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Reflection on payment for environmental services: the case of the Working for Water program in South Africa

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Abstract

This document shows the problem that arises with the application of economic models of payment for environmental services as a mechanism for development and combating externalities that the ecosystems suffer from economic activity. We analyse the "Working for Water program" in South Africa, as an example of the commodification of payments for environmental services and the results achieved by this program are shown. Due to the failure of these market mechanisms, we encourage the creation of new ways of thinking to guide the construction of alternative life patterns of consumption and production into a more social and ecological rationality.

Ecologic economy, payment for environmental services, environmental externalities, ecological rationality, sustainable development.

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Introduction

In the last fifty years, humans have altered the structure and functioning of ecosystems more rapidly and extensively than in any other period of humanity result of population growth, industrialization, agricultural development, deforestation, burning fossil fuels, among others; creating imbalances in natural systems of the planet.

Since the late seventies there was already a growing concern about the negative effects of environmental degradation; the publication of Silent Spring by Rachel Louise Carson, reflects these concerns. The Club of Rome called The Limits to Growth stoke international discussion include environmental issues in economic development issues to try to compensate for the discomfort caused.

Consequently, the concept of sustainable development would be adopted, following the publication of Our Common future to seek a fair consumption of natural resources based on an inter and intra-generational equity. Thus, the environment becomes an element to be taken up in the traditional economic theory (neoclassical) and included in their models, leading to results of study branches as environmental economics and the economics of natural resources to encourage the transition to a model of more sustainable development.

The impact of this concept was of such magnitude that international organizations that guide its work in development models, such as the United Nations Program for Development, the Inter-American Development Bank and even the World Bank, began to incorporate it into his speech and practice.

However, there are disputes over the results achieved by sustainable development has not been seen as a benefit equally in the economic, social and environmental pillars. Some critics as Joan Martínez Alier, Jorge Enrique Leff and Riechmann, argue that the concept does not break with the logic of the foundations of neoclassical economics, that is, that has become the natural goods and services in another commodity, minimizing its importance.

The idea is still aspiring to development and sustained economic growth, within a vision of a closed economic system where there are considered the exchanges of matter and energy to the environment and leave only minimum requirement of some resourcing future generations, not specifying quantity and quality.

In this situation, the research focuses on the aspect of the internalization of negative externalities of economic activity, including the idea of sustainable development. Through the case study Working for Water Program in South Africa, being a clear example of the commodification of payments for environmental services and the results achieved by this program are shown.

It also reflects on the system of payments for environmental services and how the objectification of the environment does not seem to be a real solution to improving quality and social welfare, as well as compensate the damage in natural systems.

The rest of the paper is organized as follows, in paragraph two market failures are explained and how are you externalities are internalized into economic models; in the third paragraph, the Working for Water program in South Africa as an example applied on the payment of environmental services and the few results that brought such a model is developed.

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In the fourth section, the problems that arise with the system of environmental payments are detailed; in the fifth paragraph, the principles of ecological economics are exposed, posing a new worldview and the environmental design of interlocking economic element, in order to give direction to the discussion of this subject, encouraging the creation of new forms of thought guide the construction of alternative life patterns, consumption and production in a more social and ecological rationality.

Market failures, environmental degradation and internalization of externalities

In the late sixties and early seventies, a period marked by events such as the breakdown of the Bretton Woods system and the crisis of development systems, also initiated concern for environmental issues in the international arena. In 1972 the Club of Rome [1] he published The Limits to Growth, a report that dealt with the irrationality of population growth rates until then achieved industrialization and natural resource demanding exponentially. Warning that if the trends continued in the short term the biophysical limits of the planet and threaten the existence of human life in the next hundred years suggesting economic growth target "zero" or stationary so they could recover some resources.

These concerns go beyond the biocapacity of the Earth helped to bring States to enter into negotiations regarding the environment and for the first time, is included as a guiding principle of holding international summits. Reflecting this, it is holding the United Nations Conference on the Human Environment in Stockholm, Sweden (1972), where the Stockholm Declaration was adopted[2] which established twenty six general principles for the preservation and improvement of nature, both for present and future generations.

Despite this promising start, the environmental issue would be taken up again until 1987 with the creation of the World Commission on Environment and Development to evaluate the processes of environmental degradation and the effectiveness of environmental policies to address them. The Commission published a document entitled Our Common Future, encouraging States to changing consumption and production patterns, including inter- and intra-generational equity, as a condition for human survival.

Thus, it is coining the term "sustainable development", defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987: 67). In order to promote a joint effort among the nations of the world to feature dissolve the contradictions between environment and development (Leff, 1993).

Our Common Future clarifies that sustainable development would only be achieved in three key dimensions: economic, environmental and social sustainability.

[1] The Club of Rome works as a platform that brings together scholars, scientists, politicians, businessmen and officials to design, develop and implement effective models to address many global issues have been related, such as environmental sustainability, growth performance economic, the consumption of resources, development and globalization. See [URL: http://www.clubofrome.org]

[2] The Stockholm Declaration can be found at [URL: http://www.ordenjuridico.gob.mx/TratInt/Derechos%20Humanos/INST%2005.pdf] (accessed 11/24/2015)

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Through efficient use of resources in order to further economic growth; preserve the environmental goods and services and the struggle for social equity. In theory, all three dimensions should interact harmoniously; so that the process would translate into economic growth rates that eradicate poverty and generate greater prosperity but at the same time, will contribute to the improvement of the environment (Laguardia, 2013).

Since its construction, the concepts of sustainable development believe in the ability of the economic system to internalize ecological and social conditions of fairness and justice; by the same market mechanisms that were still operating. From the perspective hegemonic capital, problems of poverty and ecological did not arise as a result of capital accumulation; On the contrary, by assigning property rights and common property prices, market forces would be responsible for setting the ecological imbalance and social differences (Leff, 1993).

Later, in 1992, he held the United Nations Conference on Environment and Development, which resulted in the Rio Declaration[3],. in his first 16 addresses the internalization of negative externalities: "National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear with the cost of pollution, with due regard to the public and without distorting international trade and investment interest. "

Thus, the fundamental cause of the environment was reduced to a completely economic origin, on the premise that agents are able to transfer part or all of the cost of its shares to other segments of the population without exist by compensation. When these costs do not impact on the agents that cause them, there is no motivation or incentive to change their behavior or become interested in reducing the cost of their actions on social welfare and even less environmental.

Consequently, they were setting up alternative work for the market where previously could not. That is, using economic instruments in environmental protection criteria of cost-benefit and so the actors could take guided prices alteration to the decision. Then solutions include command and control measures, supported by market instruments and sometimes in combination with indirect measures such as the allocation of property rights and the reduction of transaction costs (OECD, 1995).

In terms of command and control measures, the government sets an optimal level of production and consumption of a particular environmental good or service; because they are not enough government regulations, it is generally supported by market instruments. The first of this is through taxation, where polluters or damage an environmental good must pay based on the severity of the action caused. The second mechanism is through a subsidy, it is that those who cause a positive externality, should receive a subsidy to encourage environment-friendly behavior. However, the mechanism is turned off, as there is a low government interference, this mechanism is better understood by the payment of environmental services (Bright, et al., 2004).

[3] Véase: [URL: http://www.un.org/spanish/esa/sustdev/agenda21/riodeclaration.htm] (consultado el 24/11/2015)

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According to Wunder (2006), payment systems for environmental services (PES) are based that service users make a payment to providers of the same so that they retain and / or rehabilitate ecosystems that provide such services. Its sustainability depends on the continued payment or compensation, and the application of a set of principles as additionality, permanence and leakage avoided. Currently, four types of PSA include:

- Mitigation of greenhouse gases: by fixing, reduction, carbon storage and other gases;

- Protection of biodiversity through sustainable use of species, conservation of ecosystems and ecological processes and access to components of biodiversity for scientific and commercial purposes;

- Conservation of scenic beauty derived from the presence of forests and other attractive landscape for the development of ecotourism, scientific tourism and adventure;

- Protecting water resources: in terms of quality, distribution in time and quantity for urban, rural, industrial and hydropower use, through the protection and sustainable use of aquifers, springs, water sources, protection and recovery of watersheds and micro, among others (Espinoza, 1999).

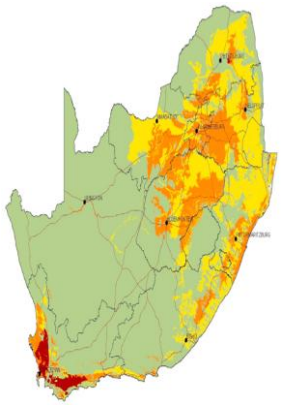
Often you can offer services synergistically to organize pay packages between multiple users, but note that not all services are being threatened, or rare, not all users are willing to pay in all regions (Wunder, 2005).

While PSA systems are emerging as a good alternative to the failure of the market to include negative externalities, they can also present difficulties such as lack of information or uncertainty about the functioning of the ecosystem; lags in time and space alterations of the environment or the recognition of environmental problems (Wertz-Kanounnikoff, 2006) as discussed below.

The Working for Water program in South Africa and the payment of environmental services for the protection of water resources

South Africa is one of the countries with high levels of water stress, water availability per person ranges between 500m3 and 1000m3 per year, surface water is usually exported to neighboring countries and the mantles water is scarce (Turpie et al. 2008). In response to this problem, the government launched a PSA through the Working for Water Programme (WfW), founded in 1995.

The program began as a government effort to eradicate exotic invasive plants that could alter the quality and quantity of water resources and endangering the endemic aquatic plants, harming ecosystems, as shown in Figure 1.



Source: Rouget

Figure 1 Vulnerable ecosystems, endangered and critically threatened in South Africa

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WfW current objectives are to ensure water resources and protect the integrity of natural systems through removal of invasive plants and thus reduce soil erosion, flooding, improve river runoff, prevent salinization of rivers , swamps and estuaries that protect biodiversity. Socially, it seeks to optimize social benefits by creating jobs in the most marginalized people in South Africa and economically, economic empowerment and development related to cleaning of invasive plants (Walmsley, secondary industries would be facilitated et al, 2004).

In most PSA systems, vendors are (state, private, small-scale or communal) landowners. But in the case of WfW sellers are small suppliers contractors who perform restoration of land to any property. The selection criteria focus on workers choosing vulnerable to poverty and unemployed persons. Small contractors, rather than the landlords seeking services, bidding for contracts on the restoration of public or private land, where they specify how invasive exotic plants are in the areas defined and how they are treated. Tenders must relate to water supplies, reduction of forest areas burned or carbon sequestration ecological services as they are considered in the projects WfW (Magadlela and Mdzeke. 2004).

It is estimated that 80% of WfW annual budget comes from taxes and government budget Poverty Relief Fund. Thus, the WfW program focuses primarily on ensuring environmental services in territories controlled by the national government.

The Department of Water Affairs and Forestry (DWAF) has tried to encourage voluntary payments for the services of both municipal actors as private actors and you can tell that some actors have paid into the program for its employees to clean up their basins of invasive species rather than incur the costs of establishing their own systems clean, take advantage of the institutional structure of the WfW (Ferraro, 2009).

However, the DWAF system does not distinguish between rich and poor consumers of water services. For payment, the total volume of water consumption recorded by agricultural, domestic and industrial sectors and is divided, according to affordability and security of supply is calculated. Initially, only the domestic water users are doing a full charge, while agriculture received a substantial subsidy and the private sector did not contribute anything, or the forest by considerations of affordability; It leaving little income for WfW as shown in Table 1.

	1995/96	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Poverty relief programmes	25,000	50,000	150,000	125,426	126,370	232,180	314,813	330,000	330,000	370,121	354,753
DWAF core funding		7000	90,000	115,000	70,700	59,653	57,110	35,250	46,424	17,264	16,608
Water tariffs through DWAF					23,200	27,900	24,400	48,400	38,800	26,335	27,915
Water tariffs through other water management authorities		4291	11,059	10,000	12,500	2800	500				
Local authorities and TCTA		20,000		218	1985	1000	400	50	400	2400	3400
Foreign funding[b]		43	377	8915	6693	4687		2300			
Private sector[c]	2046	5334		975	314	300	300				
Total budget	27,046	86,668	251,436	260,534	241,762	328,520	397,523	416,000	415,624	416,120	402,676

Source: Working for Water, unpublished data.
[a]Initial partnership with Rand Water (the water management agency for the greater Johannesburg metropole) came to an end without a new partnership being negotiated.
[b]From Finish and Norwegian governments.
[c]Formal funding partnership with the private sector agencies came to an end; clearing by private sector companies is still on-going but not reported on.

Source: Turpie

Table 1 Funding for the Working for Water Programme, 1995-2006

The program should increase payments to private users of water supply, especially those for industrial use and increase the payment for the work they do to protect accounts to ensure the continued provision of services because to do so would be forced to compete for funds aimed at poverty alleviation (Turpie, et al, 2008).

The lack of resources and a genuine internalization of the costs of water services have affected the fulfillment of the goals of WfW on the three pillars of sustainable development. In ecological, to 2004 it had been achieved only cleaning 927 000 hectares, representing only 5% of terrestrial priority conservation areas are seen benefiting from the removal of invasive plants. There is also no certainty to quantify the increased flow of rivers or water security improved.

On the social side, the alleviation of poverty by creating jobs 25-32000 per year, emphasizing the recruitment of women and young people has not been enough (Ferraro, 2009). First there is creation of permanent jobs, the cleanup of the program cover the income of four and up to eight months each year. It has also reported the delay in wage payment, which has caused that workers were forced to borrow at high interest rates, so instead of helping economic empowerment program increased the vulnerability of extreme poverty. Economically, the gains from the sale of water access service were estimated at a price of R1.25 to 3.11[4]. While secondary industries reached a minimum equivalent to less than R750 billion per year (Common Ground, 2003) gain.

You cannot say that the WfW has failed because in some way has managed to reverse the invasion of plants in water resources, it has helped to stop its expansion.

The UNEP (2009) recognizes that PES projects can be inefficient to: generate net social benefits; satisfy the payment of additionality (include the cost of negative externalities); allow the movement of activities harmful to the environment in other areas and / or be unsustainable in terms of not maintaining incentives to providers of environmental services.

You can judge the effects of many PES, partly because it is not clear who is being paid to comparison of traditional market transactions and partly because it requires an estimate of what would have happened hypothetically without the scheme PSA. So it is not always possible to calculate the net social benefits of induced behavior scheme (UNEP, 2009: 10). Thus, one cannot say with certainty that the PSA are means to achieve sustainable development.

Problems in the implementation of payment for environmental services

Environmental services are understood as the ability of ecosystems to produce useful products for man; they provide food and water, regulate climate, besides being spaces for recreation and research (Esquivel, 2012). PES schemes do not necessarily constitute an instrument of great cost, because the success of these depends on the preconditions; that is, they operate best when services are visible and beneficiaries are well organized and user communities are well structured, have property rights, have a strong legal framework and access to resources (Mayrand and Paquin, 2004). This scheme preconditions for the operation is difficult to find in the communities because their structures are different in the same organization (Leff, 1986, 2004).

[4] 1 South African rand corresponds to US $ 0.07, the exchange rate of November 25, 2015.

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Moreover, Pagiota et. to the. (2005) emphasize that the PSA have some capacity to reduce poverty by payments received by owners of environmental services. However, PSA is not itself designed to reduce poverty; there may be synergies in program design to improve the economic condition of the town. But since his own construction, the PSA is limited to not delve into issues of equity and income redistribution (Echavarria et. Al., 2004).

Although the PSA is a rating system that has contributed to the political interest in preserving natural areas, it has also led to the commercialization of a growing number of ecosystem services and to impose market logic to attack environmental problems (Gomez Baggethun et-al, 2009).

As pointed out by Gómez-Baggethun (2011), the two approaches to the mechanisms of assessment of PSA, ie public intervention plays the role of regulator for correcting market failures through taxes and subsidies, or private involvement through transactions where environmental services can be bought and sold freely; They have been implemented in two ways: by creating a market for PSA and PSA encouraging.

It has been suggested that PSA may eventually lead to changes in property rights against the poor or against vulnerable groups such as indigenous communities (Kosoy et.al., 2007). This is due to the commercialization of the environment has led to environmental services were by nature of a public nature when dealing with global goods, seek to be embedded within privatization policies promoted from the eighties by the influence of the Chicago school (Stiglitz, 2002).

The commodification of environmental services took place then through monetization, ownership and marketing of services. There are several lines of criticism about this is because items that should not be for sale and you cannot draw a line as to what extent should commodified or not (McCauley, 2006). The first line of criticism concerns the need to assess the elements of ecosystems in a way beyond a simple monetary value, for example; the sale of animal or plant species for human joy threatens biodiversity loss, so the commodification does not contribute to improving the environment (Prudham, 2007).

The second line of criticism is focused on other assessments that may have environmental services. For certain communities may have a strong symbolic value and cultural significance, due to the interaction of people with their environment and the importance of its elements for survival. This is closer to what Western scientific tradition might categorize as there is a symbolic chain of relationships (Ellen, 2001) relationship.

The third line includes the problem of dealing with things that are not produced by humans as goods. Karl Polanyi (1944.1957) described this situation as a fictitious commodity and mentioned the example of land that was incorporated into an interchangeable commodity markets. The fictitious commodity, in this case, environmental services, is difficult to introduce into the economic system precisely because it is not a commodity (Gómez-Baggethun, 2011).

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It has even tried to force and ordering units to environmental goods and services to be incorporated into national economic accounts, reflecting the mechanistic analysis of man by commodifying their environment. The difficulty of separating each element of the ecosystem functions to become interchangeable units, still presenting a challenge as theorize Vatn and Bromley (1994).

But the issue is not in itself a method of improving the methodology for the PSA and Martinez-Alier (1998) mentions the services that nature provides to the economy they are not well worth the accounting system chrematistic[5] typical of neoclassical economics for its immeasurable character.

The ecological economic policies put in manifest impotence of knowledge to understand and solve the problems that have generated forms of knowledge of the world; ignoring the degradation that has produced the economic activity carried out under the economic rationality and its contradiction with the environment (Leff, 2000). Therefore, the main problem is to address the environment from this encouraging market mechanisms uncertainties and contingencies irreversible, seriously compromising the ability of future generations to meet their own needs (Martinez, 1998).

Ecological Economics and the incommensurability of the environmental services.

Industrialization is considered a watershed in the development of society by enabling accelerated production processes, facing centuries of limited satisfaction of human needs.

Economic Theory (Neoclassical mainly) has a development around pricing systems and maximization of individual utilities, contemplating closed processes (in terms of energy flow) in the exchange of goods and services.

At no time they are considered own natural processes of recycling of chemical elements, such as the cycle of CO2, which is accelerated by contemporary economic activity that only thinks in terms of value of merchandise isolated from the natural environment. Martinez and Roca (2006) point out in this regard as human production processes placed greater amounts of carbon dioxide from the process of photosynthesis you are able to take advantage of, or oceans to absorb, resulting in an increase in the greenhouse effect .

The introduction of thousands of tons of ore has exceeded the natural carrying capacity of ecosystems, especially synthetics, which are useless as being unable waste to be recycled by the market or by natural processes[6], This goes hand in hand with the idea of final consumption takes Martinez and Roca (2006) criticizing the neoclassical theory that provides just that this seems consumed a well disappearing into the void without understanding their consumption represents the expulsion of energy and matter, as mentioned matter is recycled by the market and natural processes; while the energy is converted (First Law of Thermodynamics) but this is unable to generate new motion processes to degrade (Second Law of Thermodynamics).

[5] Aristotle defines as Chrematistic the accumulation of money for money. In economics, the term is aimed at reducing costs and monetary value to benefits.

[6] CO2 is absorbed by plants; animal manure is degraded by microorganisms and becomes food for plants.

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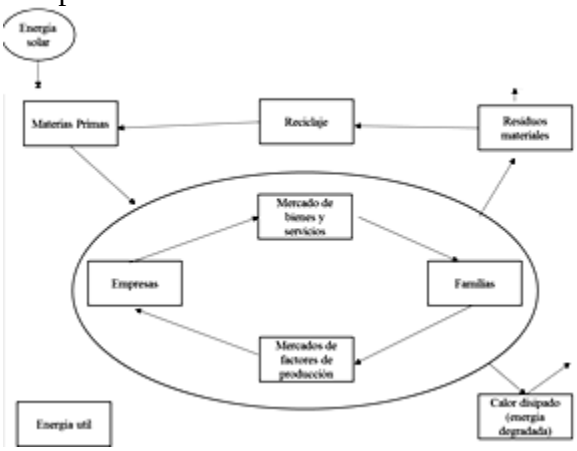
Figure 2 shows the behavior of ecological economics to expand the traditional concept of neoclassical theory only trade in goods, services and production factors between families and businesses (central circle), considering the degradation processes and energy transfer (Laws of Thermodynamics) and more importantly the relationship with the environment powered primarily by solar atmosphere.



Source: Torrado de Martínez y Roca (2006)

Figure 2 Cycle of energy and matter in the Green Economy

In short, nature serves a dual role in providing resources and be receiving waste. In addition, directly provides services ranging from the enjoyment of certain landscapes to the protection of life offered by the ozone layer absorbs ultraviolet rays. Provides services that nature and are not valued in the macroeconomy.

The market expands to incorporate medium and internalize externalities, ie costs are measured (in neoclassical terms) or benefits and are charged to those responsible. Martinez (1998) notes that authors like Kapp, Georgescu-Roegen, Daly and Naredo argue against that possibility of internalizing externalities, mainly due to lack of looking to the future generations in today's markets, even if these markets are enhanced by based on the willingness to pay, not on actual payments simulations.

We think that the current economic agents arbitrarily valued irreversible and uncertain effects of our actions today on future generations.

The cost-benefit analysis conducted by agents of the course in which there is a commensurability of value.[7] When you have a multi-criteria evaluation in the absence of a single measure to classify all objects and situations in reality. That measure is the willingness to pay in the range for the satisfaction of individual preferences, so that there are subjective value scales to take action,[8] which can be explained by hedonism from the pursuit of pleasure and away from pain.

Martinez (1998) and Roca (2006) considered the willingness to pay from the hedonistic perspective concrete measures the intensity of a person's preference for good, so having a strong commensurability and the possibility of considering the willingness to pay as a cardinal measure of value. However, this position is deceptive because the simplicity of trying to reduce a plurality of values to a single value that provides a unique classification of objects and situations. Even if pleasure were the last intrinsic value, could not provide a single criterion of value to order all goods, since the pleasures have a plural nature: the pleasure of drinking beer and pleasure of a good conversation are different, they cannot be measured on a single scale, (Martinez, 1998).

[7] Commensurability means that there is a measure of value used to classify one way objects and situations evaluated. You can take a strong or weak sense as common as having a cardinal or ordinal interpretation. The weak commensurability must be distinguished in turn weak comparability, ie, the idea that one can rationally choose among various options without being able to give a single order (Martinez, 1998)g

[8] See Menger (2012 [1871]) and Rothbard (2011)

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As for preferences, they respond to the values, as I prefer because of its value to me and not because I value is preferred, (Frondizi, 1972). It actually has a plurality of values, and our preferences from the action resolve conflicts between these values, (Mises, 1966). The plurality of values is not resolved by issues of cost-effectiveness as neoclassical economic theory believes, because the existence of incommensurable values presents more general difficulties for the whole economy, where the difference in value creates conflicts between agents, mainly to behave as rational violating the axiom of transitivity of preferences in social choice (Arrow, 1989, 1994).

Concluding remarks

The concept of sustainable development is adopted after the publication of Our Common future to find a fair base consumption of natural resources under inter- and intra-generational equity. The environment by introducing it as an asset in the neoclassical economic models becomes one more element, giving results as branches as environmental economics and the economics of natural resources, supposedly to encourage the transition towards sustainability.
Payments for environmental services were structured with the idea of being a mechanism to internalize negative environmental externalities and thus provide communities offer a service that would preserve and / or restore ecosystems that provide those services through a monetary amount. However, payment schemes for environmental services are not necessarily a tool for optimal cost, because the success of these depends on the preconditions because the success of these depends on the preconditions; particularly property rights and a strong legal framework. Payments for environmental services can reduce poverty by payments received by owners of environmental services because these instruments are not designed to reduce poverty.

The rating system for payment for environmental services has led to the commercialization of a growing number of ecosystem services and imposed logic market to attack environmental problems. Creating an intervention seeking to correct market failures through taxes and subsidies or intervention through private transactions, where environmental services can be bought and sold freely, creating a market for PSA and PSA encouraging.

The main drawback of the commodification of ecosystem elements is that does not contribute to improving the environment. Leaving aside the different levels of ratings that may have environmental services to communities; It does not take into account the finite goods and the capacity of environmental services. