo, Juarez, Torreon, Gomez Palacio, Lerdo, Durango, Culiacan, Ahome, Chihuahua and Ciudad Juarez. This research is focused on twinning cities of Mazatlán and Durango under the Northern Economic Corridor (Coordinación General de Proyectos Estratégicos, 2013).

Mazatlán today is a tourist, commercial and fishing port, considered the most important for connection to Los Angeles, Panama and the western Mediterranean ports. The last census recorded by INEGI, data showed almost half a million inhabitants. Its capacity in hotels is more than ten thousand rooms. This city is seen as the gateway to the Northern Economic Corridor as the port of the corridor that connects to the Pacific (Coordinación General de Proyectos Estratégicos (2013).

The cities of Mazatlán and Durango are very important for the development of the Northern Corridor Economic and likewise the Corridor for them. This is because both cities are connected geographically by the Mazatlán-Durango highway, perhaps the projects most important in the North Economic Corridor infrastructure. This road has two lanes covering 230 km long, with 64 tunnels and 57 bridges, among them the Baluarte Bridge just over 1 km long and 402 m high. The biggest benefit offered by this road is the reduction of time to get to the other end of the Corridor is Matamoros, Tamaulipas. Thanks to this infrastructure the course of 18 hours is reduced to 12 (Coordination General of Strategic Projects, 2013).

## **5. Research methods**

### **5.1.Type of research**

For both X and Y variables, this research is qualitative applied as it seeks to relate the theory of town twinning with reality. It is descriptive because it shows the characteristics under which the twinning of cities was in the context of the Northern Economic Corridor. It is also documentary to present data from the agreement twinning cities between Mazatlán and Durango. It is longitudinal, the dates on which this research is based is from 2014 to early 2016. It is quantitative because a descriptive statistical analysis is done in some cases. The purpose of this research is to show qualitatively the relationship between two variables and how they are beneficial to the city of Mazatlán.

### **5.2.Research design**

Table 4 contains the design of the variables used in the research.

**Table 4.** Design of the research variables.

Variable	Indicators	Instrument	Operation of variable	Data analysis
X <sub>0</sub> : City Twinning	1. Infrastructure development programs	Urban development program	Projects to improve transport tracks	Heterography analysis
	2. Cultural programs	Press publications of municipalities	Data and documentary to determine cultural promotion events	Heterography analysis Documentary analysis
	3. Private investments	Statistical data	Monetary quantitate investments Considerations on agreement	Heterography analysis
Y <sub>0</sub> : Northern Economic Corridor	1. Mobility of goods	Statistical data	Influx road	Heterography analysis
	2. Tourism	Statistical data	Number of tourists coming to cities	Heterography analysis
	3. Employment	Statistical data	Registered persons at IMSS	Heterography analysis

### 5.3. Research instrument

#### *Twinning cities*

To study this variable, data collection occurred secondarily through instances of the State of Sinaloa and the Municipality of Mazatlán such as: Ministry of Economic Development of Sinaloa in Mazatlán, Secretary of Tourism of Mazatlán, Department of City Council Mazatlán and Sister Cities Committee Mazatlán, Sinaloa. The data collected consist of direct investment and tourism in the city of Mazatlán starting from 2014, at the signing of the twinning with the city of Durango was given. Only data from the city of Mazatlán were obtained by administrative issues of relevant units in Durango.

### *North Economic Corridor*

The data collected for this variable are also secondary, taken from the Secretariat of Communications and Transportation. These reflect the road influx of Mazatlán-Durango highway. It focused on this stretch of the Northern Economic Corridor as the connecting the sister cities of Mazatlán and Durango.

### *Determination of sample size*

In this case the sample is not determined statistically. Unconventional sample for this research is the city of Mazatlán and the city of Durango.

### *Data analysis*

This research uses documentary analysis and hemerographic data for both variables. The documentary analysis is to represent the content of a document in a different form from the original form and then can be identified. Thus the original document is transformed into a simpler and more understanding one.

### *Limitations*

To carry out this research were presented various difficulties to achieve an acceptable study. Below re mentioned some of these limitations:

- At this scientific research carried out for a summer, the main constraint is time. The days of research in summer are really few if it is wanted to present a good research. It was not easy to obtain the data presented here and even not found all that had been planned. The holiday period was a factor that affected because some government agencies closed their doors or left to trained office personnel to provide information during that period of time.
- The remoteness of the places where the context of this research is located, does not allow acquiring quality information or performing field work.
- There is lack of financial resources to travel to places where the object of study is.
- In some cases, the difficulty in obtaining access to information from some government agencies, not by the time factor but by the unwillingness.
- Only data from the city of Mazatlán are provided for not being able to get from the city of Durango.

## **6. Results**

### 6.1. Twinning cities

#### *Urban development programs*

In this case, the information found is only from the municipality of Mazatlán and how this is working for the development of better infrastructure. In the Municipal Development Plan of Mazatlán, Sinaloa (2014-2016), the strategy to improve the current

state of infrastructure, in its initiative to carry out works to maintain and rehabilitate infrastructure, the line of action is to maintain and repair the entire road network of Mazatlán. Infrastructures development is connected to times of economic growth, as a possible financial crisis could undermine such initiatives (Skordoulis et al., 2014). As far as it is concerned these strategies should be supported during times of economic growth. Another crucial strategy for development found as the infrastructure strategy is the establishment of guidelines for growth, sustainable development and planning, to make efficient resource management in the municipality and continue projects, going beyond the municipal administration.

As an initiative for this strategy, is mentioned the development of urban planning tools to identify strategic locations and responsibly leverage the resources of the municipality. Here are three interesting initiatives that arise: The urban development plan of Villa Union, partial urban development plan of the North and the partial urban development plan of Urias (Ayuntamiento de Mazatlan, 2014). These lines of action are important for the city of Mazatlán in its involvement in the Northern Economic Corridor. This is because both roads of the North, Urias and Villa Union areas of the municipality of Mazatlán connect to the superhighway Mazatlán-Durango that is where the road stretch of the Northern Economic Corridor in the Pacific begins. Maintenance and reconstruction of these roads are important for the coming influx road and destined to cross the Northern Economic Corridor, mainly for trucks and buses and private cars part.

#### *Cultural promotion*

One of the initiatives of the Municipal Development Plan 2014-2016 Mazatlán, includes town twinning to achieve greater economic interaction. To comply, its lines of action are to belong to the Inter-Agency Group of Northern Economic Corridor and promote the signing of twinning these cities to coordinate with the Secretary of the City of Mazatlán. This as part of its strategy to project to the municipality and look for projects of local, national and international investments (City of Mazatlán, 2014). Within this context the twinning of cities between Mazatlán and Durango arises.

The Twinning Agreement between municipalities of Mazatlán, Sinaloa and Victoria de Durango, Durango, was signed in May 2014 under the following guidelines: That globalization has prompted that public and private economic actors interact and actively participate to promote economic development economic; that the relationship between governments at different levels, is seen internationally as a great strategy to promote experiences, cooperation, trade, tourism, investment and culture (Chalikias, 2012; Nunkoo & Smith, 2013; Char-Lee et al., 2014); and it emphasizes the Mazatlán-Durango Superhighway Northern Economic Corridor linking the Pacific and Atlantic oceans, which has become the shortest land route to go from Mazatlán to Northeastern North America.

In that Agreement (2014) also it is noted that twinning cities are essential tools for achieving objectives in economic, trade and cooperation, and becoming also in valuable tools for strengthening the local development and international projection. For all the foregoing, the governments of the municipalities of Mazatlán and Durango signed the twinning agreement with the following purposes:

- Create stronger communication links between the public and private sector.
- Develop collaborative programs that promote common markets, missions with other countries and any activity that promotes the exchange of goods and services between the signatory cities.
- Promote investment and business objectives exchange information on investment opportunities and businesses.
- Strengthen education through the exchange of academics and scholars
- Promote the culture of both cities and intensify community service.
- Cultural promotion through the exchange of artistic expressions and traditions
- Tourism promotion by assigned institutions.
- Seeking feedback through comparisons and experiences.

It is noted that at the points of the Agreement, the cities of Mazatlán and Durango are seeking mainly economic, tourist and cultural benefits and sharing the idea of involving private economic actors to achieve the goals of economic growth, employing the principles of decentralized cooperation. A publication of the official website of the City of Durango (2016) mentions that the president of Mazatlán Carlos Eduardo Felton Gonzalez hinted about the tourist and cultural promotion to Durango also benefits Mazatlán because people once they visit the city colonial Durango also visit the beaches of Mazatlán. Besides, he also notes that Mazatlán and Durango are not competing with each other, but complements.

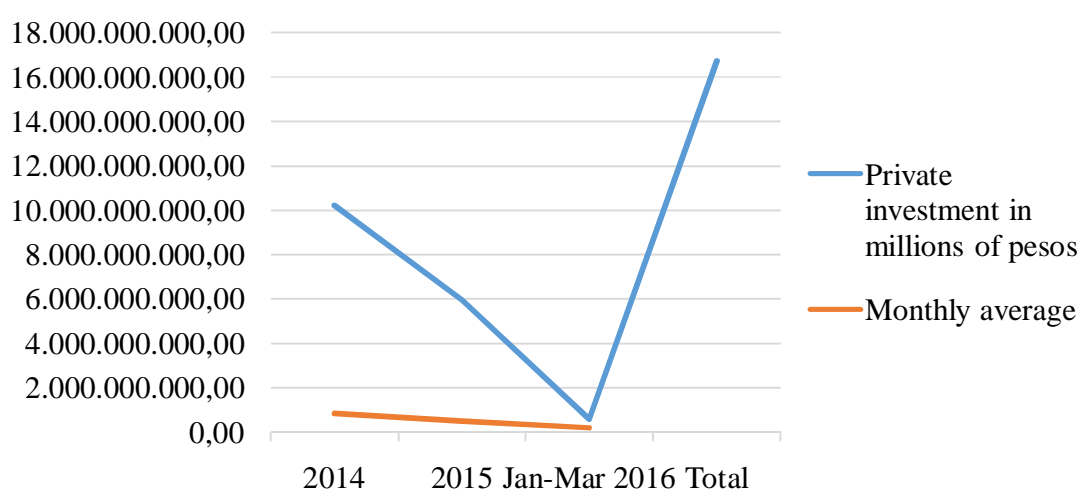
Moreover, in Mazatlán there is the Sister Cities Committee of the Municipality of Mazatlán, which aims to deepen relations between cities to contribute to the economic development thereof and facilitate the conditions for given the twinning between cities with solid targets based on cooperation.

#### *Private investments*

Data obtained on private investment, are from the municipality of Mazatlán period 2014 to the first quarter of 2016, dates on which this study focuses. What quantities are direct and indirect investments are not detailed. They could only collect general data. Following the explicit data are shown in Table 5 and plotted in Figure 2.

**Table 5.** Private investment in the city of Mazatlán. Source: Data obtained from the Ministry of Economic Development of Sinaloa in Mazatlán (2016) Development.

Period	Private investment in millions of pesos	Monthly average
2014	\$ 10,218,550,220.62	\$851,545,851.72
2015	\$5,942,268,120.11	\$ 495,189,010.01
Jan-Mar 2016	<u>\$ 581,844,427.00</u>	\$ 193,948,142.33
Total	\$16,742,662,767.73	



**Figure 2.** Private investment in Mazatlán (Values in Millions of Mexican pesos). Source: Own elaboration from data obtained from the Secretaría de Desarrollo Económico de Sinaloa en Mazatlán (2016) (Ministry of Economic Development of Sinaloa in Mazatlán (2016)).

From Figure 2, it can be seen how investments dropped significantly by almost 50%. For this reason, the average monthly illustrated in private investment to reflect the decline in them. The average monthly value of this year shows how investment is four times less than in 2014. The reasons are unknown. However, in the Municipal Development Plan 2014-2016 of Mazatlán goal in private investment is the sum of \$ 9'000, 000,000, a figure that has exceeded almost twice contemplated.

The Ministry of Economic Development of Sinaloa in Mazatlán (2016) (Secretaría de Desarrollo Económico de Sinaloa en Mazatlán, 2016), mentions that \$ 9 '706.866, 464.59 million pesos of direct investment from 2014 to March 2016, come from 54 Certificates of Fiscal Promotion of the State of Sinaloa, representing almost 60 % of total private investment. Also it notes that \$ 4, 242, 089,445.72 million of private investment was

obtained from promotion to the Northern Economic Corridor representing 25.33% of the total investment. These statements reflect that the CEPROFIES are useful tools to attract investment and the Northern Economic Corridor and are crucial for the economic development of Mazatlán and other municipalities involved.

