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RINOE Journal-Public Economy

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Presentation of the content

In the first article we present, *Impact on the taxpayers, physical persons of the fiscal incorporation for the new fiscal provisions for payroll*, by CARMONA, Juan Carlos, CRUZ, Clotilde and ARELLANO, Sonia, with adscription at the Universidad Tecnológica de Xicotepec Juárez, as a following article we present, *Technological development and its impact on the cost - benefit of avocado production in the Southern Region of the State of Jalisco, Mexico*, by ARROYO-MARTÍNEZ, Simona, as following article we present, *Deficit, public debt and economic growth in Mexico*, by BALTAZAR-ESCALONA, Juan Carlos, ROSAS-ROJAS, Eduardo and LAPA-GUZMÁN, Javier, as last article we present, *The deduction of social welfare in income tax since the reform of 2014*, by BÁRCENAS-PUENTE, José Luis, GÓMEZ -BRAVO, María de la Luz, SILVA-CONTRERAS, Juan.

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Impact on the taxpayers, physical persons of the fiscal incorporation regime for the new fiscal provisions for payroll payment

Impacto en los contribuyentes, personas físicas del régimen de incorporación fiscal de las nuevas disposiciones fiscales para el pago de la nómina

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Abstract

The fulfillment of Tax Obligations in Mexico, and the search for greater guarantee Mechanisms That Increase collection and public revenues, has generated the Mexican Tax Authorities to Implement new procedures for esta, Implementing Electronic Means to Expedite and Facilitate compliance Said. However, the low economic, technological and basic computer skills of MOST of the Micro, Small and Medium Enterprises (MSMEs) constituted as Physical Persons of the Tax Incorporation Regime (RIF), you Caused This New method of issuing receipts (CFDI) of Payroll for the payment of wages and salaries to employees ITS, you have a negative impact on them, generating uncertainty and non-compliance, since it Represents an additional and excessive expense to acquire computerized equipment and pay WHO personnel or external subordinate Help with this activity, since the procedure is complicated and can not do it They Themselves, and if They Do it badly, They are exposed to the imposition of an economic sanction. That is why, in the present research work, the main drawbacks of new tax obligation esta Were Identified and some suggestions are presented to be applied to Comply; With the intention of creating a tax culture and awareness of Taxpayers and Authorities, with the aim of Achieving Fiscal harmony That benefits both.

Payroll, Digital Fiscal Vouchers (CFDI), Fulfillment of Tax Obligations

Resumen

El cumplimiento de las obligaciones fiscales en México, y la búsqueda de mecanismos que garantizar una mayor recaudación e incrementar los ingresos públicos, ha generado que las autoridades fiscales mexicanas implementen nuevos procedimientos para ello, implementando medios electrónicos para agilizar y facilitar dicho cumplimiento. Sin embargo, la baja capacidad económica, tecnológica y de conocimientos informáticos básicos de la mayoría de las Micro, Pequeñas y Medianas empresas (MIPYMES) constituidas como Personas Físicas del Régimen de Incorporación Fiscal (RIF), ha ocasionado que esta nueva modalidad de expedir comprobantes electrónicos (CFDI) de Nómina para el pago de sueldos y salarios a sus colaboradores, tenga un impacto negativo en ellas, generando incertidumbre e incumplimiento, ya que representa un gasto adicional y excesivo para adquirir equipos computarizados y pagar a personal externo o subordinado que les auxilie con esta actividad, ya que el procedimiento resulta complicado y ellos mismos no lo pueden realizar, y si lo realizan mal, se exponen a la imposición de una sanción económica. Es por ello que, en el presente trabajo de investigación, se identificaron los principales inconvenientes de esta nueva obligación fiscal y se plantean algunas sugerencias a aplicar para cumplir; teniendo la intención de crear una cultura fiscal y concientización de contribuyentes y autoridades, con la finalidad de lograr una armonía fiscal que beneficie a ambos.

Nóminas, Comprobantes Fiscales Digitales (CFDI), Cumplimiento de Obligaciones Fiscales

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Introduction

Fulfilling a constitutional obligation, as is to contribute to public expenditure in proportion and equitable, it is essential for countries to have a source of income that allows them to cover public spending, as well, have systems and mechanisms to achieve consistent collection more efficient, agile and fast.

In performing this research on the impact of the application of the new provisions applicable to taxpayers constituted as Individuals who have low economic, administrative and basic computer skills capacity is intended to be a source of information helps to analyze specific cases of taxpayers who find themselves in this situation that basis, the tax authority properly analyze the existing tax provisions applicable to the issuance of Digital fiscal Proofs Internet (CFDI) in developing the payroll for the payment of wages and salaries of its employees and thus, perhaps, you could easily apply them some taxpayers who are in this situation, or,establish a program of gradual implementation and support that have electronic resources that enable them to fulfill their obligations in the short term, and thus there is benefit for both the aforementioned taxpayers and the tax authority.

Justification

The tax provisions are issued, they require an analysis for each specific case of schemes of taxpayers, since it is not the same, the infrastructure of a Moral Person with high economic capacity, the Micro, Small and Medium Enterprises (MSMEs) organized as Individuals, whose economic capacity, in most cases is very low, and this will represent an obstacle to the fulfillment of their fiscal obligations, even if they intend to comply properly with their Fiscal obligations.

Based on the information obtained in this investigation, have generated proposals that help strengthen the proper performance of issuance of Digital Fiscal Proofs (CFDI) in the payslip of such taxpayers who applied properly, will allow the taxpayers meet this obligation correctly, considering their economic capacity and that the authority is not affected by non-compliance or irregularities in this regard, generating and fostering harmony and positive fiscal culture.

Problem

The application of tax provisions for the issue of Digital Tax Receipts for payroll, without making a true and proper analysis of economic, administrative and IT taxpayer conditions, is causing them, rather than comply with such obligations, so complex compliance, choose to suspend the tax registry, generating evasion, fall into informality, dealing with this, allegedly to avoid fines that may be incurred, caused also that with these actions, stop raise taxes, because taxpayers are no longer active.

Hypothesis

If the Tax Authority performed an analysis of the economic conditions of Taxpayers, Individuals Regime Fiscal Integration with Micro, Small and Medium Enterprises and establishes provisions that facilitate compliance of issuing tax receipts for payroll, will be generated a tax culture that will improve compliance with tax obligations of taxpayers, avoiding non-compliance, tax evasion and fines; and secondly, better and higher revenues by the Authority.

Figure 1

Goals

General Purpose

Generate a proposal for provisions on the issuance of Digital Fiscal Proofs for payroll Taxpayers Individuals Regime Fiscal Incorporation, which will provide guidance to the Authority to issue laws that regulate and facilitate compliance in attention to their economic capacity and at the same time, this will allow both parties benefit in the short term, avoiding unnecessary fines and tax evasion.

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Specific objectives

- Identify the main causes that do not allow taxpayers to fulfill this tax obligation.
- Sensitize taxpayers benefit of properly and promptly comply with their tax obligations.
- Sensitize the Authority to analyze the conditions of the taxpayers, and can provide facilities for the fulfillment of this obligation and thereby promote a tax culture.
- Propose delivery of courses by the Authority to support these taxpayers in meeting their obligations.
- Propose that the Authority can support Taxpayers for the purchase of electronic equipment that will facilitate compliance with this obligation.

Theoretical Framework.

Tax Law is a branch of public law, consisting of a set of legal rules of public law governing study and revenues received by the state to cover public spending.

Attorney law may also be called tax law or tax law.

Treasury word comes from the Latin word FISCUS. In Mexico the Supreme Court of Justice (SCJ) tells us that "Fisco means, among other things, the part of public finances which is formed by contributions, taxes and duties ..."

Therefore, we can realize that the tax law is the most important part of the financial activity of the State. The CPEUM, emanates the Mexican Tax Law by Article 31, section IV. The tribute is a mandatory provision, usually in cash, required by the State under its power to rule and gives rise to legal relations of law. Giuliani Fonrouge (1993). The power of taxation is that exclusive legal power of the state, which has forced to establish, collect them and destine contributions to cover public expenditure and gives rise to what we call Tax Law.

It is understood by natural person all human beings with the ability to acquire rights and obligations. Some legislation is possible to find the same legal entity known as an individual or actual existence. Individuals enjoy the rights that the Constitution and other rules give you.

Just simply the fact exist so that individuals are protected by law and that you recognize the attributes enjoyed by individuals subject to the rule of law.

The attributes of individuals are: Legal status, capacity, name, Address, marital status, Heritage and Citizenship.

Fiscal, a natural person, according to the glossary of the Tax Administration Service (SAT), any man or woman is the subject of rights and obligations.

Currently, the SAT classifies taxpayers into two groups: Individuals and Corporate Entities, and each group subclassified into different tax systems, according to their legal form of incorporation, amount of capital expenditures, volume of sales operations and economic activity It is so that in the case of individuals, there is a called tax regime Incorporation, which according to the Law of income Tax (income Tax Law), are those individuals who perform exclusively business activities and its annual revenues not exceeding two million pesos.

In this regard, the Tax Code of the Federation (CFF), states that are considered business activities, Commercial, Industrial, Agricultural, Livestock, forestry and fisheries.

Based on the above, Individuals who meet these requirements, may be taxed in the so-called tax regime Incorporation and have certain tax and accounting facilities, however, from the year 2014, it became mandatory for all taxpayers, (including Individuals Tax Regime Incorporation), who have employees at your service must issue the Digital Tax Receipt Internet (CFDI), caused by the payroll.

According to the provisions of the Tax Code of the Federation (CFF), the term digital document or digital proof, data message containing information or writing generated, sent, received or stored by electronic, optical or means other technology.

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Figure 2

Although the application of this new modern way to comply with the obligation to issue Payrolls, facilitating and speeding up the processing time for the aforementioned taxpayers, it is difficult to adequately fulfill this obligation, so it is necessary to analyze the economic conditions , administrative and computer skills, requiring a accordingly be designed so that they can fulfill this activity.

Figure 3

Research Methodology

Professional experience in providing independent professional services, combined with teaching experience in the tax area, know and live the problems representing taxpayers Individuals, taxed within the tax regime Incorporation motivated to be held on this research, by identifying directly the vast majority of these have a huge problem to adequately fulfill the obligation to issue tax receipts Digital Internet (CFDI) for payroll because first they do not have the economic capacity to purchase computer equipment to be functional for specific load requirements and captures electronic program, or,to pay external services to develop them vouchers, coupled with this, even if will have the proper equipment, lack of knowledge in handling tools of information technology and tax laws, causes them to see the need for hiring internal staff to perform these tasks them, which implies an additional expense, the same situation, if they had to hire outside staff for this activity.

For this reason, many taxpayers have suspended their activities to the SAT, not unwilling or unable to comply with these electronic obligations, or worse, some still active, but the aforementioned limitations, are not fulfilling this obligation, a situation that they can generate a fine, further affecting their economic status.

On the other hand, the tax authority is affected, if taxpayers are suspended from the tax rolls, since income tax revenues decrease, and also tax evasion and informality increase.

With the proposals were designed, it is intended that the authority could be more flexible and take into account all the constraints to which such taxpayers face and thus develop tax provisions more attached to reality for many taxpayers and contribute on the one hand, to encourage taxpayers to comply properly with their electronic tax obligations, generating a tax culture that does not exist in Mexico; and on the other hand, the authority does not leave injured with the risk of reducing their standard of taxpayers and the decrease in revenue or increase in the commission of tax offenses.

This seems very complicated and almost impossible, but a matter of discipline on the part of taxpayers, motivated to learn that the authority is participating in the development of more flexible provisions enabling the proper fulfillment of obligations, according to the capabilities of these taxpayers, generating confidence on both sides, which will result in better economic development of the country.

All this information was obtained by applying 121 surveys of a total population of 296 MSMEs Xicotepec Township, Puebla, with a total of 34 questions with multiple choice answers. The results obtained were classified, analyzed and graphed properly.

The research that was used in this work is the explanatory as not only describes the problem or observed phenomenon but approaches and seeks to explain the causes of the situation analyzed. It is the interpretation of reality and explaining why and what the object of study; to expand the "What?" exploratory research and the "how" of descriptive research.

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This seeks to establish the causes in different types of study, establishing conclusions and explanations to enrich or clarify theories, confirming or not the initial thesis.

Results

Information obtained from the implementation of surveys Individuals Taxpayers Fiscal Regime Incorporation with business activities, formed as Micro, Small and Medium Enterprises, allows the following proposals:

- Grant facilities to this type of taxpayers so that within an appropriate period of time, they still do not comply with the preparation and issuance of Payroll in an electronic manner and may continue to do so in the traditional manner.
- Grant government support to facilitate the acquisition of quality electronic computing equipment at low cost to these taxpayers, complying with the necessary technological requirements.
- Provide training courses and permanent updating for the issuance of payrolls and the respective CFDI, including by supporting and coordinating with the Technological University of Xicotepec de Juárez for that purpose.
- Grant a temporary fiscal stimulus for the payment of ISR, to these taxpayers who comply adequately with the obligation of issuing CFDI for the payment of Payroll.
- Grant a temporary fiscal stimulus for the payment of ISR, to these taxpayers who have the need to hire personnel to comply with the obligation of issuing CFDI for the payment of Payroll.

Figure 4

Conclusions

To motivate Taxpayers to comply with their tax obligations, including this new method of issuing payrolls and the respective CFDI electronically, granting them facilities for such compliance and observing that the fiscal authority is concerned about the limitations and adverse economic conditions , administrative, technological and ignorance of the use of information technologies, can generate awareness among taxpayers so that they comply timely and correctly with this obligation, generating a true fiscal culture, not feeling pressured and forced to comply drastically with its fiscal obligations, possibly generating a contrary and positive effect when the authority considers its adverse conditions and proposes proposals to help them avoid irregularities that cause unnecessary fines to taxpayers and also prevent them from falling into informality or in the commission of fiscal crimes, promoting the development and economic growth of the Micro, Small and Medium Enterprises, as well as in general, the development and economic growth of the country.

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Technological development and its impact on the cost - benefit of avocado production in the Southern Region of the State of Jalisco, Mexico

El desarrollo tecnológico y su impacto en el costo - beneficio de la producción de aguacate en la región sur del estado de Jalisco, México

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Abstract

The objective of this study is to evaluate the technological development through the cost - benefit of the main producers of avocado in Jalisco. Currently, Jalisco has ten municipalities that produced 72.33% of avocado in the period 2014 - 2016. The method was mixed. First, we analyzed the statistical information of the avocado crop; second, application of an open interview to identify the technology used in an orchard that invests in technological development. Subsequently, the costs and sale prices of the avocado were taken in the most efficient region of the state of Michoacán and contrasted with the South, South - East of Jalisco region. The results show that orchards with high technology obtain a higher yield per hectare. Meaning a competitive advantage in costs and a differentiated product. Farmers with production costs of $ 91,500 generate losses. However, there are producers who can maneuver with costs between $ 91,500 to 117,000 per hectare and still earn profits. As long as they have a yield of 10 ton / ha; with a sale price of $ 17,000 per ton. If the price is $ 14,000; will have profits with a yield of 12 tons.

Technological Development, Cost - Benefit, High Technology

Resumen

El objetivo de este estudio es evaluar el desarrollo tecnológico a través del costo – beneficio de los principales productores de aguacate en Jalisco. Actualmente, Jalisco cuenta con diez municipios que produjeron el 72.33% de aguacate en el periodo 2014 – 2016. El método fue mixto. Primero, analizamos la información estadística del cultivo de aguacate; segundo, aplicación de entrevista abierta para identificar la tecnología utilizada en un huerto que invierte en desarrollo tecnológico. Posteriormente, se tomaron los costos y precios de venta del aguacate en la región más eficiente del estado de Michoacán y se contrastó con la región Sur, Sur – Este de Jalisco. Los resultados muestran que los huertos con alta tecnología obtienen un mayor rendimiento por hectárea. Significando una ventaja competitiva en costos y un producto diferenciado. Los agricultores con costos de producción de $ 91,500, generan pérdidas. Sin embargo, hay productores que pueden maniobrar con costos entre $ 91,500 a 117,000 por hectárea y aun así, obtener ganancias. Siempre y cuando, tengan un rendimiento de 10 ton/ha; con un precio de venta de $ 17,000 por tonelada. Si el precio fuera de $14,000; tendrá ganancias con un rendimiento de 12 toneladas.

Desarrollo Tecnológico, Costo – Beneficio, Alta Tecnología

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Introduction

According to the Undersecretary for the Promotion of Agribusiness (SFA: 2011), avocado is a tree native to Mesoamerica, which was already cultivated before the arrival of the Spaniards. The tree can reach a height of 20 meters. However, the ideal one is 5 meters to facilitate the practices of sanitary control, harvest, pruning and fertilization. There are currently 400 varieties in the world, based on their shape and weight. Although it reaches a height of up to 20 meters, for commercialization purposes it does not have a height greater than 5 meters to facilitate harvesting, cultural work and fertilization. Regarding the planting distance of the tree depends on the type of soil and weather conditions, which is 7 to 12 meters from one to the other, allowing to plant from 115 to 180 trees per hectare.

The avocado tree begins to bear fruit from the fifth year, in which up to 50 fruits per tree are obtained; in the sixth year 150 fruits are obtained; in the seventh 300 and in the eighth to 800 fruits per year. From the ninth year the harvest is decreasing.

