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Analysis of the Behavior of a Regional Economy through the Shift-Share and Location Quotient Techniques

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Abstract. *Economic systems are dynamic entities and the nature and consequences of the changes that occur in these systems are of considerable importance since they can affect the welfare of individuals as well as the political and social structure of their community. The objective of this works is to know what has been the behavior of the economy of the state of Tabasco from 2003 to 2013, to determine what effects the application of an economic policy has on the different production activities, as well as their impact on socioeconomic groups. The research approach is quantitative because the data collection and analysis was carried out in accordance with certain logical rules that are established through the models that analyze the behavior and composition of the regional economic structure and its impact on the development of the region and results offers a summary of the behavior of the economic activities carried out in the State of Tabasco during a given period, and starting from this historical framework it is possible to implement an analysis of the state's economic reality compared with the national one, by means of the Simple Location Coefficient and the Traditional Shift-Share Technique, used for estimating the degrees of specialization for the different sectors, showing the effects of the national growth by activity according to the state activities and the levels of efficiency in the regional structure.*

Keywords: *sectoral economy; regional analysis; shift-share technique; location quotients.*

Introduction

Economic globalization and the knowledge society require that countries in general and states in particular, have accurate economic information that allows public administrators to make the best decisions that impact the growth and economic development of their localities, and this way reaches higher levels of competitiveness.

Economic systems are dynamic entities and the nature and consequences of the changes that occur in these systems are of considerable importance since they can affect the welfare of individuals as well as the political and social structure of their community. That is why it is a challenge to try to understand the nature of the factors that have led to these changes in the economic system, since it offers a light to adjust the behavior

patterns that lead to an improvement in the economic, political and social aspects of the economy, the one that individuals live and work.

From the regional point of view is to place a framework where the spatial characteristics of economic systems such as proximity, concentration, dispersion and the similarity or disparity of spatial patterns are exposed in micro, meso and macro terms so that it can be understood the region. That is, it seeks to identify the factors that govern economic activity over space and recognize that changes in this distribution will have important consequences for individuals and their communities.

The overall objective of this work is to carry out the analysis of the economy of Tabasco in the period 2003-2013 with the purpose of laying the foundations that contribute to the discussion about the economic growth and welfare of the population of the state, through the study of the evolution of the sectors economic and the specific objectives are:
1. Study the dynamics of economic sectors in the period 2003-2013 on the state economic system, detecting the key economic sectors and strategic in order to assist in government planning in their investment decisions and measurement of their spending.
2. Incorporate this analysis tool as an integral part of regional economic studies within teaching and research in the Universidad Juárez Autónoma de Tabasco that allow the creation of knowledge and debate regarding the economic development of Tabasco.

For the analyst of regional intersectoral models, the estimation of interregional trade flows is a difficult problem, which is aggravated by the limited availability of regional data and the absence of a border as such, with the controls of goods exchange as it happens at the national level. In the absence of regional inputs and production figures, indirect methods of adjusting to the national coefficients are often used to produce regional tables. For its estimation, the most common approach has been the use of Location quotient, although the rationality behind them has been thoroughly examined by various authors in an effort of the literature to prove its validity, the result of which has not been entirely satisfactory (Flegg, Webber, & Elliott, 1995; Round, 2003).

Huang, Flegg, and Tohmo (2014), Flegg et al. (1995), and Dunn (2005) demonstrate how Location quotient and other measures are used to provide the initial estimate. They point out that unlike countries, regions, by definition, do not have the facility to collect continuous data at that level, nor the patterns of their flows with other regions. Therefore, in the absence of regional data, it is necessary to employ measures that indirectly impute patterns of trade between regions. This process of indirect estimation of regional trade patterns is based on observations of the regional industrial structure. Under different conditions, these observations allow the imputation of regional trade patterns. With these imputed values, it is possible to consider the regional effects of the expansion or contraction of a local industrial sector in the region.

The process of indirect estimation of regional trade patterns, based on observations of the industrial structure, is itself problematic. However, different measures of diversity and specialization can be used to facilitate the process. If a region is highly specialized in a particular industrial sector, it is expected that the aggregate effect of any change in the execution of that sector, on the local economy, will be relatively large. On the other

hand, if the region is highly diversified, and contains a wide variety of local industrial activities, it is expected that changes in the execution of an individual local sector will have a relatively minor impact on the local economy.