On the other hand, on the official website of the City of Durango (2016), was a publication highlighting the twinning of cities between Mazatlán and Durango has left an economic impact of 500 million pesos in investments from new companies have been established in the region, this due to the short distance to the Mazatlán-Durango highway stops between them. However, there is no mention in which sectors have made such investments or how many jobs have been generated, or the origin of the capital. This creates both cities continue promoting as a single region and attract more investment.

## 6.2.Economic Corridor North

### *Mobility of goods*

Vials data recorded in the Mazatlán-Durango highway below are from the years 2014 and 2015 because in 2013 was the opening of the road. Tables 6 and 7 for the years 2014 and 2015 respectively are presented and recorded traffic in both directions of the highway. TDPA means annual average daily traffic. The letters M, A, B and C represent motorcycles, cars, buses and heavy trucks respectively load.

**Table 6.** Vial data 2014 Highway Mazatlán-Durango. Source: Own elaboration from data obtained from the Secretariat of Communications and Transportation (2015) (Secretaría de Comunicaciones y Transportes, 2015).

Place	Quantity TDPA	Percentage corresponding to TDPA				
		M	A	B	C	Other
Durango ridding	2138	3.50%	84%	0%	11%	2%
Tollbooth Durango	2531	1.20%	79%	4%	15%	0%
Entry Otinapa	2207	0.10%	80%	1%	14%	5%
Tollbooth Llano Grande	2305	1.30%	78%	5%	16%	0%
Concord	1704	1.00%	76%	6%	16%	1%
Villa Unión	1903	1.10%	76%	6%	16%	1%
TDPA across the highway in number of vehicles	2131	29	1678	73	317	34

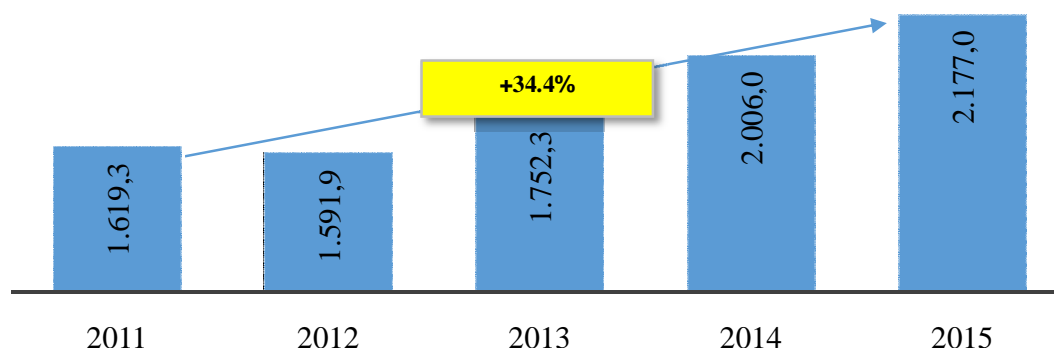
**Table 7.** Vial data 2015 of the Highway Mazatlán-Durango. Source: from data obtained from the Secretariat of Communications and Transportation (2016) Development.

	Quantity TDPA	Percentage corresponding to TDPA				
		M	A	B	C	Other
Durango ridding	2329	3.50%	84%	0%	11%	2%
Tollbooth Durango	2561	0.80%	75%	4%	20%	0%
Entry Otinapa	2226	0.00%	80%	0%	14%	6%
Tollbooth Llano Grande	2241	0.80%	73%	5%	21%	0%
Concord	1782	1.00%	76%	6%	17%	0%
Villa Unión	1915	1.30%	75%	6%	16%	2%
TDPA across the highway in number of vehicles	2176	26	1645	71	356	33

Tables 6 and 7 show that cars are more vehicles transiting the Durango Mazatlán highway, followed by heavy trucks. This indicates that this road is used mainly for tourism purposes rather than mobility of goods. However, it is seen a slight decrease in automobile traffic and a slight increase in heavy trucks in 2015 compared to 2014.

#### Tourism

Tourism in Mazatlán is definitely marked by a period before and a period after the Northern Economic Corridor. Below it is shown in Figure 3 a comparison of tourist arrivals from 2011 to 2015, with data provided by the Ministry of Tourism of Sinaloa in Mazatlán (2016) (Secretaría de Turismo de Sinaloa en Mazatlán, 2016).



**Figure 3.** Data tourist city of Mazatlán. Source: Ministry of Tourism of Sinaloa in Mazatlán (2016).

For the current year, the Ministry of Economic Development of Sinaloa in Mazatlán (2016) (Secretaría de Desarrollo Económico de Sinaloa en Mazatlán, 2016) expects the arrival of more than 360 thousand tourists, leaving an economic impact of \$ 3.200 MDP in Mazatlán. It has been observed in the city of Mazatlán in holiday seasons that much of the tourism comes from Durango and Chihuahua. These tourists come to Mazatlán through the Northern Economic Corridor. This is said in remarks made to the plates of vehicles passing the main tourist areas of the port of Mazatlán in those periods.

#### *Employment*

As shown in Table 8 below, the monthly average of registered employment decreased from 2014 to 2015. However, in the months of January to March, again increased, but still below 2014. It follows that much of these jobs they are through the Northern Economic Corridor by the installation of new companies looking to connect through this road and benefit from saving time and transportation costs.

**Table 8.** Registered new employment in the Mexican Social Security Institute, from 2014 to the first trimester of 2016. Source: Own elaboration from data provided by the Ministry of Economic Development of Sinaloa in Mazatlán (2016) (Secretaría de Desarrollo Económico de Sinaloa en Mazatlán, 2016).

Period	New employment(IMSS)	Monthly average
2014	9776	814.666667
2015	7151	595.916667
January to March 2016	<u>2265</u>	755
Total	19192	

The Ministry of Economic Development of Sinaloa in Mazatlán (2016) provided data on investments that have entered the port of Mazatlán and generate permanent and temporary jobs. Most of them are not yet established, they are under construction. Table 9 shows the data on the projects presented.

**Table 9.** New investment projects for Mazatlán Sinaloa. Source: Own elaboration with data provided by Secretaría de Desarrollo Económico de Mazatlán, Sinaloa (2016).

Project	Investment in monetary quantity	Permanent employment	Temporal employment
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Pacific Sands Y Plaza 202 (Cancún Perlas)	\$179,107,445.72	65	120
Manzara G+3 (Cerritos)	\$160,000,000.00	50	150
Holiday Inn La Marina	\$383,723,602.00	120	600
Torre Pacific Palace	\$11,500,000 (USD)	120	380
Torre M (Grupo Ahre)	\$210,000,000.000	150	300
Holiday Inn Zona Dorada	\$15,000,000 (USD)	80	65
Azul Pacífico	\$578,000,000.00	32	150
Sleep Inn Hotel	\$120,000,000	80	120
Torre Bucks, Corporativo Arhe	\$ 245,000,000.00	80	120

## **7. Conclusions**

From the analysis of qualitative research method, descriptive, documentary, and longitudinal descriptive statistical, it is concluded that the twinning of cities between Mazatlán and Durango has left economic benefits in Mazatlán. However, much of the success of this twinning is thanks to the road connectivity granted by the Northern Economic Corridor, especially Mazatlán-Durango highway.

It is important that a town twinned with another, consider whether the position where it is the other city is strategic, this in terms of the new economic geography for thus exerted decentralized cooperation is efficient. On the other hand, the twinning of cities should be seen as a strategic model to project internationally to a city mainly looking economic and not only cultural objectives.

To accomplish these goals is necessary in addition to cooperation between municipal governments, external to political parties and government agencies in order to follow up twinning after triennia of mayoral governments, such as the Committee of Cities Sisters of the Municipality of Mazatlán. Town twinning is beneficial to the development of the Northern Economic Corridor by the joint work done. The cities of Mazatlán and Durango are shown as perfect complements for tourism because of its proximity and because the first offers beach tourism and other cultural and colonial.

The overall objective of determining the degree of development of the region of Northern Economic Corridor (Mazatlán-Durango) depending on the policy of twinning cities

partially is met. This is because the analysis of results shows general, non-specific data. It is said that if fulfilled in a way, because the figures shown in terms of investment and tourism mainly are partly a result of the promotion and union that Mazatlán and Durango have demonstrated as twinning cities and how they have used their connectivity through the Northern Economic Corridor. Other specific objectives are.

- a) The specific objective of determining the degree of development of the region of Northern Economic Corridor (Mazatlán-Durango) depending on the mobility of goods, is partially satisfied because the results of the road influx shows that mobility of goods going in increase, indicating that the region is developing trade.
- b) The objective of determining the development of the region of Northern Economic Corridor (Mazatlán-Durango) based on tourism degree; it is met based on direct new investments that have come to Mazatlán, in this case most hotels and shopping malls favored by tourism demand.
- c) The objective of determining the degree of development of the region of Northern Economic Corridor (Mazatlán-Durango) depending on the employment generated is partially met by showing formal jobs were created from 2014 to early 2016, which means revenue for the Mazatec population.

Regarding testing the hypothesis, it is found that town twinning positively influences the relationship process and development of the region of Northern Economic Corridor, partially met where it is demonstrated how Mazatlán developed economically in recent years, largely thanks to the twinning that it has with Durango, mainly in the tourism sector and part of the Northern Economic Corridor.

Testing the specific hypothesis, the results are that development programs in infrastructure have a positive impact on the mobility of goods for domestic and international trade. It partially meets the results on municipal urban development programs being implemented and Mazatlán on the road influx of Mazatlán-Durango highway. Cultural promotion has positive impacts on tourism. Yes, it is true, demonstrated in the results on tourism in Mazatlán from the date of signing the twinning of cities with Durango, where a cultural promotion by both parties began. Private investment has a positive relationship in job creation. Yes, it is true based on the results of the new jobs generated in Mazatlán from this in the period 2014 to the first quarter of 2016.

The results of this study confirm the findings of Franco & Marmelo (2012), in that with no friendly relations, no such degree of success would be possible the twinning and joint cooperation always makes better economic results than individualism. Mazatlán has experienced the benefits of its twinning with Durango in economic benefit from tourism and cultural promotion. More specifically, tourism brings significant economic and social benefits to countries, communities and individuals (Drosos et al., 2017). These benefits

come to confirm De Villiers, et al. (2007) statement that the twinning of cities today is signed to pursuing economic development rather than a simple friendship, is vital to achieve goals, as both sides must share the same sense of commitment.

The results of this research are opposed with those found by Guillen Gaibor (2013), in relation to the practice of town twinning because his results indicate that in Cuenca, Ecuador, twinning expectations have failed in development, but a few cases. The results of this research are reflecting the benefits that Mazatlán has obtained from his brotherhood with Durango.

For the Norther Corridor variable, the results agree those found by Dye & Grappi (2014) in the sense that regions become more important if connected with a corridor. However, they oppose the idea that corridors are the new frontiers of capital, since in the case of the Northern Economic Corridor it has been observed only advantages in commercial and tourist to be an avenue that connects the Pacific Ocean with the Atlantic and also optimizing resources such as time and money. The findings by Soto Plascencia, (2006) and Spit, Wiegman, Witte & Van Oort (2014), support the results of this research in the areas of investments in infrastructure that generate economic growth and corridors offer advantages of agglomeration thanks to the geographical connectivity they provide. This can be seen in the results of private investments Mazatlán that have entered under the influence of the Northern Economic Corridor.

It was found that connectivity infrastructure such as the Northern Economic Corridor, foster decentralized cooperation between cities benefiting from such infrastructure, thus may arise twinning cities as happened between Mazatlán and Durango, which from opening the Mazatlán-Durango highway signed a sisterhood.

The development of this research deepens studies in this line. There are very few studies about the influence of twinning of cities and economic corridors and even less written in Spanish. So that is the main contribution.

Primarily for public policy to recognize the benefits of twinning cities provide and promote decentralized cooperation. For private companies when analyzing to invest in the region of Northern Economic Corridor, highlighting the cities of Mazatlán and Durango, the first being the door to that corridor and the other by the connectivity of the Mazatlán-Durango highway.

A future research should be on:

- 1) Upon completion of all projects in the Northern Economic Corridor, evaluate business development expectations with reality. Logistics.

- 2) To analyze the deficiencies in the port of Mazatlán and compare it to the main coastal ports in the country. Logistics.

The main limitation for this research focuses on access to information and in the short time available to collect it. Other important issue to study is the lack of a field research.

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