While the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA, 2015), who explains that "the avocado is cultivable in areas with an altitude between 1,600 to 2,000 meters above sea level; rain from 1,050 to 1,150 millimeters. As well as a temperature of 15ºC to 19, with permeable and deep soils (sandy loam), without calcareous or chloride and with a pH of 6.0 to 7.5 ". Although, the avocado is a crop that occurs all the year, between the months of March to July 49.1% of the national production is obtained.

On the other hand, Acosta, Hernández and Almeyda (2012) establish that the avocado originates from the mountainous areas of central and eastern Mexico and the upper parts of Guatemala. Currently, they are classified into three races: Mexican (Persea Americana var. Drymifolia); the Guatemalan (P. Americana var. Guatemalensis) and the Antillana (P. Americana var. America); which are recognized from their morphological, physiological and culture characteristics. Commercial avocado varieties are interracial hybrids developed from the exchange of materials between different races.

The most common being Hass, Fuerte, Criollo, Bacón, Gwen and Reed. In the case of Mexico, the Hass variety has the highest demand in the international market. In this sense, Cañas et al (2015: 130-131) argue that all avocado producers should establish suitable processes to select the varieties to be planted to guarantee the continuity of the harvest, lengthen the harvest periods, increase yield, decrease the risks by plagues and diseases, better development of the crop and greater quality of the fruit.

Additionally, they propose that it is better to carry out a grafting of commercial trees of greater acceptance in the market by means of selected seeds of the same orchard, zone or region, on local or Creole patterns that are adaptable to the ecosystem.

Justification

In recent years, agri-food exports from Mexico have grown significantly. Being fruits and vegetables, which contribute significantly in the trade balance. This has been possible due to the technological and compliance with the regulations imposed by the importing countries.

Despite the free trade agreements that Mexico has with other countries, avocado exports are susceptible to a series of tariff impositions as non-tariff, which are used as a protectionist mechanism. In this sense, avocado producers have not been the exception. However, they have created a competitive advantage through technological development in the production of this crop beyond a comparative advantage in terms of climate, soil and water.

Technological development is a source of competitive advantage both in costs and in the differentiation of the product. In this sense, the technology used by avocado producers can be different and varied, depending on the size of the orchards and their capacity to assimilate and transfer technology.

Therefore, the cost advantage is represented by the yield in tons per hectare obtained by each producer. While the differentiation of the product is that it complies with the characteristics or attributes requested by each of the importing countries.

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Problem Statement

In 2016, Mexico made agro-food exports for 29 billion pesos, with avocado being the product that ranked third, after beer and tomato. Likewise, Mexico is considered the first exporter of this fruit, whose main destination is the United States of America (USA), which represented 80% of exports. For example, in the Super Bowl 2017, Mexico exported 100 thousand tons. This figure was 10% higher than in 2016 (El Financiero 06/03/2017). In 2014, the demand for avocado from the USA was covered 65% by Mexico; 23% by the state of California; 7% for Chile and 5% for Peru. What indicates a significant growth of exports in the last two years. It should be noted that Mexico exports to other countries such as: Costa Rica, El Salvador, China, Spain, Germany, United Kingdom, Singapore and Russia (El Financiero 09/16/2014).

The surface planted with avocado in Jalisco, in the year 2017, was 22 thousand hectares, which has represented an average annual growth of 21.3%, in the last 16 years, through irrigation technology, which allowed the production of 120 thousand tons of avocado, of which 62 thousand tons were exported mainly to: Europe, Asia and America (Romo: 2017). On the other hand, the head of the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) José Calzada Ruvirosa, said that avocado production in 2012 was 40 thousand tons; while in 2015 it was 119,600 tons, which meant an increase of 299%. Mexico supplies 30% of the global avocado demand for the Hass, Criollo and Fuerte varieties. In 2015, production was one million 644 thousand tons, of which one million 468 thousand tons were exported, that is, 89.9% of national production (El Financiero 06/03/2017).

The main producer of avocado in Mexico is the state of Michoacán that contributed with 78% in 2016. However, the yield per hectare decreased by 20% because the trees produce one year more than in another (alternate tree) , causing an increase in the price. In the case of the price in supermarkets, it ranges from 70 to 80 pesos per kilogram; while in the market supplies the price is 60 pesos per kilogram (Noticias mvs 05/11/2017).

In this regard, Del Moral and Murillo (2016: 4) identified that the average price of avocado in June 2016, at the Central de Abastos of Mexico City from Michoacán was 42 pesos per kilo reaching up to 50 pesos; while the price to the consumer was 57 pesos per kilo. And at the end of the same month, it reached a consumer price of 70 pesos. These increases were due to two factors. The first, avocado production is seasonal. Being the low season in the months of May to August; the second, due to weather aspects such as storm No. 11 and the heavy rains that affect it. As a result, it causes producer shortages and prices tend to rise.

Therefore, we observe that the market price of avocado is determined by the comparative advantage of the regions of Jalisco and Michoacán, defined in terms of climate, water and soil quality. Likewise, other variables such as: production costs, investment, financing, taxes, competition and technology, to name the most important.

However, the market price should be sufficient to cover fixed and variable costs. In this way, the company minimizes losses, but if the price is greater than the costs, the company generates profits. Now, with a price lower than the costs, losses are generated. Thus, the cost advantage is determined by yield in tons for each hectare harvested. The advantage in costs as a result of technological development allows producers a greater margin of financial maneuver in the face of fluctuations in the sale prices of the harvest.

In this way, producers with a cost advantage and product differentiation as a result of technology, allow them a competitive advantage in the international market. In this context, the avocado producers of Jalisco, has not been the exception, since they have intensified their efforts to insert themselves in the global market. Although its foray into the US market has been in vain, due to the obstacles imposed by the Department of Agriculture of that country. According to Rodríguez (2016), in 2016 the Governor of the State of Jalisco announced the authorization by the United States of America for the export of avocado, which would benefit 1,300 avocado producers in twelve municipalities that are recognized as free of avocado pests such as:

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Gómez Farías, Zapotlán el Grande, Sayula, Concepción de Buenos Aires, San Gabriel, Juarez Valley, Mazamitla, La Manzanilla de la Paz, Tapalpa, Zapotiltic, Guadalupe Valley and Arandas.

General objective

Evaluate the technological development through the cost - benefit of the main producers of avocado in Jalisco.

Specific objectives

- Identify the main avocado producers in Jalisco, to determine their contribution to state production.
- Analyze the behavior of the sown area (ha), the production in tons and the sale prices per ton from the period 2010 to 2015.
- Evaluate the cost - benefit of the main producers of avocado in Jalisco, considering the production costs of the most efficient municipalities in the state of Michoacán, given the yield and the price of Jalisco producers.
- The structure of the present study, in addition to this introduction, integrates a review of the theoretical - empirical literature of the avocado, the methods and resources used, the results and the conclusions.

Theoretical Framework

The above coincides with a study conducted by Martínez, Espitia and Valenzo (2013), in which they determine that the comparative advantages of avocado producers in Uruapan, Michoacán, are closely related to natural resources such as: climate, water and quality of the soil, which allows two blooms per year; while countries like Chile and the United States only have one per season. Likewise, they explain that the creation of a competitive advantage should be focused on the technology applicable to the molecular characteristics of the avocado that define and standardize its texture, flavor and color.

Avendaño (2008) argues that despite the comparative advantages that various states have, such as: climate, water availability and cheap labor for fruit and vegetable production, there may be a shift because exports in 2005 had an increase of 2.20%; while in 1993 they increased by 3.23%, which represents a decrease in agrifood exports. The main cause is the saturation of the US market by countries that compete with Mexico such as: Costa Rica, Peru, Guatemala, Ecuador, Chile and China, to name the most important. The competitive advantage of these countries is related to the supply of differentiated products as a result of technological innovation such as: greenhouses, hydroponics or organic. Then, then, Mexico can be displaced because it does not comply with the quality, sanitation and innocuousness demanded by the international market..

The state of Michoacán has been a pioneer in the production of avocado in Mexico, who has exploited its absolute advantage because it is located in a geographical area that allows climatological conditions suitable for cultivation. Placing itself as the first producer and exporter of avocado. Martín (2016), argues that the creation of the competitive advantage of the avocado trees, arose from the year 1914, the year in which the crop was subject to a ban by the United States authorities, alleging that it did not comply with the phytosanitary norms[1].

This fact represented an opportunity that triggered a set of strategies focused on the technological innovation of the region called "Sectorial System of Innovation" (SSI), in whose process of technological learning participated both international and national institutions, the public and private sector. , which promoted the organizational culture, the formation of associations and learning as a key element of SSI such as: basic knowledge[2], the inputs and the existing or potential demand. What meant the elimination of the closure in the nineties. Being the producers of Uruapan, Michoacán, the most benefited by technological innovation

[1]Torres (2009) argues that the ban on avocado imports is caused by the presence of a pest called "screwworm". The trade embargo lasted 83 years until the authorities intervened to ensure the elimination of the pest.

[2] In this regard, Martin (2016) explains that you get from learning processes of each organization, which is not susceptible to being automatically transferred to others, but it is exploited in terms of the capabilities of each company, ie, it is subject to the differentiated and accumulated over time by the organization skills.

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In this regard, Steffen and Echanove (2003) argue that the cultivation of sugarcane was a priority for government authorities due to its high demand from the United States. However, exports were affected because it was displaced by Cuban producers. Later, the sugar cane was destined to the sugar mills installed in the community of San Francisco Peribán[3], of the municipality of Uruapan, Michoacán, which remained until the liberalization of the market, the elimination of subsidies and government support to promote more profitable crops in terms of exports. Therefore, those that were integrated into the production of avocado, from the nineties, had a considerable technological delay, causing inequality in avocado production. On the one hand, there were producers with communal or ejidal lands, which are called "backyard orchards". On the other hand, private gardens with skills in the use and assimilation of technology.

The foregoing, states that although Uruapan is the main producer of the State of Michoacán, there are differences between traditional producers that are limited to the use of fertilizers, chemicals and pesticides versus technological producers that use improved seeds, technical assistance and automated systems. irrigation, among others. The technology induces a marked differentiation of the crop and an advantage in costs because they exploit their economies of scale. Additionally, they have skills in the marketing of the crop through experienced intermediaries. Consequently, technology increases the chances of entering the global market; while others will have to settle for surviving according to the conditions of the domestic market, be subject to coyotaje or yield their land for sale or rent for use by technological producers.

In another context, Torres (2009) explains that the competitiveness of avocados in the US market intensified as producers had mandatory standards[4]. Some of its findings, determines that in the period 1997 to 2004; The relative export advantage (VRE), grew 15.6%. However, this would not have been possible, without the support of the State, who offered all the regulatory and economic facilities to expand the area of avocado cultivation.

In contrast, he argues that although Michoacán is the main producer of avocados nationally and internationally, it is still a maquiladora because marketing is a process still unknown by most avocado farmers. Consequently, the winners of international trade are the trading companies. Therefore, we must work on the implementation and strengthening of a scheme of direct exporters. In this way, the power of setting the differentiated selling price would be eliminated, affecting the less favored in terms of regulations and technology.

In this sense Macías (2010), argues that technological development in the production of avocado in the southern region of the state of Jalisco, has displaced traditional agriculture by a scientific agriculture, which is based on general and standardized procedures that overlook the territorial characteristics. Consequently, the producers generated a high technological dependence to be competitive. Therefore, he expelled those producers without the possibility of investing in technology. On the other hand, the author considers that the production of avocado displaced the cultivation of grains and livestock because the avocado has increased its price due to market conditions. Also, it has caused depletion of territorial resources such as: water, soil and genetic reduction. As well as, health problems due to the use of agrochemicals, labor and social conflicts due to low wages.

Arriaga et al (2013), match Macías (2010), raising one hand that environmental problems is associated with increased cultivation of avocado, especially in damage to forests from deforestation tree in mountainous areas of the state of Mexico. Meanwhile, Steffen and Echanove (2003) explain that in San Francisco Peribán, the authorities allowed the deforestation of pine trees for planting avocado. On the other hand, have been observed phytosanitary problems, such is the case of the state of Mexico, where 77% of the plants come from Michoacan, whose orchards have not a program certified plant, causing the spread of pests.

[3] In some other cases the authorities not only ceded lands, but also allowed the deforestation of pine to grow avocado

[4]The rules applicable to the cultivation of avocados in both production and marketing are: NOM-066-FITO-2002; NOM-016-SCFI-FF-2006 and NOM-128-SCFI-1998, which guaranteed that the product met the phytosanitary enforcement, packaging and marketing, labeling of agricultural produce for domestic or foreign consumption.

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ARROYO-MARTÍNEZ, Simona. Technological development and its impact on the cost - benefit of avocado production in the Southern Region of the State of Jalisco, Mexico. Journal-Public Economy. 2018.

Acosta Hernandez and Almeyda (2012) identified that avocado growers in Nuevo Leon have been affected by the entry of nursery plants Michoacan, without phytosanitary restriction. Therefore, 43% of producers report root diseases such as Phytophthora cinammoni, Verticillium and Armillaria whose phytopathogenic are present in the soil that pollute healthy plants. Also, a minority of contract manufacturers technical support specialists Michoacan state.

As seen, avocado producers in the states of Mexico and Nuevo Leon have a technological dependence. In this sense, Jalisco has been no exception, because there are gardens whose owners are originally from Michoacan, engaged in the same activity. Therefore, they identified an opportunity in Jalisco to extend the planted area, avocado and insecurity that prevails in that state. An advantage to this fact is the technology transfer to the region, but also means to competitive advantage over producers in Jalisco native, who just take a few years in this activity. While Michoacán takes eight years developing technology for growing, which has been transferred to other states.

Methods and Resources

This research focused on two phases which are detailed below:

First phase:

Review of SAGARPA statistics to detect major avocado producing municipalities in the state, based on harvested area. Subsequently, the contribution margin of each was calculated to determine the preponderant role played by each of the municipalities, adding performance tonnes per hectare and the selling price which operated in the market. This period was from 2010 to 2015, because the figures have been stable. Earlier, by 2010 the figures with abrupt changes.

Second stage:

We conducted an in-depth interview to identify the type of technology that uses a representative garden of the state of Jalisco region. Later, he was confronted with the results of a high-tech garden located in the state of Michoacan, in terms of the costs incurred and the selling price.

Thus, Be able to determine the cost - benefit of major avocado growers in the state of Jalisco, based on reference values.

Results

Avocado main producing municipalities in Jalisco

According to a statement from Ing. René Gutiérrez Arenas, director of Trade Promotion Ministry of Rural Development (seder)[5], destacó que en año 2016, Jalisco contaba con 75 municipios productores de aguacate. A este respecto, realizamos un análisis de la producción de aguacate, correspondiente al año 2015. Consideramos, la superficie sembrada por municipio asociada con la producción estatal del aguacate del año en referencia.

The results of the analysis of 2015 showed that the main producers of avocado in Jalisco are: First Zapotlán El Grande with 3,489 ha; San Gabriel second with 2,261 ha; third Farias 1,461 ha., and fourthly Concepción de Buenos Aires 1,459 ha. Total they planted in that year 8,670 ha., Of 19.537 planted in Jalisco, representing 44% of the surface. While 56% of the surface is distributed in the municipalities of Sayula Gordian Tamazula, Tapalpa, Tonila, Tuxpan and Zapotiltic. Likewise, we prepared a map (see Figure No. 1).

According to our findings, the municipality of Zapotlán the Great, is located in a strategic area for the marketing and distribution abroad because most balers, which are estimated to be about thirteen. On the other hand, we identified that the collection of avocado South region - East, is done by packers, who hire staff to cut, pack and move the fruit to stores, in order to reduce product damage. However, a disadvantage with producers in other municipalities is that the avocado is labeled with the brand Zapotlán El Grande, what they perceive as a loss of identity.

[5]http://www.inforural.com.mx/75-municipios-aguacateros-jalisco-segundo-productor-nacional-aguacate/

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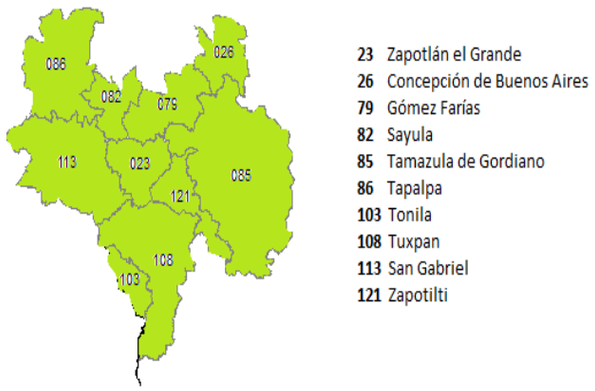

Figure 1 Major avocado producing municipalities in Jalisco
Source: Self Made

On the other hand, Adolfo Aguayo Chavez, manager of Plant Protection Development District 07 of the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) argues that Jalisco has 26 municipalities representing 13 thousand hectares of avocado and a production of 100 thousand tons of avocado orchards 1,306 are concentrated mainly in the South Region - South east Jalisco state. Likewise, it determined that 20 of these companies from orchards belong to the state of Michoacan[6], Which are characterized by technological advances in handling the garden, postharvest handling and marketing.