In a critical and summarized review of the types of multisectoral models with intersectoral links, Loveridge (2004) highlights the economic base models, input-output, social accounting matrices, input econometrics / integrated product and computable general equilibrium models. It presents models with some general operating principles and ethical considerations, and warns about their limitations: modelers can design models that are too simple or inadequate to capture relationships within the economy of the region. He affirms that, in other cases, too complex systems are modeled or that they make very fine industrial breakdowns based on assumptions that are difficult to sustain.

As an alternative, Dinc, Haynes, and Tarimcilar (2003) points out that decision making in regional economic development (state or local) is a multifaceted process that involves economic, social and political issues. Affirms that the use of quantitative factors without any integral structure, will lead to random assignments that may not satisfy the political objectives of prioritizing which are the objectives that need greater emphasis, so it suggests a structured integration of studies such as input-output, with other qualitative ones that involve socio-political factors (Dinc et al., 2003, p.31).

According to Capello, Caragliu and Fratesi (2017, p.6), "a strong interconnection between regional and national growth is formalized, that is, national macroeconomic trends and policies generate an effect on both national and regional growth, while at the same time regional structures and policies affect both regional and national performances in an interactive national–regional manner".

Materials and methods

Location quotient (LQ)

It is defined as the ratio between the proportions of a product or regional and national employment, attributable to a particular industrial sector.

$$\text{LQi}=\frac{gdp_i/_{gdp_T}}{GDP_i/_{GDP_T}}=gdp_i/_{GDP_i}*GDP_T/_{gdp_T} \qquad (1)$$

Where gdpi and GDPi denote the Gross Domestic Product (GDP) in the sector i, regional and national respectively and gdpt and GDPT is the total regional and total GDP respectively.

The basic assumptions in this indicator is that (i) the production rate is identical in all regions, (ii) the patterns of consumption throughout the country are identical, and (iii) each industry agrees with the CIIU or SCIAN classification in the case of Mexico, it is identical in each region.

An LQ<1 indicates that the supplier sector has a minimal presence in the regional economy and hence is unable to meet all the intermediate input needs of the other sectors. So, you will have to import to supply all the purchase requirements of the other regional sectors. On the other hand, when the LQ ≥ 1, it is considered that the supplier sector is able to meet all the purchase requirements of the other regional sectors.

Another way to use Location quotient in regional and local economic policy is to observe how they have changed over a period of time. An investigation on the annual changes in the location coefficients can provide valuable information on whether each sector is increasing or decreasing its concentration and its importance in the local area in relation to other areas.

$$\Delta LQ = \frac{LQ_{t+1} - LQ_t}{LQ_t} \qquad (2)$$

Such research may reveal that regional industries can be grouped into four categories. As seen in the following matrix, the value of the location coefficient could be large and growing, which is the most desirable situation. It could be large, but with time in decline, in which case, local planners must pay attention to the sector. The location coefficient could also be small and growing or decreasing over time.

Shift-Share analysis

The shift-share analysis is a regional analysis technique to see the observed differences in the economic growth of different geographical areas. It is so named because it breaks down into different parts (shares) the variations or changes (shifts) experienced by an economic value referred to a regional productive sector, or a set of sectors, integrated into a reference economic unit that is susceptible to be divided into several 'regional' units. The traditional shift-share method decomposes the growth of regional economic variables such as gross domestic product, employment or added value, among others, into three additive components: a component related to the supra-regional area of reference, called the national effect, a component related to the productive structure of the region, called the structural or sectoral effect and a differential region-nation component called competitive or regional effect.

Be the Gross Domestic Product (GDP), the economic variable to observe, then the definition of the following variables and equations:

gdp_i^t is the gdp in sector i in the region at the initial time, t, since a time interval between t and (t + 1) is analyzed.
GDP_i^t is the GDP in sector i in the nation or aggregate reference regions, in the initial time, t.
$g_i = \frac{gdp_i^{t+1} - gdp_i^t}{gdp_i^t}$ is the growth rate of the gdp of industry i in the region, over the time interval defined [t, t + 1].
g growth rate of local aggregate gdp.

$G_i = \frac{GDP_i^{t+1} - GDP_i^t}{GDP_i^t}$ is the GDP growth rate of industry i in the nation or reference area, over the defined time interval [t, t + 1].
G the rate of growth of aggregate GDP of the nation

National component or reference area

This component measures the regional economic change that should have occurred if the region had grown at the same rate as the reference area, which is usually the country but can be a supra-regional area over the region of a local area. It is expected that if the nation as an aggregate grows, it would have a positive influence on the local area because the local area is part of the whole national change. Defined as

$$\Delta N = \sum gdp_i^t \, G \qquad (3)$$

The interpretation of this component is simple, the national component of each industry indicates how many jobs in the industry can be attributed to the growth of the reference economy. That is, the growth of employment in the local area is calibrated, which can be attributed to the general conditions and trends of the reference area.

Structural component, sectoral or industrial mix

This component measures the percentage of local economic change that can be attributed to the mix of local industry in the area and reflects the degree to which the local area is specialized in industries that are growing rapidly or slowly at the national level. In this way, a region that contains a relatively large proportion of fast (slow) growth industries at the national level will have a positive (negative) effect on the sector. It is defined as

$$\Delta I = \sum gdp_i^t (G_i - G) \qquad (4)$$

Differential, competitive or regional differential component

This component measures the change in a particular industry in the region due to the difference between the growth rate (decline) of the local industry and the growth rate of the industry in the reference area. This component indicates the growth or decline of the industries due to the competitive position of the local area in a given industry. It is generally observed that some regions and some industries grow faster than others, even during periods of general prosperity. This is usually attributed to some local comparative advantage, such as natural resources, related industries, or favorable local work situations.

$$\Delta R = \sum gdp_i^t \, (g_i - \, G_i) \qquad (5)$$

Data

The calculation of the coefficients for Tabasco was made based on data extracted from the Economic Information Bank (BIE) of the National Institute of Statistics and Geography (INEGI), in the thematic coverage of National Accounts with data of the Gross Domestic Product (GDP) by a federal entity, base 2008. The 2003-2013 series was used by the federative entity and economic activity, with values at constant prices of 2008. Data were taken from 17 sectors and 14 subsectors according to SCIAN 2013, which is the largest disaggregation presented in the portal by a state entity.

Method

The research approach is quantitative because the data collection and analysis was carried out in accordance with certain logical rules that are established through the models that analyze the behavior and composition of the regional economic structure and its impact on the development of the region.

The deductive method was used, which consists in establishing particular propositions from general propositions since it began with the study of the regional analysis techniques to later make a regional analysis with the techniques applicable to the state of Tabasco. The scope of the investigation is descriptive. According to Hernández, Fernandez, and Baptista (2014), the descriptive scope seeks to specify the properties and characteristics of the phenomenon from which it is analyzed, by measuring or compiling the information independently or jointly on the variables to which it refers.

Results

The state of Tabasco is located in the southeast of Mexico and is endowed with a natural resource of finite nature: oil. As a result of this, in 2013, the sector with the most dynamism with respect to the total is the second one with 68.95% of the total activity, followed by the tertiary 29.84% and the primary with only 1.21%. In the study of historical figures by sectors and by economic activity 2003-2013, the sector with greater speed is the secondary with a growth in the period of 5.41%, following the tertiary sector with 4.11%, while the primary sector had a decrease of 1.47%.

The analysis of historical data offers a summary of the behavior of the economic activities carried out in the State of Tabasco during a given period, and starting from this historical framework it is possible to implement an analysis of the state's economic reality compared with the national one, by means of the Simple Location Coefficient using formulas (1 and 2) and the traditional Shift-Share Technique using formulas (3, 4 and 5).

Table 1 (see Appendix 1) shows the calculation of LQ 2003 and 2013 to estimate the growth rate in the period. As a consequence, it is possible to observe that the mining sector, where oil extraction is classified, has a high coefficient of simple localization. Although the Location quotient is not a precise indicator of the marginal propensity to consume (Blair, 1991; Huang et al., 2014), in the case of Tabasco, it affirms its advantage

in natural resources, as an export-based sector, but with the danger of being an enclave economy.

The growth rate of the LQ in the primary sector is decreasing by 20.3%, which can be a focus of attention when it comes to addressing a poverty and food security policy, a statement that will be taken up again in the shift-share analysis. The national primary sector during the analysis period 2003-2013 recorded a growth rate of 13.9%, while the state of Tabasco showed a growth rate of -14.7% in the same period, showing a clear contraction of the sector and reaffirming the confirmed with the LQ of it. It is clear that the economy of Tabasco is anchored in the mining sector, while the manufacturing sector in clear contraction. It should be emphasized that according to this index, those industries that are small but with increasing Location quotient can be a considerable source of future growth of the local economy and should justify attention. The results show that it is possible to encourage the development of the manufacturing industries of food, inputs and textile finishes, leather products and substitutes, manufacture of basic metallic products and manufacture of bodies and trailers, boats, agricultural machinery and equipment, and, air conditioning and heating. Tertiary activities show an increasing rate of growth of the LQ, in terms of trade; transportation, mail, and storage; information in mass media and; financial and insurance services.

Table 2 (see Appendix 2) shows the results of applying the shift-share technique. It can be observed that the national growth rate in that period was 29.64%, a component that had a positive effect on the growth of all sectors. The structural effect shows interesting results as there is a contraction of the growth of the agricultural sector with respect to the national aggregate growth of 16.56%, reinforced by a competitive disadvantage of the sector as there is a decrease of 28.81%. This, in monetary units, represents 999.76 and 1679.66 million pesos less, respectively, of less production in this period of time. Reason for which the national push does not reach to surpass the negative effect, reason why this sector has a decrease of 889.47 million pesos between 2003 and 2013.

The extractive oil activities that characterize the mining activities in Tabasco, tell a story opposite to the agricultural sector. This sector had a contraction in its national growth rate of 42.97% which caused a decrease of its contribution to the state growth of 65.082.76 million pesos, however, as already noted, the abundance of oil resources, offers It has been a competitive advantage, and we can observe a growth of 76.63% with respect to the national one, which represents a total shift of 95.860.68 million pesos, that is to say the growth of this sector contributed to the state GDP 68.97%.

The manufacturing industry generally had a national contraction of its growth rate of 7.81%, reinforcing the hypothesis that the manufacturing industry in Tabasco was abandoned due to the anchorage of the economy as a whole in the mining sector. But looking more closely at the behavior of this sector reinforces what is already estimated in the LQ, i.e. the food industry, textiles and clothing, and leather products manufacturing and substitutes, as well as manufacture of metal products, machinery, and equipment. This sector contributed to the GDP growth in Tabasco with 496.34 million pesos.

Other practical implications of this work its define actions to improve the state industry and one of this is promote direct foreign investment, the past decade, Tabasco barely captured 0.2% of total direct foreign investment that reached Mexico. It is of urgent nature and priority for Tabasco to raise its levels of competitiveness, placing itself in positions that allow it to be attractive that allow it to attract and retain investments that favor its development, other crucial factors that impede the enhancement of Tabasco's competitiveness are the lag that exists in the capacities of innovation and knowledge generation, the deficient associative culture, the untying of supply from the productive sectors with the markets, the low level of manufacturing development in most of the municipalities and regions, the insufficiencies of the workforce in knowledge and attitudes, the low stimulus to the creative capacity of the youth, the lack of knowledge about the shaping of the chains the value of most of the strategic sectors and the low impulse to local suppliers at the level of all sectors, including the oil sector.

The value chains around the different relevant and strategic sectors and sub-sectors of the local and regional economy have not been properly analyzed and diagnosed, which has limited the implementation of effective and well-targeted public policies, programs and strategic projects for stimulation of the growth and economic development of the entity and the degree of integration and value generated by Tabasco´s companies that operate around the main productive chains of the region is low, so this is pretty important for policymakers to consider all this situation and generate public policies according to the state needs.

Conclusions

The present work, is only a first step to build a statistical framework for the regional social accounting matrix and its corresponding regional product input table, are the purpose of calculating the estimate of imports. However, the location quotient can produce serious overestimation results. Because in an effort to allow the lesser importance of manufacturing to give greater importance to imports to meet regional demand, you may not consider manufacturing sales because you do not take into account the input supplier sector and the sectors that buy it. and it could be that manufacturing is specialized in the total provision of local sectors. In this sense, a refinement of this coefficient is done to offer the approximations to the product input coefficients (Flegg et al., 1995).

Likewise, it is important to note that in the basic Shift-Share, it has limitations in its application: the national weights that intervene in the calculation of structural and regional effects compared, can change over time, during the analysis period and not be stable in the long term (Ramajo & Márquez, 2008). In addition, the results are sensitive to the degree of sectoral and regional disaggregation and, on the other hand, they have difficulties in separating the effects. Likewise, several authors point out that it is necessary to incorporate horizontal relationships or from region to region, that is, to explicitly integrate spatial interactions (Nazara & Hewings, 2004; Ramajo & Márquez, 2008).