Producing varieties Hass and Hass are Mendez, the difference between the two is due to altitude and climate issues. He also noted that 75% of production is sold on the domestic market and 25% exported to Canada, Japan, the Netherlands, Spain and Belgium. Dull[7](2015), with information provided by Hector Padilla, Secretary of Rural Development who argued that producers of Jalisco are more efficient because planted 600 trees per hectare, which allows for increased performance. While the producers of Michoacan just planting 200-220 trees per ha. He also stressed that according to the Association of Producers and Exporters of Avocado Jalisco (APEAJAL), Jalisco has 15,000 (ha) avocado producing 90,000 tons annually.

Distribution of the area planted

Taking the reference standard of Michoacan avocado producers - Jalisco published by SAGARPA (2014). We identified that there were 313 orchards distributed in the top ten municipalities under study dedicated to the cultivation in Jalisco, which total an area of 9036.82 ha. Table No. 1 shows that in 2014, the municipality Zapotlán El Grande produced 32%; Zapotiltic with 15% and Concepción de Buenos Aires 11%. Orchards these municipalities represent 32% (61); 15% (49) and 11% (93), respectively.

Municipality	Surface Ha	%	No. Huertos	%
Concepción de Buenos Aires.	1,005.60	eleven%	93	30%
Farias	744.90	8%	26	8%
Saint Gabriel	453.55	5%	9	3%
Sayula	942.30	10%	10	3%
Tamazula de Gordiano	246.55	3%	33	eleven%
tapalpa	366.70	4%	5	two%
Tonila	237.80	3%	5	two%
Tuxpan	830.00	9%	22	7%
Zapotiltic	1,358.57	fifteen%	49	16%
Zapotlán El Grande	2,850.85	32%	61	19%
Total	**9,036.82**	100%	**313**	100%

Table 1 Distribution has surface
Source: Based on data from the Register of Producers Michoacan - Jalisco (SAGARPA 2014)

Noting in the municipality of Concepción de Buenos Aires, the largest number of orchards because it has a reduced area ranging from 1 to 5 ha., Which are classified as backyard orchards. On the other hand, the municipalities of San Gabriel, Sayula, Tapalpa and Tonila have fewer orchards, but more extensively hectares. Accordingly, technology must be differentiated between producers. However, it is susceptible marketing both domestically and internationally. The latter must possess characteristics that allow them to be exportable, in accordance with the applicable requirements for each importing country.

[6] Based on information from Ing. Sergio Gómez, the gardener "Los Cerritos" have plantations called "Chilean" which are that each tree is planted at a distance of six meters to three meters. This mode is not allowed to grow so that there is production of high density. Thus, it is intended to make the first production two years of planted trees, which is estimated at 555 trees per hectare and a yield of 200 ton / ha. In the third year it is estimated that each hectare yield seven ton / ha., Up to eleven ton / ha, whose surface is about 800 hectares in different orchards that are in the municipality of Zapotlán the Great. (Diary "The Informer", dated November 12, 2012).

[7] http://eleconomista.com.mx/estados/2014/09/05/jalisco-lidera-productividad-aguacate.

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It is also important to note that the area planted by municipalities under study, in 2014 was 10,393.05 ha (SAGARPA-2014). So there is a surplus of 1356.23 hectares which are not considered in the Register of Producers of Jalisco. It is essential to note that the growing demand for avocados has caused crop planting on uneven terrain. The latter refers to cases of deforestation of pine and oak tree planting avocado. The embodiment is burning and dry tree intentionally to occupy that land. In this regard, both Michoacan and Jalisco have suffered significant environmental damage, which was discussed previously.

In these situations, the Office of Environmental Protection (Profepa) is empowered to close the orchards that operate without the authorization of land use change issued by the Secretariat of Environment and Natural Resources (SEMARNAT)[89]

Technological efficiency

According to the above we conducted an analysis of statistical information of the 10 main producing municipalities in Jalisco and avocado in 2015, accounted for 68% of the area planted. To do this we consider the statistical information available at SAGARPA, the period 2010 to 2015, in order to analyze the following variables: planted area, harvested area, production, yield and average rural price (PMR). The yield per hectare being the variable that determines the technical efficiency of producers and the PMR expressing economic efficiency of avocado producers.

Based on statistics from the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), we identified that avocado production from the year 2013 grew by 114% over the previous year; while 2014, 2015 and 2016 grew by 15%, 19% and 20%, respectively.

Additionally, we build efficiency ratios relative to the harvested area tons produced and yield per hectare[10]. The results show that the efficiency of harvested acreage planted was lower than, as seen in Table no. 2. This may be due to natural aspects (drought, flooding, hailstorms); technology (type of planting, irrigation, seeds, fertilizer) and phytosanitary (pests and diseases).

Best rates efficiencies are represented in the years 2014 and 2015; while the lowest are in 2011 and 2012. Although this did not affect the production of avocados, because as we see has had a sustained growth from 2011 to 2016. Since 2013 with a productivity index of 2.14. This is mainly because the yield per hectare was sustained throughout the period under study growth. Consequently, of technological development in avocado production as seed quality, planting techniques, irrigation, fertilizers, pesticides, soil quality and above all weather conditions.

Año	Superficie Sembrada Ha.	Superficie Cosechada Ha.	Índice de Eficiencia Cosecha	Producción (Ton)	Índice de Productividad	Rendimiento Ton/Ha	Índice de Eficiencia Rend.
2011	10,867.98	5,929.35	0.55	37,741.54		6.37	
2012	11,043.11	5,733.60	0.52	40,845.96	1.08	7.12	1.12
2013	13,434.10	8,890.14	0.66	87,367.78	2.14	9.83	1.38
2014	14,976.00	10,827.11	0.72	100,250.33	1.15	9.26	0.94
2015	17,040.85	13,062.65	0.77	119,647.41	1.19	9.16	0.99
2016	19,587.55	13,235.90	0.68	143,504.57	1.20	10.84	1.18

Table 2 Efficiency Index, Productivity and Performance 2011-2016
Source: Prepared with data from SAGARPA.

So the performance is an indicator that expresses the technological efficiency is defined as the ability to produce more with the same resource base, ie without increasing or decreasing the acreage. However, not all producers have at their disposal technology.

[8] According to the newspaper "The Informant" in June 2017 it was closed an area of 12.5 hectares, located in Quitupan, Jalisco, who performed the removal of oak trees for planting avocado.
[9]The General Law on Sustainable Forest Development (LGDES) provides in Article 165, which does not have the authorization from SEMARNAT for change of use of lawful ground, a fine equivalent to 100 shall apply to 20 thousand times measuring unit current. Meanwhile, the Federal Penal Code, Article 418, states impose a sentence of six to nine years in prison. In addition, an amount of 100 to three thousand days of fine (The Informant: June 15, 2017).

[10]It is the result of the area planted between the harvested area. While the productivity and performance index index is the production (ton.), The current year from the figure for the previous year.

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Additionally, avocado orchards must be certified as free of plague[11] and recognized by the National Health Service, Food Safety and Quality (SENASICA) whose surface in Jalisco, in 2016 was 11,958 surface (ha), of the Hass variety. In the case of avocado producers state of Michoacan, representatives[12]Association of Producers and Exporting Packers Avocado of Michoacán (APEAM), stated that 27 municipalities of Michoacan were certified as free of pests and labor export is performed by 38 packing plants, which operate with a high-tech controls the inspection and certification as control mechanisms from food crop planting to packaging. Therefore, Mexico is considered a leader in the automation in the production of avocado efficient management of traceability and product safety above California, Chile, Australia and Peru.

So we see that the automation is relevant to ensure quality product capable of being exported aspect, which means a competitive advantage for avocado growers in the states of Jalisco and Michoacan, whose added value can be in a position to offer the product at a higher price than the competition. If this aspect is valued by exporting countries we should consider that producers have the power to set the selling price to the packing. Therefore, a high demand in the external market, raise prices avocado. Also, remember that just takes a few years Jalisco intensified planting avocado. Therefore, the trees are not in full growth and maturity to bear fruit.

In this regard, the representative of APEAJAL (Ignacio Gomez Arregui)[13]It recognizes that production is lower in the months of March and April, causing shortages because they have to meet deliveries abroad and thus the price increases. In addition in the last two years atypical agro-climatic phenomena affecting some areas in both Jalisco and Michoacan.

Technological capabilities of the South Region - This state of Jalisco

In 2015 we identified that the area harvested was 9,082 (ha), accounting for 53% of the total harvested area. Zapotlán being the city of the Great who garnered 17%. Noting that the harvested area in the other 9 municipalities ranges from 3% to 6%. However, in terms of performance, Zapotlán the Great was 8.30 ton / ha. In contrast, the municipalities of Tamazula, Tonila, Tuxpan and Zapotiltic had an average yield of 12.42 t / ha, which means a difference of 33.17%, among the largest avocado producer. (See Annex No. 1)

The highest rural average price (PMR) was for the municipality of Concepción de Buenos Aires with $ 20,732.50 (ton); Tapalpa was $ 17,357.21 (ton) and Zapotlán Great of $ 13,294.75; while San Gabriel recorded the lowest PMR $ 11,318.82 (ton). So the price difference was $ 9,413.68 (45%). The output value of $ 1202.37 MMDD was (66%), from the value of state of $ 1812.39 MMDD.

By 2014, there were no significant differences in harvested area relative to 2015. While Zapotlán the Great participated with 16% of the state harvest. However, its yield was 8.80 t / ha., Which represents a 15.95% lower compared to the municipalities of Tamazula de Gordian, Tapalpa and Zapotiltic who had an average yield of 10.47 t / ha. Tapalpa being who had the highest PMR $ 18.912 per tonne; while the PMR for Zapotlán Great was $ 12,196.86 per ton., representing 34.42% lower.

The municipality of Concepción de Buenos Aires had the lowest yield with 7.35 t / ha., Accounting for 29.87% lower compared to the most efficient municipalities. Regarding the lowest PMR was $ 8,824.51 per ton, in the town of Farias, representing 53% less compared with Tapalpa. (See Annex 2)

[11]This based on a statement made by the Governed Aristotle Sandoval, in a meeting with the Head of the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), José Calzada and Undersecretary for Marketing and Regulatory Programs Department of Agriculture of the United States, Edward Avalos, who also officially announced the export agreement. He also attended the holder of the seder, Hector Padilla, SENASICA authorities, mayors, associations and avocado growers. Press Release State Government on May 27, 2016.http://www.jalisco.gob.mx/es/prensa/noticias/40117.

[12] Héctor Guillén and Jesús Martínez León Castillo, Technical Director and project manager in information technology, respectively. http://www.elfinanciero.com.mx/economia/se-afianza-oro-verde-de-mexico-en-mercado-mundial.html dated September 17, 2014.

[13] Romo, Patricia (2017) M.eleconomista.mx/estados/2017/04/20/exportación-aguacate-causa-escasez-jalisco.

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Therefore, these ten municipalities contribute 48% of the production value state $ 848.014 MMDP. By 2013, we identified that the municipality of Zapotlán the Great contributed 14% of the crop area. However, this year the yield was 25% higher in relation to 2014 and 2015, in which performance has been lower. Performance is closely linked to the technical efficiency, in terms of resource allocation for planting and harvesting of avocado. They had the same behavior as producers in the municipalities of Gomez Farias, Tamazula de Gordiano and Sayula. While performance in the municipality of Tapalpa has been stable.

The lowest yield was obtained by the municipality of Concepción de Buenos Aires 7.06 ton / ha., Which has not had significant changes. In contrast, Zapotlán Great obtained a yield of 11.5 tons / ha., Representing 38.6% above municipality with lower performance. With respect to PMR Gordian Tamazula $ 14,320.83 per ton obtained although only had a yield of 8.75 ton / ha., The lowest was $ 6,863.57, representing a difference of 52%. In the case of Zapotlán Great was $ 11,255.67 in this case was 21%.

Importantly, avocado producers Concepción de Buenos Aires harvested area increased by 27% from 2013 to 2015; although its performance has been maintained. However, if you have gained ground in the PMR, as this increased from 2013 to 2015 at 66.8%, which may reflect a high demand for avocado pressed avocado prices on the rise and not a factor technology to raise product quality, as best production practices would increase the yield per hectare. (See Annex 3).

Another aspect is the contribution of 71% of the value of production, which accounted for $ 630.861 MMDP, was higher than the 2014 and 2015 was 48% and 66% respectively. The area harvested in 2012 was 4189.75 which accounted for 13% statewide, representing just one-third relative to the period 2013 - 2015.

According to information Sagara 2012 (see Annex 4 no.) the municipalities of San Gabriel, Sayula, Tapalpa, Tonila and Zapotitic had a harvested area almost zero, representing a contribution of these 10 municipalities from 13% statewide and thus the contribution of the value of production was just the 22%, representing $ 319, 492 MMDP.

Again Concepción de Buenos Aires had the highest of $ 16,692.22 per ton PMR; while the lowest was $ 6,180.00 for Tapalpa with tonne, whose difference was 62.97%. Regarding the performance ton / ha., The municipalities of Gómez Farías and Sayula was 9.43 and 10 ton / ha., Respectively. While avocado producers Zapotlán the Great was 6.68, ie 36.2% lower than the performance registered in the municipality of Sayula.

Finally, we have the year 2011, the data show that these 10 municipalities contributed just 14% of the harvested area and production value contributed 22% representing $ 258.360 MMDP. It is the municipalities of Gomez Farias and Zapotiltic who had the highest yield per hectare of 9.08 and 9.40, respectively. The lowest yield was for Concepción de Buenos Aires[14]with 6.48 ton / ha, he is representing 31% lower. (See Exhibit 5).

PMR was the largest for the municipalities of Tamazula de Gordiano and Zapotitic of $ 12,348.97 and $ 12,000 per tonne respectively. PMR was the least for the municipality of Tapalpa $ 6,000.00, which means a difference of 51.4%, with reference to the highest price.

Therefore, we identified that the behavior of the most important variables of avocado production in the state of Jalisco, is concentrated in 10 municipalities belonging to the Region 6 South, which are the municipalities of Gomez Farias, San Gabriel , Tamazula de Gordiano, Tonila, Tuxpan, Zapotitic and Zapotlán the Great, of which Tamazula de Gordiano had the highest PMR in 2011, 2013 and 2014. in the Southeast region is only the municipality of Concepción de Buenos Aires who obtained the highest PMR in 2012 and 2015.

[14] We do not consider ton / ha yield., The municipality of San Gabriel because the differences with the other municipalities is significant and bias the central limit information.

Meanwhile, the largest acreage avocado Jalisco, is in the municipality of Zapotlán Great; . While municipalities with a higher yield ton / ha, are: Gómez Farías, Sayula, Tamazula de Gordiano and Zapotiltic. Producers who obtain a higher PMR are: Concepción de Buenos Aires and Tamazula de Gordiano. It should be noted that the producers of Concepción de Buenos Aires, have not significantly increased the area sown, nor ton / ha yield, since the data are constants in the period under study 2010 -. 2015 (see Annex No. 7).

The main producers of avocado are in the municipalities of Tamazula de Gordian, Tapalpa, Zapotiltic and Zapotlán the Great because the results show that increased their crop area and yield ton / ha. Thus, its contribution to the value of the total production that is significant for the performance and PMR.

Evaluation cost - benefit of the leading producers of avocado

To assess profit margins take the avocado production costs in the state of Michoacan, because they are a benchmark to determine under what conditions utilize the resources required for the process of planting and harvesting the fruit, considering the GMF technology[15]specific production and in many cases it can vary by area or region. In this regard,It found significant differences in costs related to technology affecting performance. Such is the case of the municipality of Tacambaro in 1998 were 142% lower than the producers of Uruapan and 92% lower than Tancitaro

In this regard, we consider the different sales prices of the leading producers of avocado in Jalisco. Also, regarding the performance tonnes per hectare. Both have been described and analyzed in the previous section.

Therefore, we performed a sensitivity analysis taking estimating production costs per ton of reference state corresponding to 2016, which have been estimated byTrusts Instituted in Relation to Agriculture (FIRA), the agency considers the cost of production as an indicator that gives certainty to financial intermediaries to provide credit. It also allows easy operations funding services, warranty and technical support. These costs are formulated based on the processes of: planting[16], fertilization[17], Cultural practices[18], Irrigation, pest control[19], Weeds and diseases and various[20].

Considering the costs of likely production sets FIRA 2016, which amounted to $ 91,500.00 per hectare, municipalities with margins positive gain are those with a yield of 7 ton / ha., And a price selling to $ 12,000.00 ton. Both conditions must be submitted. If some municipalities have less than seven ton / ha yield., It is compensated if a price is guaranteed from $ 14,000.00 per ton. This is shown in table no. 3 Taking performance and selling prices reported by SAGARPA 2015[21] (Annex 9).