Among the reasons why the traditional approach for the analysis of the economic structure tends to overestimate the regional multipliers, is the use of adjusted formulas that do not consider the relative size of the regions underestimating or overestimating the propensity to import from other regions, the inappropriate use of sectoral aggregation methods, or failure to adjust the differences between national and regional technology.

Has to be considered in future works use of the most recent generation of regional models now available has at least two advantages over that approach; on one hand, the possibility to properly assess the spatial impact of policies, region by region, and on the other, the achievement of greater precision in the aggregate results, thanks to all regional specificities and territorial interactions and feedback effects that perform their specific roles in the definition of the national values (Capello et al., 2017, p.9).

Another model to be considered is the Remi-Irpet model that is a structural dynamic macroeconomic model, based on an input-output core structure. One of its distinctive features is represented by NEG linkages, which introduce endogenous agglomeration economies, micro-founded in a Dixit-Stiglitz monopolistic competition flavor. These linkages – the analytical and technical details of which we will deal with in detail below – are modeled to allow for the interaction between the physical distance between demand and sale (in the market for final goods, intermediates, and labor), and the love-of-variety of consumers and producers. As a consequence, the model incorporates both demand and cost linked circular causality: both the marginal utility of consumption, the intermediate inputs and labor productivity crucially depend on a measure of accessibility (Gori & Paniccià, 2015, p.182) and the same is considered by Bourguignon (2010) answering questions about the micro effects of a macroeconomic change, top-down linkage is important. The top-down approach builds on insight derived from a multi-sectoral macro model. Information about the way in which sectors are linked with each other and with households (in terms of final demand and/or labor inputs) are translated into multiplier values and developing a regional model requires data at the relevant spatial level, which is not always available in exactly the right format (year or scale) (Van Leeuwen, Clarke, Hermannsson, & Swales, 2017, pp.108-109).

The objective of the research is focused on carrying out the sectoral analysis of the Tabasco economy in the 2003-2013 period with the purpose of laying the foundations that contribute to the discussion about the economic growth and welfare of the population of the state, which leads us to understand the importance of activities related to the extraction of hydrocarbons, as well as observe the difference with the structure of the national economy to finally place it in the economic reality. The traditional sectors of the Tabasco economy linked to agricultural activity have not been directly linked to regional, national and international markets, with effective support mechanism, is required the consolidation of a modern and productive agroindustry that generates wealth and raises the welfare levels of the population, is still a pending issue in the state and is one of the most effective ways to reduce the gap that exists in the income levels of the population linked to primary activity with respect to other sectors such as oil industry (Gobierno del Estado de Tabasco, 2013).

The business and human cooperation schemes, adapted to the circumstances and particular characteristics of each region, have been a factor of success for the development of other economies, as shown by the indices of creation of such companies in the state (integrators, cooperatives and others), which translates into little capacity to generate opportunities for economic growth and development for companies and people of Tabasco, also negatively affecting the competitiveness of the state

The manufacturing industry represents only 2% of the state GDP and 0.4% of the national one, which places Tabasco in 27th place by a federative entity in terms of its contribution to the national GDP of the sector. In the state, it is constituted to a greater extent by companies in the food industry, which represent 32.6% of the total economic units of the industry, which demonstrates its potential to generate jobs if policies, programs, and projects that contribute to link the primary sector with agroindustry.

The productive linkage is an effective means to accelerate the generation of better-paid jobs in the state, which contributes to mitigating the income inequality that today's traditional sectors of the local economy present.

To achieve this, it is essential to promote manufacturing activity in a regionalized manner and to link it with the traditional sectors and with the market. It is also necessary to bring financing, technology, training, and specialized advice to increase the management and operational capacities of these industries. National and international experiences constitute antecedents for Tabasco due to the emergence of government trusts.

For this reason, it is important to implement programs of diversification of the Tabasco economy, as well as, it is a priority to implement measures to reactivate primary activities, which potentiated by the mechanization of the field, improve productivity and competitiveness levels, and leave the dependence from the state economy to oil activities.

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APPENDIX A

Table 1. Tabasco. Location Quotient (LQ) (INEGI, 2014)

Tabasco				
		Location Quotient		
Period	**2003**	**2013**	**ΔLQ**	**Behavior**
Total Activities Primary	0.593	0.390	-0.03	Decreasing
11 Agriculture, Animal Husbandry and Exploitation, Forest Harvesting, Fishing and Hunting	0.593	0.390	-0.203	Decreasing
Total Secondary Activities	1.732	1.996	0.264	Growing
21 Total Mining	4.886	7.471	2.586	Growing
211 Oil and Gas Extraction	5.245	8.624	3.379	Growing

Tabasco				
		Location Quotient		
Period	**2003**	**2013**	**ΔLQ**	**Behavior**
212 Mining of Metal and Non-Metallic Minerals	0.323	0.170	-0.153	Decreasing
22 Generation, Transmission and Distribution of Electric Power, Water and Gas Supply by Pipelines	0.282	0.237	-0.045	Decreasing
23 Construction	0.730	0.681	-0.048	Decreasing
31-33 Total Manufacturing Industries	0.397	0.291	-0.106	Decreasing
311 Food Industry	0.409	0.437	0.028	Growing
312 Beverage and Tobacco Industry	0.244	0.229	-0.015	Decreasing
313-314 Manufacture of textile inputs and textile finishing; Manufacture of textile products, except apparel	0.015	0.016	0.001	Growing
315-316 Manufacture of clothing; Tanning and finishing of leather and leather, and manufacturing of leather, leather and substitute materials	0.048	0.053	0.005	Growing
321 Wood industry	0.043	0.016	-0.027	Decreasing
322-323 Industries of Paper, Printing and Related Industries	0.076	0.054	-0.022	Decreasing
324-326 Manufacture of Products Derived from Oil and Coal, Chemicals, Plastics and Rubber	1.273	0.891	-0.383	Decreasing
327 Manufacture of Products Based on Non-Metallic Minerals	0.282	0.276	-0.006	Decreasing
331-332 Basic Metal Industries; Metal Products Manufacturing	0.017	0.018	0.001	Growing
333-336 Manufacture of machinery and equipment, computer equipment, communication, measurement and other equipment, electronic components and accessories, accessories of electrical appliances	0.003	0.007	0.004	Growing
337 Furniture Manufacturing, Mattresses and Blinds	0.078	0.019	-0.058	Decreasing
339 Other Manufacturing Industries	0.024	0.021	-0.003	Decreasing
Total Tertiary Activities	0.541	0.479	-0.062	Decreasing
43-46 Commerce	0.521	0.529	0.009	Growing
48-49 Transportation, mail and storage	0.427	0.458	0.031	Growing
51 Information in mass media	0.259	0.274	0.016	Growing
52 Financial and insurance services	0.259	0.294	0.036	Growing
53 Real estate and rental services for movable and intangible assets	0.621	0.543	-0.078	Decreasing

Tabasco				
		Location Quotient		
Period	**2003**	**2013**	**ΔLQ**	**Behavior**
54 Professional, scientific and technical services	0.687	0.580	-0.107	Decreasing
55 Corporate	0.000	0.000	0.000	Decreasing
56 Business support services and waste management and remediation services	0.308	0.235	-0.073	Decreasing
61 Educational services	0.706	0.614	-0.092	Decreasing
62 Health and social assistance services	0.773	0.742	-0.032	Decreasing
71 Cultural and sports entertainment services and other recreational services	0.162	0.138	-0.024	Decreasing
72 Temporary accommodation and food and beverage preparation services	0.516	0.383	-0.133	Decreasing
81 Other services except government activities	0.543	0.474	-0.069	Decreasing
93 Legislative, governmental, law enforcement activities and international and extraterritorial organizations	0.716	0.558	-0.158	Decreasing

APPENDIX B

Table 2. Tabasco. Shift-share for activities at constant prices (base 2008) 2003-2013 (INEGI, 2014)

Share				
2003-2013				
		National Component	**Industrial Mix**	**Competitive Advantange**
Period	***Shift* Total**	**ΔN**	**ΔI**	**ΔR**
Total Economic Activities	**138,986.1740**	**84,836.6755**	**-67,174.2610**	**121,323.7595**
Total Economic Activities	138,986.1740	84,836.6755	-17,071.6632	71,221.1617
Total Activities Primary	-889.4710	1,789.9522	-999.7643	-1,679.6589
11 Agriculture, Animal Husbandry and Exploitation, Forest Harvesting, Fishing and Hunting	-889.4710	1,789.9522	-999.7643	-1,679.6589
Total Secondary Activities	102,898.7610	56,398.8765	-24,699.6724	71,199.5569
21 Total Mining	95,896.7650	45,108.8062	-55,725.5370	106,513.4958
211 Oil and Gas Extraction	95,860.6840	44,891.2606	-65,082.7590	116,052.1824

Share				
2003-2013				
		National Component	**Industrial Mix**	**Competitive Advantange**
Period	***Shift* Total**	**ΔN**	**ΔI**	**ΔR**
212 Mining of Metal and Non-Metallic Minerals	36.0810	217.5456	323.3418	-504.8064
22 Generation, Transmission and Distribution of Electric Power, Water and Gas Supply by Pipelines	886.0930	405.0011	571.4942	-90.4023
23 Construction	5,619.5610	4,814.3682	-621.4043	1,426.5971
31-33 Total Manufacturing Industries	496.3420	6,070.7010	-1,599.0269	-3,975.3321
311 Food Industry	2,155.5980	1,390.7735	-487.4565	1,252.2810
312 Beverage and Tobacco Industry	260.5330	168.9245	32.2656	59.3430
313-314 Manufacture of textile inputs and textile finishing; Manufacture of textile products, except apparel	1.4690	3.8304	-4.7203	2.3588
315-316 Manufacture of clothing; Tanning and finishing of leather and leather, and manufacturing of leather, leather and substitute materials	23.4330	30.9554	-35.0989	27.5765
321 Wood industry	-12.4670	7.1588	-4.2889	-15.3369
322-323 Industries of Paper, Printing and Related Industries	1.8100	30.9649	-5.3714	-23.7835
324-326 Manufacture of Products Derived from Oil and Coal, Chemicals, Plastics and Rubber	-2,246.4840	4,142.5770	-3,485.2111	-2,903.8499
327 Manufacture of Products Based on Non-Metallic Minerals	209.9570	231.2345	-128.1644	106.8869
331-332 Basic Metal Industries; Metal Products Manufacturing	36.0500	27.4086	-14.8400	23.4814

Share				
2003-2013				
		National Component	**Industrial Mix**	**Competitive Advantange**
Period	***Shift* Total**	**ΔN**	**ΔI**	**ΔR**
333-336 Manufacture of machinery and equipment, computer equipment, communication, measurement and other equipment, electronic components and accessories, accessories of electrical appliances	106.4830	10.6421	8.5085	87.3324
337 Furniture Manufacturing, Mattresses and Blinds	-44.6760	18.2340	-20.9249	-41.9851
339 Other Manufacturing Industries	4.6360	7.9973	-3.2808	-0.0806
Total Tertiary Activities	36,976.8840	26,647.8467	8,627.7735	1,701.2638
43-46 Commerce	14,196.1460	6,248.2230	2,952.7763	4,995.1467
48-49 Transportation, mail and storage	4,094.1150	2,201.4736	-250.5948	2,143.2362
51 Information in mass media	2,888.8380	338.6264	1,833.7265	716.4851
52 Financial and insurance services	4,542.1600	411.8996	2,746.0774	1,384.1830
53 Real estate and rental services for movable and intangible assets	6,623.4740	6,402.6337	142.5676	78.2727
54 Professional, scientific and technical services	744.2960	1,423.0831	-494.3435	-184.4437
55 Corporate	0.0000	0.0000	0.0000	0.0000
56 Business support services and waste management and remediation services	326.0530	875.7452	-84.0807	-465.6115
61 Educational services	1,023.6280	2,619.6037	-1,561.5687	-34.4070
62 Health and social assistance services	1,732.9510	1,391.6324	-238.7009	580.0195
71 Cultural and sports entertainment services and other recreational services	35.6880	69.9893	-28.4374	-5.8640
72 Temporary accommodation and	-199.2490	1,085.6880	-676.4980	-608.4390

Share				
2003-2013				
		National Component	**Industrial Mix**	**Competitive Advantange**
Period	***Shift* Total**	**ΔN**	**ΔI**	**ΔR**
food and beverage preparation services				
81 Other services except government activities	817.7370	1,012.7723	-199.0943	4.0590
93 Legislative, governmental, law enforcement activities and international and extraterritorial organizations	151.0470	2,566.4763	-1,358.4157	-1,057.0136

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