Municipality	Scenario 1	scenario 2	scenario 3
costs	**$ 91,500.00**	**$ 117,000.00**	**$ 170,000.00**
CBA	$ 61,502.16	$ 35,697.16	- $ 16,997.84
GF	$ 12,532.65	- $ 13,272.35	- $ 65,967.35
SG	$ 3118.48	- $ 22,686.52	- $ 75,381.52
SYL	- $ 391.20	- $ 26,196.20	- $ 78,891.20
TDG	$ 62,234.24	$ 36,429.24	- $ 16,265.76
TPP	$ 82,070.00	$ 56,265.00	$ 3570.00
TON	$ 85,256.16	$ 59,451.16	$ 6756.16
TUX	$ 92,646.04	$ 66,841.04	$ 14,146.04
Zapt.	$ 89,662.50	$ 63,857.50	$ 11,162.50
scaler	$ 18,840.20	- $ 6964.80	- $ 59,659.80

Table 3 Sensitivity Analysis with price and performance by 2015
Source: Prepared with data from SAGARPA and FIRA

Now if we consider costs likely production of $ 117,000 per ha., Estimated by FIRA 2017, we have positive earnings are obtained if higher performance is guaranteed to 7 ton / ha., And a selling price from $ 17357.00 ha. Otherwise losses would unless the yield is 10 tons / ha., And a higher price to $ 12,300.00 per ton.

[15]Mendoza (1998) this technology means: G = gravity irrigation; M = F = with improved and fertilizer use variety. It also establishes that technologies for growing avocados are classified as: BCF, BCS, BMF, BMS, GCF, GCS, GMF, GMS, TCF, TCS, TMF and TMS. Taking the meaning of each abbreviation. B = Irrigation pump, T = Temporal, S = no fertilizer and C = landrace.
[16] Avocado plant.
[17] Application of agricultural chemicals to strengthen the plant, including labor.
[18] technical assistance, pruning, labor, cleaning of crop residues, cajeteo and gasoline.
[19] Herbicide application and tasks.
[20] agricultural insurance, gasoline, maintenance, technical support scheduled record orchard, electricity for irrigation, FEGA guarantee.
[21] See Annex No. 8, 9 and 10

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In Scenario 3, we consider a production cost of $ 170,000.00, according to a producer representative of the municipality of Zapotlán El Grande avocado, because they use a differentiated technology that guarantees a yield per hectare of 20 to 22 ton / ha . However, considering the same sales prices per tonne and yields per hectare, we determined that the minimum yield per hectare must be greater than 10 ton / ha., And a retail price starting at $ 17,000.00. In contrast, increase performance to 12 ton / ha., Priced selling to $ 14,000.00 per ton. Whereas further FIRA estimated a sale price for the period 2017 -. 2018 of $ 15,000 per tonne and a yield of 11 ton / ha, it means that producers would have positive benefits Michoacán.

In the graph no. 1 shows the behavior of profit margins in each of the three scenarios evaluated. Noting that as you increase the yield per hectare utility tends to grow, which is more significant if prices are higher than desirable. Conversely, if performance is less than seven tons per hectare, the price shall be greater than $ 12,000.00 per ton to break even.

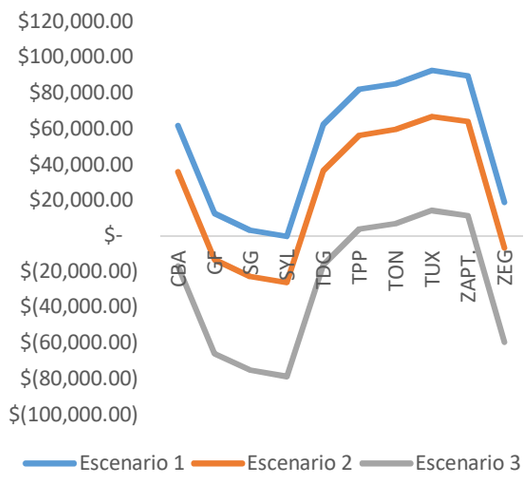

Figure 1 Sensitivity Analysis Utility 2015
Source: Prepared with data from SAGARPA FIRA 2015 and 2016

While in the South - Southeast are concentrated municipalities contributing 53% of state production, the municipalities with the highest profit margin are: Tamazula, Tapalpa, Tonila, Tuxpan and Zapotiltic contributing in 2015 with 17 % of the production. While Zapotlán El Grande contributes with production equals all these municipalities, ie 17%. However, the yield per hectare obtained in 2015, was 8 tons per hectare is above the desirable, but the price is $ 17,357.00 less than, for causing minor benefits.

In contrast, the municipality of Concepción de Buenos Aires has greater benefits because the selling price per ton is $ 20,732.00. Given the above, it should develop strategies aimed at increasing yields greater than 10 tons per hectare because it can withstand prices of $ 12,000.00 per ton and get positive benefits. It is important to note that FIRA, estimated selling prices avocado in 2017-2018, $ 15,000.00 per ton, which absorbs a cost of $ 91,500.00 probable production. However, if they increase to $ 117,000, the yield should be 10 tons per hectare to maximize profits.

Conclusions

Avocado is one of the main crops in the state of Jalisco. This is mainly due to the growth of exports to the United States, Europe and Asia, among others. In response, producers have increased their efforts in development and innovation processes planting - crop harvest to ensure a quality product (size, consistency, flavor), which has been made possible through the use more efficient of inputs used as improved seeds, irrigation systems, certified pest-free culture (screwworm bone) by SENASICA, pesticides, chemical fertilizers and suitable. All this combination increases productivity or yield per hectare fixed land for planting avocado. Consequently, production costs are lower per tonne,

Therefore, technological development raises productivity to meet the increase in aggregate demand, which detonates in the growth and welfare of the region. Some of the significant results show that while, in the state of Jalisco there are 75 municipalities avocado producers. We determined that more than 50% of production is concentrated in ten municipalities. Of these, the first was Zapotlán El Grande (32%); second, Zapotiltic (15%); third, Concepción de Buenos Aires (11%) and fourth Sayula (10%) which accounted for 68% of total production in 2014. However, it will have to take into account the number of gardens in each municipality. For example, in the municipality of Sayula there are more orchards with more land. In contrast, Concepción de Buenos Aires and Zapotlán El Grande, They have a greater number of orchards because there are land called backyard gardens. Therefore, innovation and development must be differentiated for each producer, as with the producers in the state of Michoacan.

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The results showed that despite Zapotlán El Grande is the largest producer, make no profit if the production cost per hectare is more than $ 91,500.00 per ha. While the municipalities of Tamazula de Gordiano and Concepción de Buenos Aires, make profits as long as production costs are in the range of $ 91,500.00 to $ 117,000.00 per ha. In the case of the municipalities of Tapalpa, Tuxpan, Zapotiltic they make extraordinary at any level of production costs earnings, ie in the range of $ 91,500.00 to 170,000.00 ha. Therefore, producers have to establish more efficient production techniques that allow them to obtain a higher yield per hectare. Best practices to increase yield per hectare, thus reducing production costs.

It also must be considered oligopolistic behavior where large avocado producers have the power to set the selling price; while small producers with ejido or communal lands will have to accept the sale price you set the packager who sells and distributes the product, mainly for export. Therefore, the packer is who has control of the value chain avocado.

Valencia and Zetina (2016), suggests that producers are subject to the uncertainty of the change in prices and increased production costs. However, its market share can grow as cultivation offer differentiation, not only in quality but also meet customer expectations in terms of the benefits on health. Therefore, you can increase revenue based on the needs and market requirements.

With regard to employment, high-tech gardens, only hire laborers for the application of chemicals, fertilizers and pesticides. Meanwhile, backyard gardens are the same owners who are responsible for performing all care, whose length ranges from one to five hectares. Balers, hire staff for the lifting of the harvest, in order that the avocado at the time of cutting and hauling suffers minor damage. In both cases, the activities for which contracts are seasonal staff.

Some considerations would carry out a study of the environmental impact has been the state of Jalisco, especially in terms of deforestation of pine and oak forests, depletion of rain wells, soil damage are some problems that we cited earlier .

And it's not like the state of Jalisco, but other states, whose interest is to plant a cash crop due to increased demand in the international market, mainly from the United States, since 80% of the production of avocado Michoacan state is destined to that place and who is at risk by signing the Free Trade Agreement. So the producers of Jalisco must be focused on the opening of other markets beyond the United States.

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Annexes

Municipality	S. Planted (Ha)	%	S. Harvested (Ha)	%	Production (Ton)	Declared Yield (Ton / Ha)	PMR ($ / Ton)
Concepción de Buenos Aires	1,610.00	9%	962.34	6%	7,106.68	7.38	$ 20,732.50
Farias	735.88	4%	665.60	4%	5,689.48	8.55	$ 12,459.82
Saint Gabriel	948.18	6%	830.74	5%	6,941.42	8.36	$ 11,318.82
Sayula	715.21	4%	680.71	4%	4,411.00	6.48	$ 14,060.14
Tamazula de Gordiano	1,022.00	6%	727.00	4%	9,035.50	12.43	$ 12,368.43
tapalpa	682.00	4%	682.00	4%	6,820.00	10.00	$ 17,357.21
Tonila	876.00	5%	506.00	3%	6,125.00	12.18	$ 14,512.70
Tuxpan	881.00	5%	530.00	3%	6,668.00	12.58	$ 14,638.29
Zapotiltic	788.35	5%	577.60	3%	7,220.00	12.50	$ 14,493.88
Zapotlán El Grande	3,402.19	twenty%	2,920.10	17%	24241.02	8.30	$ 13,294.75
Subtotal	11660.81	68%	9,082.09	53%	84258.10		
State	17040.85	100%	13062.65	77%			

Annex 1 Major avocado growers in 2015
Source: Prepared with data from SAGARPA. http://www.oeidrus-jalisco.gob.mx/

Municipality	S. Planted (Ha)	%	S. Harvested (Ha)	%	Production (Ton)	Declared Yield (Ton / Ha)	PMR ($ / Ton)
Concepción de Buenos Aires	1,359.60	9%	897.34	6%	6,591.92	7.35	$ 12,196.86
Farias	578.23	4%	537.95	4%	4,776.93	8.88	$ 8824.51
Saint Gabriel	913.96	6%	478.73	3%	4,356.44	9.10	$ 13,767.72
Sayula	514.76	3%	277.23	two%	2,410.20	8.69	$ 9,500.00
Tamazula de Gordiano	937.00	6%	727.00	5%	7,715.30	10.61	$ 9208.79
tapalpa	682.00	5%	682.00	5%	6,888.20	10.10	$ 18,912.02
Tonila	876.00	6%	334.00	two%	3,109.80	9.31	$ 13,070.70
Tuxpan	832.68	6%	630.70	4%	5,756.96	9.13	$ 13,192.28
Zapotitic	677.60	5%	577.60	4%	6,180.32	10.70	$ 13,722.25
Zapotlán El Grande	3,021.22	twenty%	2,381.12	16%	20953.85	8.80	$ 12,401.70
Subtotal	10393.05	69%	7,523.67	fifty%			
State	14976.00	100%	10827.00	72%			

Annex 2 Major avocado producers in 2014
Source: Prepared with data from SAGARPA. http://www.oeidrus-jalisco.gob.mx/

Municipality	S. Planted (Ha)	%	S. Harvested (Ha)	%	Production (Ton)	Declared Yield (Ton / Ha)	PMR ($ / Ton)
Concepción de Buenos Aires	1,193.00	9%	700.00	5%	4,945.00	7.06	$ 6863.57
Farias	435.61	3%	435.61	3%	4,852.70	11.14	$ 7689.26
Saint Gabriel	558.75	4%	338.35	3%	3,230.09	9.55	$ 8251.37
Sayula	503.61	4%	449.29	3%	4,897.26	10.90	$ 10,912.07
Tamazula de Gordiano	732.00	5%	415.00	3%	3,630.00	8.75	$ 14,320.83
tapalpa	662.40	5%	662.40	5%	7,120.80	10.75	$ 6686.41
Tonila	583.00	4%	390.00	3%	2,925.00	7.50	$ 10,500.00
Tuxpan	1,148.00	9%	787.00	6%	6,689.50	8.50	$ 10,000.00
Zapotitic	837.00	6%	577.00	4%	4,327.50	7.50	$ 10,000.00
Zapotlán El Grande	2,276.49	17%	1,846.69	14%	21236.94	11.50	$ 11,255.67
Subtotal	8,929.86	66%	6,601.34	49%			
State	13434.10	100%	8,890.14	66%			

Annex 3 Major producers of avocado in 2013.
Source: Prepared with data from SAGARPA. http://www.oeidrus-jalisco.gob.mx/

Municipality	S. Planted (Ha)	%	S. Harvested (Ha)	%	Production (Ton)	Declared Yield (Ton / Ha)	PMR ($ / Ton)
Concepción de Buenos Aires	800.00	two%	780.00	two%	5,284.50	6.78	$ 16,692.22
Farias	407.70	one%	302.00	one%	2,847.00	9.43	$ 11,837.20
Saint Gabriel	553.75	two%	112.75	0%	154.00	1.37	$ 9425.66
Sayula	396.26	one%	12.00	0%	120.00	10.00	$ 12,000.00
Tamazula de Gordiano	432.00	one%	185.00	one%	905.50	4.89	$ 11,967.70
tapalpa	453.50	one%	110.00	0%	528.00	4.80	$ 6180.00
Tonila	585.00	two%	76.00	0%	608.00	8.00	$ 7625.00
Tuxpan	456.00	one%	205.00	one%	1,493.50	7.29	$ 8547.33
Zapotitic	566.60	two%	67.00	0%	536.00	8.00	$ 9741.11
Zapotlán El Grande	2,340.00	7%	2,340.00	7%	15624.00	6.68	$ 10,110.60
Subtotal	6,990.81	twenty-one%	4,189.75	13%			
State	33129.33	100%	17200.80	52%			

Annex 4 Major producers of avocado in 2012.
Source: Prepared with data from SAGARPA. http://www.oeidrus-jalisco.gob.mx/

Municipality	S. Planted (Ha)	%	S. Harvested (Ha)	%	Production (Ton)	Declared Yield (Ton / Ha)	PMR ($ / Ton)
Concepción de Buenos Aires	1,008.00	3%	316.00	one%	2,048.40	6.48	$ 10,828.30
Farias	407.70	one%	302.00	one%	2,742.20	9.08	$ 8909.82
Saint Gabriel	553.75	two%	252.75	one%	393.40	1.56	$ 8623.02
Sayula	396.26	one%	12.00	0%	74.40	6.20	$ 9,700.00
Tamazula de Gordiano	432.00	one%	408.00	one%	3,331.20	8.16	$ 12,348.97
tapalpa	453.50	one%	403.50	one%	1,856.10	4.60	$ 6,000.00
Tonila	585.94	two%	354.00	one%	2,378.40	6.72	$ 9983.98
Tuxpan	577.70	two%	360.50	one%	3,242.65	8.99	$ 8539.68
Zapotitic	566.60	two%	283.00	one%	2,660.20	9.40	$ 12,000.00
Zapotlán El Grande	2,340.00	7%	1,800.00	6%	9,000.00	5.00	$ 8,000.00
Subtotal	7,321.45	22%	4,491.75	14%			
State	32603.94	100%	17788.05	55%			

Exhibit 5 Major producers of avocado in 2011.
Source: Prepared with data from SAGARPA. http://www.oeidrus-jalisco.gob.mx/

Municipality	S. Planted (Ha)	%	S. Harvested (Ha)	%	Production (Ton)	Declared Yield (Ton / Ha)	PMR ($ / Ton)
Concepción de Buenos Aires	503.00	two%	316.00	one%	1,834.30	5.00	$ 8396.70
Farias	342.00	one%	302.00	one%	3,766.00	12.47	$ 15,000.00
Saint Gabriel	553.00	two%	553.75	two%	3,901.00	7.04	$ 14,516.92
Sayula	365.00	one%	12.00	0%	132.00	11.03	$ 9499.71
Tamazula de Gordiano	432.00	two%	109.00	0%	736.84	6.76	$ 8311.33
tapalpa	320.00	one%	50.00	0%	55.00	1.10	$ 6,000.00
Tonila	400.00	two%	160.00	one%	2,777.40	17.36	$ 18,000.00
Tuxpan	519.00	two%	177.00	one%	1,810.63	10.23	$ 11,021.23
Zapotitic	314.00	one%	67.00	0%	894.45	13.35	$ 17,500.00
Zapotlán El Grande	2,300.00	9%	1,800.00	7%	9,000.00	5.00	$ 10,000.00
Subtotal	6,048.00	24%	3,546.75	14%			
State	25405.44	100%	12677.49	fifty%			

Annex 6 Major producers of avocado in 2010.
Source: Prepared with data from SAGARPA. http://www.oeidrus-jalisco.gob.mx/

MUNICIPIO	2011			2012			2013			2014			2015		
	Sup. Cosec.	Rend/Ton	PMR/Ton	Sup. Cosec.	Rend/Ton	PMR/Ton	Sup. Cosec.	Rend/Ton	PMR/Ton	Sup. Cosec.	Rend/Ton	PMR/Ton	Sup. Cosec.	Rend/Ton	PMR/Ton
Concepción de Buenos Aires						*$16,692.00*									*$30,732.50*
Gómez Farías		*9.08*			*9.43*			*11.14*							
San Gabriel															
Sayula					*10.00*			*10.90*							
Tamazula de Gordiano			*$12,348.97*						*$14,320.00*		*10.71*	*$18,912.00*		*12.43*	
Tapalpa								*10.75*			*10.10*				
Tonila														*12.18*	
Tuxpan														*12.58*	
Zapotitic		*9.40*									*10.70*			*12.50*	
Zapotlán El Grande	*6%*			*7%*			*14%*	*11.50*		*16%*			*17%*		

Annex No. 7: Main generators value avocado production in Jalisco.
Source: Prepared with data from SAGARPA 2011 to 2015.

Rendimiento ton/ha	PRECIO DE VENTA($/TON)									
	Concepción B.A.	Gómez Farías	San Gabriel	Sayula	Tamazula	Tapalpa	Tonila	Tuxpan	Zapotitic	Zapotlán El Grande
	$ 20,732.00	**$12,459.00**	**$11,318.00**	**$14,060.00**	**$12,368.00**	**$ 17,357.00**	**$14,512.00**	**$14,638.00**	**$14,493.00**	**$ 13,294.00**
7.38	**$ 61,502.16**	$ 447.42	-$ 7,973.16	$12,262.80	-$ 224.16	$ 36,594.66	$15,598.56	$16,528.44	$15,458.34	$ 6,609.72
8.35	$ 81,612.20	**$12,532.65**	$ 3,005.30	$25,901.00	$11,772.80	$ 53,430.95	$29,675.20	$30,727.30	$29,516.55	$ 19,504.90
8.36	$ 81,819.52	$12,657.24	**$ 3,118.48**	$26,041.60	$11,896.48	$ 53,604.52	$29,820.32	$30,873.68	$29,661.48	$ 19,637.84
6.48	$ 42,843.36	$10,765.68	-$18,159.36	**-$ 391.20**	$11,355.36	$ 20,973.36	$ 2,537.76	$ 3,354.24	$ 2,414.64	-$ 5,354.88
12.43	$ 166,198.76	$63,365.37	$49,182.74	$83,265.80	**$62,234.24**	$ 124,247.51	$88,884.16	$90,450.34	$88,647.99	$ 73,744.42
10.00	$ 115,820.00	$33,090.00	$21,680.00	$49,100.00	$32,180.00	**$ 82,070.00**	$53,620.00	$54,880.00	$53,430.00	$ 41,440.00
12.18	$ 161,015.76	$60,250.62	$46,353.24	$79,750.80	$59,142.24	$ 119,908.26	**$85,256.16**	$86,790.84	$85,024.74	$ 70,420.92
12.58	$ 169,308.56	$65,234.22	$50,880.44	$85,374.80	$64,089.44	$ 126,851.06	$91,060.96	**$92,646.04**	$90,821.94	$ 75,738.52
12.50	$ 167,650.00	$64,237.50	$49,975.00	$84,250.00	$63,100.00	$ 125,462.50	$89,900.00	$91,475.00	**$89,662.50**	$ 74,675.00
8.30	$ 80,575.60	$11,909.70	$ 2,439.40	$25,198.00	$11,154.40	$ 52,563.10	$28,949.60	$29,995.40	$28,791.90	**$ 18,840.20**

Annex No. 8: Sensitivity Analysis 2015 period, considering production costs of $ 91,500 ha.
Source: Prepared with data from SAGARPA FIRA 2015 and 2016.
Note: Figures in bold diagonal represents the profits with sales prices and actual performance of each municipality.

Rendimiento ton/ha	PRECIO DE VENTA($/TON)									
	Concepción Buenos Aires	Gómez Farías	San Gabriel	Sayula	Tamazula	Tapalpa	Tonila	Tuxpan	Zapotitic	Zapotlán El Grande
	$ 20,732.00	**$12,459.00**	**$11,318.00**	**$14,060.00**	**$12,368.00**	**$ 17,357.00**	**$14,512.00**	**$14,638.00**	**$14,493.00**	**$ 13,294.00**
7.38	**$ 35,697.16**	-$ 25,357.58	-$ 33,778.16	-$13,542.20	-$ 26,029.16	$ 10,789.66	-$ 10,206.44	-$ 9,276.56	-$ 10,346.66	-$ 19,195.28
8.35	$ 55,807.20	**-$ 13,272.35**	-$ 22,799.70	$ 96.00	-$ 14,032.20	$ 27,625.95	$ 3,870.20	$ 4,922.30	$ 3,711.55	-$ 6,300.10
8.36	$ 56,014.52	-$ 13,147.76	**-$ 22,686.52**	$ 236.60	-$ 13,908.52	$ 27,799.52	$ 4,015.32	$ 5,068.68	$ 3,856.48	-$ 6,167.16
6.48	$ 17,038.36	-$ 36,570.68	-$ 43,964.36	**-$ 26,196.20**	-$ 37,160.36	-$ 4,831.64	-$ 23,267.24	-$ 22,450.76	-$ 23,390.36	-$ 31,159.88
12.43	$ 140,398.76	$ 37,560.37	$ 23,377.74	$ 57,460.80	**$ 36,429.24**	$ 98,442.51	$ 63,079.16	$ 64,645.34	$ 62,842.99	-$ 47,939.42
10.00	$ 90,015.00	$ 7,285.00	-$ 4,125.00	$ 23,295.00	-$ 6,375.00	**$ 56,265.00**	$ 27,815.00	$ 29,075.00	$ 27,625.00	-$ 15,635.00
12.18	$ 135,210.76	$ 34,445.62	$ 20,548.24	$ 53,945.80	$ 33,337.24	$ 94,103.26	**$ 59,451.16**	$ 60,985.84	$ 59,219.74	-$ 44,615.92
12.58	$ 143,508.56	$ 39,429.22	$ 25,075.44	$ 59,569.80	$ 38,284.44	$ 101,046.06	$ 65,255.96	**$ 66,841.04**	$ 65,016.94	-$ 49,933.52
12.50	$ 141,845.00	$ 38,432.50	$ 24,170.00	$ 58,445.00	$ 37,295.00	$ 99,657.50	$ 64,095.00	$ 65,670.00	**$ 63,857.50**	-$ 48,870.00
8.30	$ 54,770.60	-$ 13,895.30	-$ 23,365.60	-$ 607.00	-$ 14,650.60	$ 26,758.10	$ 3,144.60	$ 4,190.40	$ 2,986.90	**-$ 6,964.80**

Annex No. 9: Sensitivity Analysis 2015 period, considering production costs of $ 117.305 ha.
Source: Prepared with data from SAGARPA FIRA 2015 and 2016.
Note: Figures in bold diagonal represents the profits with sales prices and actual performance of each municipality.

Rendimiento ton/ha	PRECIO DE VENTA($/TON)									
	Concepción Buenos Aires	Gómez Farías	San Gabriel	Sayula	Tamazula	Tapalpa	Tonila	Tuxpan	Zapotitic	Zapotlán El Grande
	$ 20,732.00	**$12,459.00**	**$11,318.00**	**$14,060.00**	**$12,368.00**	**$ 17,357.00**	**$14,512.00**	**$14,638.00**	**$14,493.00**	**$ 13,294.00**
7.38	**-$ 16,997.84**	-$78,052.58	-$86,473.16	-$66,237.20	-$78,724.16	$ 41,905.34	-$62,901.44	-$61,971.56	-$63,041.66	-$ 71,890.28
8.35	$ 3,112.20	**-$65,967.35**	-$75,494.70	-$52,599.00	-$66,727.20	$ 25,069.05	-$48,824.80	-$47,772.70	-$48,983.45	-$ 58,995.10
8.36	$ 3,319.52	-$65,842.76	**-$75,381.52**	-$52,458.40	-$66,603.52	$ 24,895.48	-$48,679.68	-$47,626.32	-$48,838.52	-$ 58,862.16
6.48	-$ 35,656.64	-$89,265.68	-$96,659.36	**-$78,891.20**	-$89,855.36	-$ 57,526.64	-$75,962.24	-$75,145.76	-$76,085.36	-$ 83,854.88
12.43	$ 87,698.76	-$15,134.63	-$29,317.26	$ 4,765.80	**-$16,265.76**	$ 45,747.51	-$10,384.16	-$11,950.34	-$10,147.99	-$ 4,755.58
10.00	$ 37,320.00	-$45,410.00	-$56,820.00	-$29,400.00	-$46,320.00	**$ 3,570.00**	-$24,880.00	-$23,620.00	-$25,070.00	-$ 37,060.00
12.18	$ 82,515.76	-$18,249.38	-$32,146.76	$ 1,250.80	-$19,357.76	$ 41,408.26	**$ 6,756.16**	$ 8,290.84	$ 6,524.74	-$ 8,079.08
12.58	$ 90,808.56	-$13,265.78	-$27,619.56	$ 6,874.80	-$14,410.56	$ 48,351.06	$12,560.96	**$14,146.04**	$12,321.94	-$ 2,761.48
12.50	$ 89,150.00	-$14,262.50	-$28,525.00	$ 5,750.00	-$15,400.00	$ 46,962.50	$11,400.00	$12,975.00	**$11,162.50**	-$ 3,825.00
8.30	$ 2,075.60	-$66,590.30	-$76,060.60	-$53,302.00	-$67,345.60	$ 25,936.90	-$49,550.40	-$48,504.60	-$49,708.10	**-$ 59,659.80**

Annex No. 10: Sensitivity Analysis 2015 period, considering production costs of $ 170,000 ha.
Source: Prepared with data from SAGARPA FIRA 2015 and 2016.
Note: Figures in bold diagonal represents the profits with sales prices and actual performance of each municipality.

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Deficit, public debt and economic growth in Mexico

Déficit, deuda pública y crecimiento económico en México

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Abstract

Tax in response to the pro-cyclical policy followed in Mexico, the objective of the document is to analyze the debt-GDP relationship by addressing the relevance of a counter-cyclical fiscal policy. That same thing is tried to show as alternative of economic policy before the low economic growth. The econometric study is Carried out using the time series as a dynamic analysis technique. The selected period is from the second quarter of 1993 to the fourth of 2017. The results are consistent Obtained With what economic theory postulates. It is verified That the real interest rate has a positive effect greater in the face of the negative effect of the low growth rate of the product. What makes the quotient Between the debt and the real product is at the end of increase increasing each year. In another Important result, Argued That it is the debt accumulated since at the beginning of each year is always positive, the government is unable to finance it with a primary surplus to stabilize the indebtedness rate. In contrast, the budget balance always Tends towards a reduction in the primary deficit That Makes the debt rate decrease less and less.

Public debt, primary deficit, economic growth rate and actual interest rate

Resumen

En respuesta a la política fiscal pro-cíclica seguida en México, el objetivo del documento es analizar la relación deuda-PIB abordando la pertinencia de una política fiscal contra-cíclica. Misma que se intenta mostrar como alternativa de política económica ante el bajo crecimiento económico. El estudio econométrico se lleva a cabo utilizando como técnica de análisis dinámico a las series de tiempo. El periodo seleccionado es del segundo trimestre de 1993 al cuarto de 2017. Los resultados obtenidos son consistentes con lo que postula la teoría económica. Se comprueba que la tasa de interés real tiene un mayor efecto positivo ante el bajo efecto negativo de la tasa de crecimiento del producto. Lo que hace que el cociente entre la deuda y el producto real sea cada vez mayor al final de cada año. En otro resultado importante, se argumenta que como la deuda acumulada al principio de cada año siempre es positiva, el gobierno está imposibilitado para financiarlo con superávit primario para estabilizar su tasa de endeudamiento. En contraste, el balance presupuestario tiende siempre hacia una disminución en el déficit primario que hace que la tasa de endeudamiento disminuya cada vez menos.

Deuda pública, déficit primario, tasa de crecimiento económico y tasa de interés real

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Introduction

Undoubtedly one of the notes is striking, on a recurring basis in the mainstream of economic information is related to the low growth of the economy and the evolution of public debt. This is a central aspect of what it means and therefore involves important economic sectors in the country.

The performance of public spending despite being a very controversial issue in all countries of the world little known or is not deep enough. In view of this, this work represents an attempt to address the complex relationship between fiscal policy, public debt and economic growth. Thus, the research proposal represents an effort of analysis to contribute to the debate.

It argues that the economy remains stagnant because of fiscal discipline in order to meet the objectives required under the stability argument macroeconómica.1 The objective of the study is to analyze the relationship between public debt and economic growth. Since the first represents an alternative as a tool counter-cyclical economic policy way to counter low economic growth.

This situation is the result of pro-cyclical fiscal policy that has been previously instrumented. In this vein, the central hypothesis is that the primary balance (deficit or surplus is) imposes a constraint on economic growth and the debt ratio depends on it.

The work begins by addressing the theoretical arguments that are central to the investigation. To emphasize, first, the deficit and public debt. It shows that there is an inseparable relationship between these two variables. Second, public debt and economic growth. Here is relevant, the ratio between public debt and real GDP; and thirdly, budgetary restraint. In the latter basically what matters is the role of the primary balance.

Then it addressed concerning the relationship between growth and debt as a proportion of the actual product. This section describes the correlation analysis will be essential. The following section around the methodology described data and the model specified. The work closes with the presentation and analysis of the results of regression and finally,

Theoretical arguments

This section will be essential, first, to address the relationship between the deficit and public debt. That is, measuring the budget deficit to account for inflation and therefore the real interest rate. Secondly, an indicator that is critical to good economic performance as debt to GDP ratio. And, in the third part, an analysis of the relationship between the budget constraint and the product.

Deficit and public debt

One way to show the theoretical relationship between these two variables is started assuming a balanced budget. To cause a public deficit, the government may choose one of two options: 1) lower taxes and maintain public spending; or, 2) maintaining taxes and cut public spending. Here the question is what happens to public debt as it passes time.2 In this case, you can think that the state can raise taxes or increase spending. Using the theoretical development of Blanchard et. al (2012: 484, 486, 489-492), it is assumed that the public deficit in year t can be expressed as:

$$déficit_t = rB_{t-1} + (G - T) \quad (1)$$

Where,
Bt-1 = Is the public debt at the end of the year t-1 (or a previous year);

B = Are all bonds and bills of exchange by the state to the private sector;

r = Is the real interest rate;

RBT-1 = Is the actual interest paid on government bonds outstanding at year t-1;

Gt = Is the government spending on goods and services in year t;

Tt = They are taxes minus transfers in year t.

What equation (1) it indicates is that when the government faces a budget deficit, may ask the central bank that financie.3 Thus, the public sector budget constraint states that experienced by the public debt during the year t increase should equal the deficit in year t:

$$B_t - B_{t-1} = déficit_t \quad (2)$$

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An important question raised by the equation (2) is that if the public sector incurs a deficit, public debt increases. If you experience a surplus, public debt decreases. From equation (1) and (2) may expose the public sector budget constraint as:

$$B_t - B_{t-1} = rB_{t-1} + (G_t - T_t) \quad (3)$$

Where,

RBT-1 = Are the interest payments;

Gt-Tt = It is the primary deficit.

Now if Bt-1 is transferred to the second member of the equation (3) and rearranging terms, we have:

$$B_t = (1+r)B_{t-1} + (G-T)_t \quad (4)$$

Thus, public debt in year t is equal to (1 + r) times the debt in period t-1 plus the existing primary deficit during t.4

Public debt to GDP

A key indicator for their importance and what it means in economic terms is the ratio of debt to GDP also called the debt ratio. Returning to equation (4) and if both sides of this equation by the actual product, Yt is divided, we have:

$$\frac{B_t}{Y_t} = (1+r)\frac{B_{t-1}}{Y_t} + \frac{(G-T)_t}{Y_t} \quad (5)$$

If the numerator and denominator of the second member of equation (5) is multiplied by Yt-1, it reduces to:

$$\frac{B_t}{Y_t} = (1+r)\left(\frac{Y_{t-1}}{Y_t}\right)\left(\frac{B_{t-1}}{Y_t}\right) + \frac{(G-T)_t}{Y_t} \quad (6)$$

If ag is defined as the rate of growth of production where $\frac{Y_{t-1}}{Y_t} = \frac{1}{(1+g)}$. And if $\frac{(1+r)}{(1+g)} = (1+r+g)$ Equation (6) can be rewritten as:

$$\frac{B_t}{Y_t} = (1+r-g)\frac{B_{t-1}}{Y_{t-1}} + \frac{(G-T)_t}{Y_t} \quad (7)$$

Now if the term moves $\frac{B_{t-1}}{Y_{t-1}}$ the left side of equation (7) the medullary equation:

$$\frac{B_t}{Y_t} - \frac{B_{t-1}}{Y_{t-1}} = (r-g)\frac{B_{t-1}}{Y_{t-1}} + \frac{(G-T)_t}{Y_t} \quad (8)$$

The relevance of the equation (8) is that the debt ratio is equal to the sum of two terms:

1. The first term on the left side is a factor that increases or decreases the rate of borrowing. That is, ryg produce opposite effects on the dynamics of the debt ratio.

2. The second concerns the ratio between the primary deficit to GDP. In this case, the primary balance relative to GDP can produce a positive or negative effect on the growth of debt according to whether a deficit or a surplus.

The truth is that according to Alesina et al. (2018: 11), reducing the debt-GDP ratio will depend a lot on how the budget deficit is corrected. If a surplus is caused by increased taxes, decreased growth may be so large that increases rather than reduces the relationship. However, according to the authors, the deficit reduction policies based on spending cuts, very arguably, believe they have no effect on the product. As such, they can be a safe bet to reduce the debt-GDP ratio.

The budget constraint

Returning to equation (3) set forth previously in this section, it is argued that the difference between incomes and budget expenditures can act as a constraint on economic growth. Thus, when performing a correlation analysis is expected to GDP and budget deficits appear highly correlated.

In the graph (1) this ratio is evident. The trend line fitted to the observations shows a negative slope. The correlation coefficient between two variables is approximately -0.60. Indicating that although there is a considerable factor if they are correlated at least 60%.

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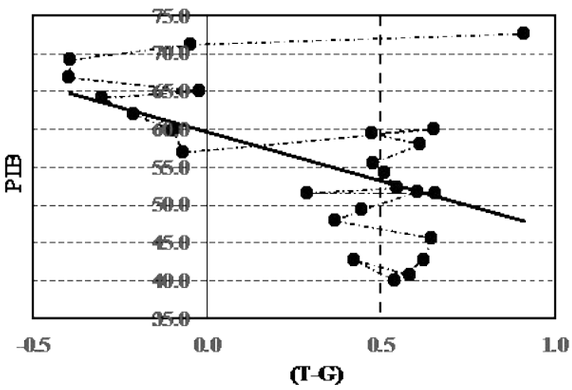

Figure 1 Real GDP Primary Balance (1993-2017) (millions of pesos of 2013)
Source: Estimates based on Banxico and SHCP

As explained by the graph (1), assuming that the government is experiencing a budget surplus (TG>0) is expected impinges with a fall in output. Otherwise, with a budget deficit (TG<0), a pickup in the product. However, for Hernandez (2011: 7) public spending policy is only part and not the whole explanation of why the product may be affected. After a thorough examination concludes that the role of public spending has been underestimated in terms of economic policy proposal to address structural change processes that promote sustained growth.

However if the trend toward budget balance (TG = 0) is chosen as normally occurs in the context of Mexico's economy, the economy does not experience more or less growth. That is, the economy moves toward a stalemate. Of the three scenarios presented, the latter seems to be the most contentious in the current context to the requirement imposed by external capital to maintain fiscal discipline. One issue that has been discussed since the implementation of pro-cyclical fiscal policy.

In fact it is properly characteristic that a country like Mexico–developing economy and highly dependent on the US economy–not only has an external constraint on growth in terms of forex (foreign exchange gap) and / or external saving (saving gap) but also from the point of view of the budget constraint is the issue at hand. Thus, fiscal restraint would be acting as a third gap (tax gap) thus limiting the growth expectation especially developing economies with high debt problems. Among the studies that have addressed these constraints are those of Bacha (1990), Solimano (1990) and Taylor (1994). These authors have developed a pooled analysis of these three gaps (gaps), which is also known as triple gap model (three-gap model).

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Public debt as a tool counter-cyclical economic policy

The argument argument is that public debt principal function redress the fiscal imbalance between revenues and government budget expenditures. This means that proper management of public debt would be relevant since its use as an instrument discussed counter-cyclical economic policy (CEFP, 2017: 1).

In contrast to the above, Huerta (2016: 32-33) points out that, with emphasis exchange rate stability, fiscal policy has been subordinated to this goal, so it has ceased to be counter-cyclical pro-growth policies. That is, that falling exports, consumption and investment as private sector fiscal discipline is maintained to avoid compromising that exchange rate stability.

Huerta presents his argument in the context of three sectors of the economy: Public Sector (GT), private sector (SI) and external sector (XM). In this case:

$$(S-I)=(G-T)+(X-M) \quad (9)$$

Where,

S = Private savings;
I = private investment;
G = public expenditure;
T = government revenues;
X = Exports of goods and services; Y
M = Imports of goods and services.

On equation (9), two observations:

1) If exports fall and the economy incurs a growing trade deficit (X<M) and the government responds with increasing discipline (GT = 0), the financial problems of the private sector, which happens to have deficits (S accentuated<I), which it increases the fragility of the economy and no payment terms of debt service generated or private sector, or the public.5 industry

2) If the private sector is in deficit (S<I) and has debt problems, the government should work with deficit spending (G>T) for private finances improve. If consumption and investment do not grow, and exports are falling to the extent of incurring trade deficit (X<M), the government should increase its deficit spending to the private sector is surplus and can increase its consumption and investment.6

In this regard, Huerta (2011, 212) notes that there must be opposition to the fiscal deficit when it is a result of the reduction in tax collection arising from the contraction in economic activity. On the contrary it is better public deficit generated by the increase in spending, to boost demand and the economy, deficit spending derived from the lower tax collection derived from the economic downturn.

Moreover, according to the study Cuevas (2002: 1110), an increase of fiscal deficit induces individuals to save more, to make them aware that a larger deficit means more government borrowing and thus future increases tax to address the growing financial obligations of the State. The expectation of tax increases makes the domestic private sector savings will increase in the same proportion as tax deficit. That is, the increase in demand for loanable funds derived from a larger fiscal deficit is offset by the increase in the supply of these funds, the result of the increase in private domestic savings. Therefore, according to this, a large fiscal deficit does not affect interest rates, productive investment and economic growth in the long term.7 Accordingly,

When performing a correlation analysis between the federal government public debt and GDP growth two segments, one positive and one negative slope (see Figure 2) are appreciated. The first shows an inverse relationship between two variables; the second, a direct relationship. However, if a regression line to the observed observations line with positive slope reaching a correlation coefficient of about 72% is adjusted.

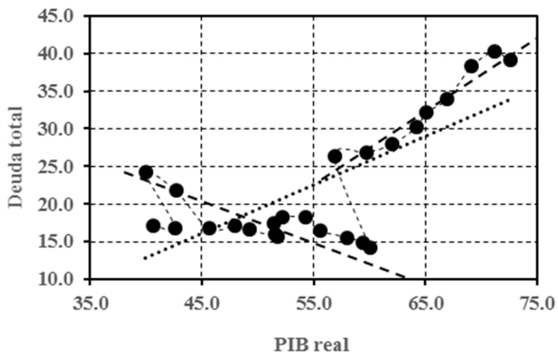

Figure 2 Total debt (% of GDP) and real GDP (Millions of pesos of 2013) (1993-2017)
Source: Estimates based on Banxico and SHCP

The magnitude of the coefficient is indicative of a high linear association between these two variables. In this case, the question is which of the two segments has a greater effect how to show what kind of correlation exists.

In theory a strong negative correlation is expected. This would imply that at increased real output growth, lower debt ratio and vice versa. As for the relationship between debt and primary deficit by graphic (3), we can see some degree of correlation. Especially after 2008 until 2016, when the increase in public deficits led in turn by an increase in public spending contrasts with an increase in public debt in the same period. For after this last year, an improvement in public finances and a reduction in total debt is observed.

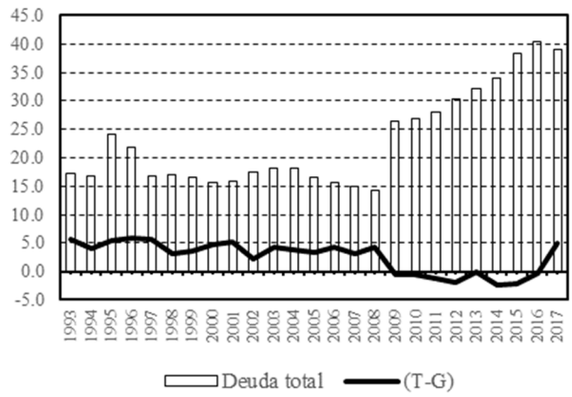

Figure 3 Total debt and primary deficit (% of GDP) (millions of pesos of 2013)
Source: Estimates based on Banxico and SHCP

For the rest of the analysis period from 1993 to 2007, this ratio has a constant behavior. It is noteworthy that from 2009 the public deficit soars and the total debt.

The behavior of these two variables can be best visualized with the correlation analysis shown by the graph (4). In this graph a clear negative correlation between total debt and primary deficit is observed. The correlation coefficient was reached -0597. A coefficient of about 60%, already has important policy implications.

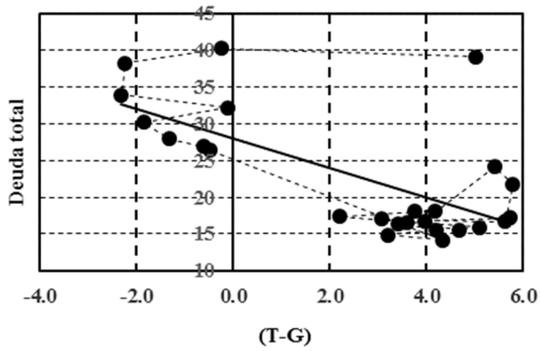

Figure 4 Total debt and primary deficit (% of GDP) (millions of pesos of 2013) (1993-2017)
Source: Estimates based on Banxico and SHCP

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As can be seen from the scatterplot, the inverse relationship involves two situations shown. First, the reduction in the public deficit prompted by a cut in public spending (or an increase in budget revenues), is related to a decrease in total debt. Otherwise, the increase in the public deficit (or increase public spending) is associated with a higher rate of indebtedness. This inverse relationship is consistent with what economic theory predicts.

Therefore, if you choose to follow the pro-cyclical fiscal policy it is to cut public spending in order to maintain the careful fiscal discipline against economic growth. In sense, the study by Diaz (2016: 20) emphasizes that fiscal policy in Mexico has traditionally pursued a pro-cyclical stance. This is that in periods of economic growth public spending is growing steadily, while in periods of slowdown and possible recession, the expenditure is incurred significantly.

Therefore economic policy response has been proposed to pursue a counter-cyclical fiscal policy. Thus, the hypothesis to be discussed in this research is that the budget deficit imposes a constraint on economic growth so that an increase in spending not only stimulates growth but in turn promotes a lower borrowing rate. In this sense, the economy does not grow sufficiently, it is expected to experience a higher rate of indebtedness.

Discussion of still maintain a pro-cyclical fiscal policy becomes controversial mainly because of the negative effect that results in other important areas of public spending such as education and health. This can be seen by CEFP (2017: 8). The study shows that in the case of education and health, in the period of greatest growth in debt, 2013-2016, the budget allocated to both showed a tendency to stagnation with low growth rates in relation to observed by the debt.

Methodology

Statistical information with regard to economic growth and budgetary components of expenditure and income as well as public debt is extracted Banxico and INEGI and SHCP. Analysis technique for this research is based on an econometric model time series. In the following two subsections describe some characteristics of the data used and the approach detailed model.

Data

Economic variables is used primarily real GDP. Total revenues as budget revenue for the federal government. These are classified as tax and non-tax. Government expenditures to budget expenditures classified between programmable and non-programmable. The first is divided between current expenditure and capital expenditure; the second, in units, Adefas and others, as well as financial cost. To measure the deficit balance primario.8 This indicator is basically the difference between income and total expenses, deducting from the latter the financial cost is used. As the public debt broad economic debt total.9 All variables were deflated by inflation with the implicit price index of GDP. To calculate the real rate of interest, It used to CETES 28 days to measure the nominal interest rate. In addition, the growth rate of CPI to measure inflation. Appendix detailed formulation.

Model

The functional relationship model, in general terms, proposed in this research is:

$$y_t = f(\overset{+}{r}, \overset{-}{g}, \overset{+}{y_{t-1}}, \overset{-/+}{bp}) \tag{10}$$

Where,

yt = Total debt as a percentage of GDP in period t;

r = Real interest rate;

g = Growth rate of the product;

t-1 = Total debt at time t-1;

bp = Primary balance to GDP.

It is expected that the total debt is positively related to the real interest rate; negatively with the growth rate of the product; positively with total debt of an earlier period; and, negatively or positively (according, the case of a deficit or surplus public) with the primary balance. And the regression equation to estimate in simplified form:

$$y_t = \beta_i z_i + \mu_t \tag{11}$$

Where,

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yt = The dependent variable research in period t;

zi = Is the explanatory variable i

βi = Are the estimation parameters i explanatory variables;

i = 1, 2, 3, 4. That is, i = 1, refers to the real interest rate; i = 2, the growth rate of the product; i = 3, public debt in the period t-1 and i = 4, the primary deficit.

uT = Is the error term in period t.

Results

Model results represented by equation (11) are exposed. The model was fitted with an AR and moving averages MA. In addition dichotomous variables were also introduced to capture the effects of devaluations and cyclical periods.

The unit root tests Augmented Dickey-Fuller indicate that the variables are stationary in first differences. However, being tougher, better results are observed with the Phillips-Perron test. Using variables in second differences equilibrium relationship is checked long term indicating that there are at least four equations cointegrating with a significance level of 5%.

The test results of causality in Granger, with the variables in second differences, showed some variation according to what was expected. It was found that the real interest rate is caused by the debt relative to the product with two, four and five lags. There Causation two-way, three and four lags, between the rate of output growth and the debt to GDP ratio; Causation with two lags far the growth rate debt; with five lags the reverse happens. No causality was found in the Granger sense between debt and primary balance. All tests can be found in the appendices section.

The variables were statistically significant with a significance level of 99 and 95 percent. The coefficient of determination (R2) was 77 percent with a DW 2.26.

Taking reading results elasticity coefficients are specified in Table 1:

Variable dependent / independent variables	Δ log (y)
Δ log (r)	**0.031** (1.92) **
Δ (G)	**- 0.009** (-4.49) ***
Δ log (t-1)	**0.30** (4.55) ***
Δ (Bp)	**- 0.04** (-3.31) ***
D1994: 4-1995: 2	**0.10** (3.45) ***
D2008: 4-2009: 1	**0.27** (8.36) ***
Δ log (r) * D1994: 4-1995: 2	**- 0.97** (-4.61) ***
AR (4)	**0.80** (10.01) ***
MA (1)	**- 0.30** (-3.16) ***
MA (4)	**- 0.64** (-6.38) ***
R2 = 0.77 DW = 2.26 n = 1994: 4-2017: 4	

Note: ΔIt refers to the first difference variable. The value of t-statistic in parentheses. Significance is: () *** 99%; () **, 95%; () *, 90%

Table 1 Elasticity of total debt (1993: 2-2017: 4)
Source: Estimates based on Banxico and SHCP

As mentioned above, the debt as a proportion of GDP depends on the real interest rate is higher or lower than the growth rate of real GDP. In this case, the coefficient of elasticity of the ratio between debt and real output with respect to the real interest rate was positive (0.03). Which means that for every percentage increase of one percent in this rate, the debt ratio will increase by 3 percent. In contrast, the coefficient with respect to the rate of real GDP growth was negative (-0.009). That is, for every percentage point increase in output, the debt ratio will grow at a slower pace at 0.9 percent. As can be seen the real interest rate (r) is greater than the growth rate of the economy (g) consistent with what is predicted theoretically.

For the period of depreciation in late 1994 and early 1995, a dummy variable is introduced. In the case of the real interest rate change in the intercept it was positive (0.10). This may be because nominal interest rates were always higher than the rate of inflation so the real interest rate was positive in that span.

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However, the change in slope was negative (-0.97). Since in that period nominal interest rates soared to almost 75% in April 1995. And the real interest rate decreased going from 9.2 to 7.5 percent. For the economic and financial crisis between 2008 and 2009 in the United States, a dummy variable was also used, the change in the intercept was positive (0.27).

In theory if the initial debt is positive primary surplus required to stabilize the debt ratio. In this case, it is observed in Table 1, the coefficient of elasticity of debt relative to real GDP over a period lagged value is positive (0.30). This means that for every percentage point increase in accumulated debt, the debt ratio will grow by 30 percent from one period to another. On the other hand, the primary balance relative to GDP can have a negative or positive effect on the growth of debt. In this case, it is noted that the coefficient relative to the primary balance was negative (-0.04). That is, since the growth rate of the economy is lower than the interest rate real interest, the government incurs primary deficit or issue new debt and, therefore,

Conclusions

The real interest rate tends to grow more than the rate of output growth. What makes the ratio between debt and real output is increasing at the end of each year. This difference has important implications for the country's economy. That is, the economy does not grow enough because of fiscal discipline that acts as a constraint. This is because the objectives pursued macroeconomic stability.

As accumulated at the beginning of each period debt is always positive, the government can not finance it with the primary surplus to stabilize the debt ratio. As suggested by the negative coefficient of elasticity obtained for the case of initial balance, it has always a primary deficit makes debt ratio decreases increasingly.

These arguments raise the negative effects that pro-cyclical fiscal policy has on the economy and convenience of a counter-cyclical policy. Ie reverse the declining trend in public spending. Thus with more prudent spending it is expected that the rate of real output growth is greater and therefore the debt ratio decreases each year.

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Appendix

The real interest rate was calculated as:

$r = \frac{1+i}{1+\pi} - 1$. If the denominator is rationalized extends equation:

$r = \frac{(1+i)-(i+\pi)}{(i+\pi)}$. And it has finally simplifying:

$r = \frac{i-\pi}{1+\pi}$.

Where,
r = Real interest rate;
i = Nominal interest rate;
π = Inflation rate.

Annexes

A. Source of data:

Bank of Mexico (www.banxico.org.mx)

INEGI (www.inegi.org.mx)

Secretariat of Finance and Public Credit (www.shcp.gob.mx)
primary balance at current prices (millions of pesos) (1993: 01-2017: 12).

financial cost at current prices (millions of pesos) (1993: 01-2017: 12).

Cetes 28 days. Average monthly yield percent per annum (1993: 01-2017: 12).

broad economic debt at current prices (millions of pesos) (1993: 01-2017: 12).

Federal Government budget expenditures in millions of pesos (1993: 01-2017: 12).

Implicit price index of GDP (2013 = 100).

Federal Government budget revenues in millions of pesos (1993: 01-2017: 12).

National Consumer Price Index (NCPI). Second half of December 2010 = 100. (1993: 01 to 2017: 12).
GDP in millions of pesos at current prices (1993: 1-2017: 4).

B. Evidence of causation:

variables		Direction of causality lags included			
		two	3	4	5
one	*and versus. r*	Y→r	No causality	Y→r	Y→r
two	*and versus. g*	g→Y	Y↔g	Y↔g	Y→g
3	*and versus. bp*	No causality	No causality	No causality	No causality

Table 2 Testing of Granger causality (variables in second differences) (1993: 2-2017: 4)
Source: Estimates based on information from INEGI and Banxico.

C. Testing cointegration:

Ho	**r = 0 ****	**r≤1 ****	**r≤2 ****	**r≤3 ****
Eigen values	0.89	0.78	0.60	0.51
Statistical λ_{trace}	508.57	300.96	154.62	68.23
critical value (5%)	47.85	29.79	15.49	3.84
Max *Eigen-Statistics*	207.61	143.33	86.39	68.23
critical value (5%)	27.58	21.13	14.26	3.84

* (**) denotes the rejection of the null hypothesis (Ho) to a level of significance of 5%. Trace test Max-Eigenvalues and identifies four cointegrating equations at a level of 5%.

Table 3 Tests cointegration (Johansen) (In second differences) (1993: 2-2017: 4)
Source: Estimates based on information from INEGI and Banxico.

C. Testing unit roots:

Test / Variables	Augmented Dickey-Fuller (ADF) t-Statistic	Phillips-Perron (PP)
Total debt	-9.85	-9.85
Real interest rate	-5.86	-25.67
Real GDP	-4.33	-20.72
primary balance	-4.34	-16.53

critical value: 1% (-4.05), 5% (-3.45), 10% (-3.15).

Table 4 Testing unit roots (including constant term and trend) (in first differences) (1993: 2-2017: 4)
Source: Estimates based on information from INEGI and Banxico.

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The deduction of social welfare in income tax since the reform of 2014

La deducción de la previsión social en ISR desde la reforma de 2014

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Abstract

Tax reform applicable from 2014, as part of the package of "structural reforms", axis of the outgoing Government, brought about various changes in the laws and a resurgence in the implementation thereof, resulting in control measures which constitute a whole plan of espionage to the taxpayer, through the issuance of more and more complete and sophisticated digital receipts. This material is about amendments that have represented an economic harm to workers and employers, which relate to social welfare. The purpose of this paper is to expose the effect caused the partial removal (or "death foretold") of social security in Mexico; contributing with reflections on the impact to employees, patterns and even the accounting profession. To this end, follows the deductive method, starting with concepts and history, to locate in the context, the above involvement To this end, the deductive method Follows, starting with concepts and history, to locate in the context, the above Involvement.

Social welfare, wages, deduction, exemption

Resumen

La reforma fiscal vigente desde 2014, como parte del paquete de “reformas estructurales”, eje del saliente gobierno, trajo consigo diversos cambios en las leyes y un recrudecimiento en la aplicación de las mismas, derivando en medidas de fiscalización que constituyen todo un plan de espionaje hacia el contribuyente, a través de la expedición de comprobantes digitales cada vez más completos y sofisticados. El presente material trata sobre las modificaciones que han representado un daño económico hacia trabajadores y patrones, las que se refieren a la previsión social. El propósito de este trabajo es exponer el efecto causado ante la eliminación parcial (o “muerte anunciada”) de la previsión social en México; aportando reflexiones sobre el impacto hacia trabajadores, patrones e incluso, la profesión contable. Para ello, se sigue el método deductivo, iniciando con conceptos y antecedentes, para ubicar en el contexto, la mencionada afectación.

Previsión social, deducción, exención, salarios

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Introduction

It is common to read in a timely warning, the old fashioned way to get a job, "salary plus benefits treat" ... or sometimes "above the law benefits" ... What are those benefits? By law, we can understand the Christmas bonus, vacation and vacation pay, in their minimum amounts established by the Federal Labor Law (LFT); What then are the "superior" to the law? We are talking in this case of vouchers and the savings fund, among the most recurrent; such additional benefits are certainly known as "social welfare". Although later some definitions of this concept will be explored, suffice it to say, simply, that it is ancillary to salary compensation for a specific purpose, and unlike the latter, that prior to 2014 had the appeal of representing a deduction for the employer and at the same time, an exemption for the worker; thus they benefit both resulted.

This is the central point trying to tackle this material. Simply can expose the following: A pattern (considered as such according to the LFT), hires a new manager for the branch just opened; to this end, agree to a monthly payment of $ 30,000.00, but made up $ 26,000 as salary, $ 3,000 savings fund and the remaining $ 1,000 as a pantry; the tax treatment to be considered as welfare and assuming that the limits established laws of income tax and Social Security even before 2014 are not exceeded, concluded that only 26,000 were taxed salary for both contributions. very different case to what would happen if that same employee with the same salary of $ 30,000.00 per month is hired by such amount as wages in full, in which case,

It is important to note that, to date, even the Social Security Act provides exemptions for these payments, but not the Law of Income Tax. Since 2014, Article 28 XXX fraction of the Act establishes a deductible limit these benefits 53%, and may even be 47% (case will be discussed below); which significantly restricts employers to make such payments. What is the impact on worker performance ?, restriction only covers social welfare or includes "law" ?, what about the social nature of these payments ?, this restriction affects deductibility wage levels paid, as the example discussed? In a practical way, reasoned and critical will be analyzed the effects of this tax provision,

Framework

Although social security has existed in our legal field, being an important part in labor relations, for at least twenty years ago; it was not until the 2002 reform that was included in the Income Tax Law a definition of it, still valid today:

Article 7. (...) For the purposes of this law, it is considered welfare expenditures made aimed to meet contingencies or present or future needs as well as provide benefits for workers or partners or members cooperative societies, aimed at overcoming their physical, social, economic or cultural, enabling them to improve their quality of life and that of his family. (Law on Income Tax, 2018).

Carefully reviewing this definition, apparently copied from a thesis of court years earlier, one can distinguish the following elements:

– Meet contingencies or present or future needs. That is, it is of a preventive nature, hence its name, tries to anticipate eventualities worker.

– Provide benefits for employees, partners or members of cooperative societies. clarification is made, since in cooperative societies partners or members legally qualify as workers too.

– Tending to their physical, social, economic or cultural development. This is the part that requires identification of each provision and the objective pursued; If you are looking overcoming physical support it can be treated by uniform to create sports teams among staff; If it is the social aspect (although by definition the whole social security is), it may be enrollment in a recreational club or creating one within the company; the economic question is obvious and here we can talk about the savings fund or health insurance among others; The cultural issue is perhaps the most ambiguous so broad that it is, ie, talk about culture is equally refer to the payment of a full season in fine arts that subscription magazines of various kinds,

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– Improving the quality of life of workers and their families. That is, although the law even today continues stating that payments must be the worker, it is intended that the benefits cover his family, which is a sensitive part for anyone, by which the restriction on the deductibility that here exposed, it is serious.

We can see that this definition, although it represents a semantic reference, accuracy suffers when it touches the cultural theme, which makes it somewhat ambiguous. Other definitions found in the literature are:

The set of rules and benefits that entail lifting of the economic, social, cultural and comprehensive level, which are provided by employers for such purposes and do not constitute remuneration for services, since they are not awarded based on these, but to complement and increase the field of psycho-physical and social development of the worker. (Becerril, 1995).

Cultural theme again mentioned, with some levity, regardless of its size, even more, "integral".

"... The social welfare is the set of services that are delivered to the worker and not a compensation for their services, rather they are a supplement which aims to ensure the well-being of the worker and his family." (Contributors Tax Practice, 1999).

This definition could antojarse simpler, however, it contains interesting things: It is true that is not properly remunerated, albeit indirectly it was, because it was an income which no income tax is withheld and thus represented a savings, surplus for the worker in his pocket; speaking of the integral well-being, without listing the areas covered, it is acquired at the same time greater semantic forcefulness.

These definitions help us understand the nature of social welfare benefits, now, to complement the idea, it is convenient to locate, What are these benefits ?; then the following enumerative list is displayed, but not limited to:

a) Food stamps.
b) Awards for punctuality.
c) Attendance Awards.
d) Retirements.
e) Disability benefits.
f) Lunch service.
g) Saving Fund.
h) House-room for workers.
i) Reimbursement for medical and funeral expenses.
j) Support for school supplies.
k) Support for school uniforms.
l) Support for income-room house.
m) Help for marriage expenses.
n) Transportation assistance.
o) Scholarships for workers' children
p) Petrol vouchers.
q) Sport Fund; etc.

(Ramirez, 2000).

Can appreciate the wide range of benefits, with which each pattern, according to their economic capacity could make a pension plan, as the Income Tax Law established until 2014. In fact, this list includes concepts that are equal under the Social Security Act and the institute itself provides them other than just for the pattern; so that social welfare is not exclusively private type; although in this material only we will refer to the latter type.

Background.

In Section XII then article 24 of the LISR effect until 2014, and in various sections of Article 77 were envisaged for purposes of deduction and exemption respectively, the following fringe benefits:

Social welfare benefits	Deducibility for the pattern of article 24 LISR fractions:	Exemption for the worker, article 77 LISR fractions:
retirements	XII	III
fatalities	XII	IV
Disability	XII	III
medical and hospital services	XII	IV
Disability benefits	XII	SAW
educational scholarships to workers or their children	XII	SAW
Savings funds	XII	VIII
Children care centers	XII	SAW
cultural and sporting activities	XII	SAW
Other "of a similar nature"	XII	SAW

Table 1 Practical Tax Magazine No.194 (Contributors Tax Practice, 1999)

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This table lists the social welfare benefits with corresponding legal reference for current deduction and exemption in the Income Tax Law shows up before 2014.

2014 tax reform

One of the campaign promises of the government that is a few months to complete, was not to raise taxes. Indeed, we began six years with a rate of 30% for corporations and even the rate for individuals was a slight decrease this year; to date there have been no increases. However, to raise more there is only the option to increase taxes, in this case over nearly six years has resorted to the following:

a) Strengthen control measures, consolidating digital tax receipts and sending electronic accounting.
b) Restrict certain deductions, such as the present case.
c) Do pay income tax to taxpayers who were exempted by establishing complicated requirements to fulfill, as in the case of private schools.

Among others, these three actions have been implemented to increase revenue. For the subject matter of this analysis, we refer to the second, by which this government has thwarted deduct 100% that had the welfare until 2014. The text analysis is as follows:

Article 28. For the purposes of this title shall not be deductible:
(...)
XXX. Payments which in turn are exempt income for the worker, up to the amount resulting from applying the factor of 0.53 to the amount of such payments. Factor this paragraph shall be 0.47 when the benefits provided by taxpayers for their employees which in turn are exempt income for these workers, in the exercise in question, not decrease with respect to those granted in the previous fiscal year.(Law on Income Tax, 2018).

We know that in fiscal interpretation is essential, which is why we encourage it in the classroom during the undergraduate level at all costs, as the basis for a critical criterion of professional opinion. Thus, in this case, the provision in comment tells us that 53% of the benefits for the worker RESULTING exempt shall not be deductible. the blow to the deductibility of such items is evident.

However, as a consolation prize, it is expected that this non-deductibility can down 6 percentage points, to 47%, provided that such benefits do not decrease, ie, whether the same or increase, compared to fiscal year immediately previous. Which leads us to conclude on the following points:

– Deductibility of social security, which once could be 100%, now becomes in closed number, half only.
– As a sign of respect for the social spirit of these benefits, it is contemplated that it is possible to extend this deduction, if employers increase the payment of such benefits, ie, increasing savings fund, food stamps and other pay many concepts here they have been listed.

It is pertinent to make the following observations:

– Is it feasible to put pressure on employers to increase these payments, taking into account their own financial situation, in order to achieve greater deductibility?
– Is this relevant in a country where unemployment is still considerable?
– Speaking at the legal text of "exempt income for workers" is included only to social security or concepts as exempt from aguinaldo part, vacation pay, profit sharing, etc. are also mixed, as provided by Article 93 of the Income Tax law, and, what from the beginning had been classified as "minimum benefits law"?
– Can this "consolation prize" to serve as an incentive for the employer to pay these benefits?
– Are these measures being paid to the workforce?
– This way, you searching the Government of the Republic increased productivity, as a bastion of gross domestic product?

Effect for the worker

Clearly the greatest damage of these legal changes corresponds to the interests of working. In LISR until before 2014 the benefits mentioned were completely free and deductible pattern 100%. According to the Law on Income Tax (ISR) Article 28, Section XXX states that exempt income paid to workers could only be deductible by 53% or 47% as appropriate.

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The limiting established therein is applicable to: or disbursements made by a subordinate relationship. or in respect of which are exempt income for workers.

Also, the Fiscal Resolution 2016, the rule 3.3.1.29 establishes the procedure for determining whether the total exempt income paid to workers may deduct 53% or 47% according to the following:

I.the quotient obtained by dividing the total remuneration and other benefits paid by the taxpayer to its workers and which in turn are exempt income for purposes of determining income tax of the latter, made during the year, the total will be obtained remuneration and benefits paid by the taxpayer for their workers.

II.the quotient obtained by dividing the total remuneration and other benefits paid by the taxpayer to its workers and which in turn are exempt income for purposes of determining income tax of the latter, made in the immediately preceding year will be obtained from total wages and benefits paid by the taxpayer to its workers, made in the immediately preceding year.

III.When the determined ratio under Section I of this rule is less than the quotient resulting under Section II, it is understood that there was a decrease in the benefits provided by the taxpayer for workers who in turn are exempt income income tax for such workers and which may not be deducted 53% of payments which in turn are exempt income for the worker.

$$\textbf{quotient} = \frac{\text{Total Compensation and benefits paid to free workers in the exercise.}}{\text{Total compensation and benefits paid by the contributor to its employees in the exercise.}}$$

$$\textbf{quotient} = \frac{\text{Total Compensation and benefits paid to free workers in the previous year.}}{\text{Total compensation and benefits paid by the contributor to its employees in the previous year.}}$$

Effect pattern

Speaking of benefits that are exempt income for the worker, according to the wording of Article 28, section XXX of the Income Tax Law, includes not only the provision of social welfare benefits ("above the law benefits"), but as While the LFT those provides for employment relationships such as bonus, bonus holiday, etc. include ("Provision of law").

This then limited to any remuneration received by the worker exempt since they are no longer deductible at 100%.

This means that any employer, to hire a worker and agree on compensation, this will necessarily be composed of taxed and exempted concepts and in the case of the latter, your deduction is limited by the current law.

This situation can be considered serious if we consider that in our country may be in many others, employers often look for ways to evade their tax and labor obligations and that, in this arrangement, analyzed in this material, these malpractices are favored since the payment of wages exempt, not being fully deductible results in an impairment in finance employer.

Effect for the accounting profession.

Discussed above, we can see that the big loser in this story is the worker and the employer this reform is almost imperceptible, but not for the third involved in this as in other situations in the business world: the counter.

Even before the Income Tax Law 2014 set a number of requirements to be met to achieve the deductibility and exemption from social security themselves to be covered in a written plan. This pension plan should contain, for each service, the basis for its calculation, its nature, the considerations for granting, etc. Well, from the reform that has been analyzed, these plans no longer exist, accounting for the accounting profession a decrease in the income of many offices that were responsible for designing pension plans and, according to current law it is a service that no longer exists.

This involvement in the services offered by our profession is one more that has resulted from the tax reform of 2014, if we consider the non-compulsory tax audit by a certified public accountant.

An attempt to backtrack.

In research conducted for the preparation of this material it was found an initiative presented to the Senate to repeal XXX fraction of article 28 LISR, same as shown below:

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INITIATIVE BY THE XXX FRACTION OF ARTICLE 28 OF THE LAW OF INCOME TAX Repealed. THEREFORE I Isaías González Cuevas, SENATOR MEMBER OF PARLIAMENTARY GROUP OF REVOLUTIONARY PARTY INSTITUTION IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 164 OF REGULATION OF THE SENATE OF THE REPUBLIC, SUBMIT FOR CONSIDERATION BY THE PLENARY SESSION OF THE SENATE OF THE REPUBLIC, THE FOLLOWING INITIATIVE DRAFT DECREE REPEALING XXX fRACTION, ARTICLE 28 OF THE LAW OF INCOME TAX BASED ON THE FOLLOWING:EXPLANATORY STATEMENT

The tax system is part of the instruments available to the state for up resources to finance public spending and thus provide society with the goods and services demanded. In this regard, tax policy is a key instrument in the set of public policies.

Tax collection, however, not only serves as an instrument for generating revenue; the tax system can also pursue other social goals, such as improving the welfare of citizens belonging to disadvantaged social groups, when used as an instrument for redistributing income and reducing inequality. In addition, you can transcend mere collection objectives and get down to promoting investment in specific economic sectors and job creation, in that regard, tax collection is a promoter of economic activity objective, as an indirect mechanism to increase revenue.

Tax policy can have these three attributes can be tax collection, when generating direct revenue, it may be promoter of economic activity which generates indirect income and can also be used as an instrument of income redistribution. The purpose of this initiative is to recover for Mexico's tax system, the balance of these three objectives of tax policy; raising, promotion of economic activity and employment, as well as equity and social justice. The purpose of this initiative is to repeal the XXX fraction of article 28 of the Law on Income Tax (Income Tax Law), to eliminate the tax law limits the deduction of social welfare expenses by companies for the benefit of workers.

The concept of tax deduction forms part of the tax policy and refers to indirect support, generally self-applications, granted to sectors of the economy or taxpayers through the tax system. Thus, tax deductions do not involve an expenditure of resources or income previously obtained by the state but allow taxpayers to beneficiaries decrease the tax base and thereby free up resources to finance other activities or benefit specific social groups and / or boost certain sectors of the economy.

Within these assumptions of social benefit and impetus to specific sectors of the economy, are the contributions of Social Welfare made by employers to increase the total remuneration of workers without increasing labor costs of enterprises without affecting the income of the federation, releasing short-term resources for working capital of companies and propping present consumption of workers, while ensuring their future welfare, all of which benefits the performance of the economy, acts in favor of social justice and in the same collection.

Mario Master of the Cave defined social security as "the financial support granted to workers and their families should befall the lack of means to subsist by natural or involuntary reasons" resulting from accidents, illness, strikes forced, disability, old age or death. Cave added that under this figure the work acquired its higher dimension, projected at two successive moments of life: first, it is the human source of wages, whose mission is to ensure workers a decent daily existence and second time , is the engine assignments future when this activity becomes difficult or impossible.

In our economy have lived, over time, different episodes that have eroded the purchasing power of wages of Mexican workers, real wages have fallen by the dynamics of inflation, so many companies and unions workers have agreed different ways to compensate for this situation and find the ideal way to improve the living standards of their workers agreeing various social welfare benefits.

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According to the provisions of Article 4, fifth paragraph of the Law on Income Tax (Income Tax Law); "For the purposes of this law, it is considered welfare disbursements made that are intended to meet contingencies or present or future needs as well as provide benefits for workers or partners or members of cooperatives, aimed at physical, social, economic or cultural improvement, enabling them to improve their quality of life and that of his family. In no event shall be deemed to social welfare expenditures made for people who do not have the character of workers or partners or members of cooperative societies ". Social welfare aims, give greater benefits to workers than those established in the labor law.

However, following the entry into force of the tax reform of 2014, the deductibility of benefits under social welfare has been reduced from 100% to 53% or 47%, which has affected the workers who receive it, as the cost of increased payroll and employers have reduced the granting of these additional benefits that favorably impacted the standard of living of workers.

When the tax reform came into force, grouped in the coparmex (COPARMEX) entrepreneurs estimated that by decreasing the deductibility of benefits would increase payroll costs between 4 and 15 percent. One semester later, costs rose and companies according to sindicaos sought to mitigate this effect by productivity bonuses and benefits stratification differentiating between production and administrative employees.

Moreover, this tax collection bias of the tax reform of 2014, partially meets the objective of raising, since it does not meet the target promoter, fiscal policy does not pay to promote formal employment and investment, which is affected economic and employment growth, so on balance, this tax collection effort, paradoxically does not strengthen the collection, nor investment and consumption in the domestic market is stimulated.

Three years after its entry into force, reducing the deductibility of social benefits granted by companies to their workers has had the adverse effect of even more precarious labor market and erode the purchasing power of the formal sector of the economy.

Another unwanted effect of this decline, cosiste that companies slowed the pace of new hires, and also the reduction of the deductibility focuses on current salary received by the worker, because their benefits are lower.

In incorporating limits deductibility entrepreneurs, it was established to limit deductions necessary expenses for income, including non-deductibility of payments made to workers who are exempt income stands, partially or complete for these, as well as the non-deductibility ofthe workers' dues paid by the employer and contributions to pension and retirement funds. Prior to the 2014 tax reform, companies deducted 100% of the additional social benefits to wages.

This tax collection tax policy bias can be seen in the wording of Article 28 of the Income Tax Law:

For the purposes of this title shall not be deductible:

Section I, "Payments for income tax by the taxpayer himself or third parties or contributions in subsidized part or originally apply to third parties, in accordance with the provisions, except in the case of contributions paid to the Instituto Mexicano del Seguro social by employers, including those under the Unemployment Insurance Act.

Second paragraph: "Nor are deductible amounts from the subsidy for employment that delivers the taxpayer, in his capacity as holder, persons who provide personal subordinate services and accessories of contributions, except for the surcharges have been paid indeed, even with compensation. "

This means they are not deductible contributions to the Mexican Social Security Institute, ie social security contributions, by the worker, who are paid by the employer.

In the XXX fraction of article 28 of the Income Tax Law, the deductibility of payments which, in turn, are exempt income for the worker (such as social security, savings banks and savings funds, annual bonus, overtime, premium proprietary it limited among others, since only be deductible, up to 53% of such payments, or when benefits have not decreased from the previous fiscal year, to 47%.

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It is noteworthy that these limits the deductibility include specific patterns according to the provisions of the Federal Labor Law, such as overtime, bonus items are required, compensation, etc. In addition, the Law on Income Tax (ITL) before the reform, some of these payments were exempt, ie, it was not a benefit that the employer grants and can avoid.

In addition, there were also benefits under collective agreements, which were exempt, based on the rules that were established in the Income Tax Law, for example, savings funds and social security, to the extent that met the limits established and requirements of generality, were deductible and could not be removed by being established in the contracts.

In the case of benefits, these were established in order to ensure the welfare of workers; in this sense if companies pursue that purpose, which is to provide social security for workers and their beneficiaries, no social sense to penalize employers that provide.

Social Security benefits, alluded, are described in Article 93 of the Income Tax Law and does not constitute payment for a service rendered, but delivered to complement and enhance the field of physical, social and cultural development of the worker; Moreover, granting them to workers is a stimulus that leads to greater productivity and helps underpin the competitive position of companies; This not only benefits the worker, but above all companies in the long run, to have satisfied employees who perform work while raising the quality of formal jobs. In addition to macro scale, consumer benefits and is a source of dynamism of the economy.

In addition, the distribution of these benefits is another realistic goal, which is to compensate the purchasing power of wages eroded by inflation and also set out in collective labor contracts reason that entrepreneurs have to follow otorgándolas.

Article 31, section IV, of the Constitution of the United Mexican States, stated that should contribute proportionately and equitably, this means that the contribution of corporations and individuals should be performed without being affected so excessive income taxpayers, however now we can see that many of the taxes that contribute to the state, directly affect the productive sector and the most vulnerable sector of the population, ie workers.

This measure to limit the deductibility of social welfare benefits established in the XXX fraction of article 28 of the Law on Income Tax has generated since its entry into force, that controversy is generated, therefore, there have been several requests amparo in different instances of the judiciary, which have reached the Supreme Court of justice of the Nation. The First Chamber of the highest court of our country, issued a thesis of jurisprudence, where it is considered that there are deductions structural which the legislature must recognize in compliance with the principle of tax proportionality for the resulting tax adjustment to contributive capacity of cause; and also, by the principle of contradiction,

According to the above, there is judgment issued by the First District Court in Administrative Matters in the Federal District, which in its analysis considered that the payments made by the employer on behalf of their workers constitute a deduction of a structural nature and, therefore, not being from its deductibility the principle of tax proportionality laid down by section IV of Article 31 of the Constitution of the United Mexican States, by failing to recognize the impact that such expenditures have on the income earned is contravened by the pattern object ISR.

For its part, the Second Chamber of the Supreme Court said in 2016 regarding deductions on income tax and based on the theory of symmetry in terms of taxes, and abandoning the principles of fairness and proportionality, that the limitation on deductions is not against the principles of tax justice, because although it is employers' expenses for income generation of workers, the fact is that structural deductions may be limited as long as they are rational and reasonable. With the above was determined to be constitutional limiting the deduction of protection and social security, and employee benefits and thus the continuity of granting social benefits to workers is discouraged, since companies are affected.

It is clear that the current tax scheme benefits workers, for the amounts that the employer intended his favor; if such remuneration does not exceed seven minimum wages, is not subject to any tax burden.

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The possibility of deducting these amounts does not constitute a benefit for employers, as noted, since as reiterated simply recognizes that the payment of wages and benefits deriving from labor laws are strictly necessary in which must be incurred to generate revenue for the company. It is monetary resources that by abandoning the financial sphere of the company may not be subject to a tax burden for the company.

The possibility granted by law to tax deductible expenses to employers is an essential recognition of the mechanics ISR so the utility actually obtained in the fiscal year is taxed, being a view contrary to that of the Supreme Court of Justice Nation.

In this regard, according to the XXX fraction of article 28 of Income Tax Law, all free benefits for workers are not deductible for employers in the proportion resulting from applying the factor 0.53 to the amount of those payments, which means that it is only deductible 47 percent of those benefits. This procedure, however, does not reflect the true tax situation of companies, since imposes determine a utility that really does not report its operation, on the understanding that payments a company makes for expenses of welfare certainly They transcend determining their ability to pay.

The judgment of the Supreme Court interprets this controversial article, away from the criteria of equitable and proportional taxation. But the constitutionality of Article 28 is still subject to interpretation, it turns out that to support the tax collection target State, is not satisfied with the provisions of Article 31, section IV, constitutional.

It is important to note that in April 2016, the Courts First and Second District, both of Assistant Center of the First Region of the Judiciary of the Federation in administrative matters in the Federal District, granted an injunction to a company against Article 28, section XXX of the Law on Income Tax 2014; to resolve the judgments of indirect amparo filed against the said fraction, he came to the conclusion that social welfare expenses are "... indispensable and necessary to obtain income ...", as referred concepts that make up the wage in the broad sense referred to articles 82 and 84 of the Federal Labor Le.

So, to be mandatory and formal expenditures for the employer (whether arising from the Act itself, an individual contract, a collective agreement or custom) that negatively affect gross profit, owes its deductibility recognized 100 percent, as proposed by the present initiative.

That court granted the amparo considering that said fraction is unconstitutional, because the principle of proportionality are violated tax contained in Article 31, section IV, of the Constitution. This precise statement that the limitation is disproportionate, because it is a restriction on the deduction of a necessary and indispensable expenditure, which prevents them recognize the nature of expenses involved to the detriment of wealth subject of the income earned by the taxpayer. Therefore, they are likely to reduce the tax base, which contravenes the provisions of Article 31 paragraph IV Constitutional.

The tax collection target of the measure in question, is fully understandable, because the Federal Government has the need to obtain the maximum possible tax revenue, and must compensate tax revenues that came from the Business Flat Tax. But meeting the other objectives of the tax collection policy can reimburse the public coffers without affecting economic growth and the lack of new hires and the granting of social benefits, which benefits workers and the limitation on deductions of benefits directly it affects labor because discourages companies to grant additional benefits to those granted by law.

Tax revenues bloom, with increasing economic activity and employment, by rising domestic sales and abroad, when this happens increase productive investment in the public and private sectors, the deductibility 100% strutting aggregate consumption and source higher tax revenues.

What actually happens is that companies are paying more tax annual and monthly income. Unable to derive a large part of payments to workers, higher income tax is generated, but also companies are affected your monthly cash flow, since the Law on Income Tax requires making monthly payments of ISR , same as determined based on a coefficient of utility and as this ratio is greater by not allowing deduction of various items, will be affected the normal operation of enterprises to be depleted its working capital.

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What is this initiative is to pay in solving serious problems that directly affect a significant number of our population, the micro and small industries and the Mexican working class.

The same income tax law provides in Article 10 that the same amount is not deductible for calculating the annual tax (ISR) can be subtracted from the basis for calculating the profit sharing. As we can see, although the law sought to reduce the negative effect of the application of the factor of non-deductibility through an incentive in the basis for the PTU, finally providing benefits Social Security workers has a negative effect on liquidity companies.

As can be seen, the same Income Tax Law establishes the amount to be exempt in the benefits that are given to workers. In addition, the Federal Labor Law establishes the minimum benefits that must be granted to an employee, among which include: vacation pay, bonus, overtime, the workers' participation in company profits, among others, so the company or the employer must pay such benefits and exempt what is established.

Due to the limitation of the deduction of benefits paid to workers, many employers or companies filed defenses against this application because it violates the principle of proportionality laid down in Article 31 of the Constitution of the United Mexican States .

It is noteworthy that, for purposes of determining the PTU, the non-deductible amount to be taken in this connection, it should decrease the taxable income.

Thus it can be seen that once calculated the ratio, the employer or company will suffer financially because, by having workers may not deduct a portion of the payments made to them, increasing the amount of income tax to pay, which violates the principle of proportionality.

Founded on the provisions of article 1 of our Constitution as regards the granting of guarantees of human rights, stating expressly that all national legislation must not be inconsistent with the provisions of this article so; the State has an obligation to the progressive realization of the rights recognized in our Constitution.

According to the third paragraph: "All authorities, within the scope of their powers, have an obligation to promote, respect, protect and guarantee human rights in accordance with the principles of universality, indivisibility and progressiveness. Consequently, the state must prevent, investigate, punish and remedy human rights violations in the terms established by law ".

In addition, in the Constitution of the United Mexican States as provided for in Article 31, section IV, it is the duty of Mexicans "contribute to public expenditure and the Federation and the States of Mexico City the municipality in which they reside, in the proportional and equitable manner provided by law. "

The above principles of this initiative reiterates that the main objective of this initiative is to establish an equitable structure based on the principles of fairness and proportionality, with the sole purpose of strengthening the finances of Mexicans, that spending workers them better quality of life and businesses are strengthened to continue the development and promotion of employment and investment.

For the foregoing founded motivated and I submit for consideration of that sovereignty as follows:

XXX decree repealing fraction of article 28 of the Law on Income Tax

Sole Article. XXX fraction of article 28 of the Law on Income Tax to read as follows repealing:

Article 28. For the purposes of this title shall not be deductible:

I. to XXIX. ...

XXX. repealed

XXXI ....

Transient

ONLY. This Decree shall enter into force on 1 January 2018, when published in the Official Journal of the Federation.

Given in the Assembly Hall on July 26, 2017 (Gonzalez, 2017).

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This reference is valuable, and for this reason, was transcribed in its entirety, because it represents a strong evidence that that provision is contrary and adversely affects the interests of the country as regards employment and actors involved. Moreover that this initiative was presented by a member legislature party that is still in power, author and promoter of reform.

Results.

Having set the background, the current text, the implications for the worker, the implications for the pattern, and the impact for the accounting profession; and a sample of nonconformity in establishing this kind of negative provisions, it is clear that Article 28, section XXX of the Income Tax Law, violent financial situation of those involved, and indirectly, employment at the national level as a whole .

Conclusions.

With all this, one can conclude the following:

a) The social welfare benefits, as indicated by its name, seek to anticipate the needs of workers and their families in various aspects; what makes them an important addition to their remuneration and that affects the welfare and productivity at work.

b) Before 2014, these benefits were deductible for the employer and the worker exempt in full compliance with certain requirements integrated into a written plan. From 2014 the deductibility of income for the worker are exempt (including social security and other income established by the LFT) is removed and the plan is limited.

c) This change seriously affects the interests of working because, on the one hand, having less exempt income, withholding income tax is higher; and on the other hand, the pattern may be unwilling to pay compensation whose free deducibility is not 100%.

d) Indirectly, the accounting profession also suffers damage, since it is no longer required to design pension plans, service used to be provided by many firms. similar to that resulting from the non-binding opinion by an authorized prosecutor, also following the 2014 reform public accountant situation.

e) The provision has been analyzed here has been fought in courts and they have decided that not against the Constitution; however, an initiative to the Senate was also presented seeking to repeal it, by going against national and particular interests of workers and employers.

f) We are a few months after a change of government at the federal level which has been described as the hope to give our country a new face in many ways. Indeed, beyond messianic promises, for the national good it is expected that at least legal barbarities as set forth in this opportunity be corrected.

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Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

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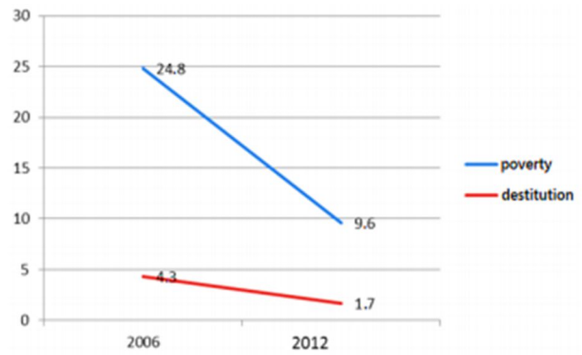

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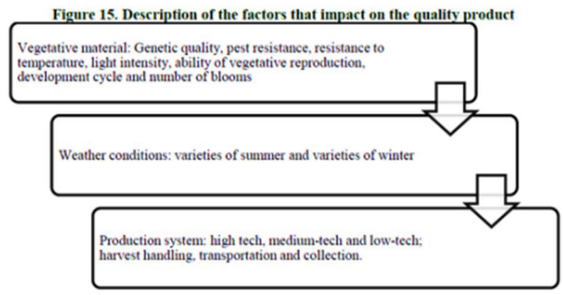

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Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

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Tables and adequate sources

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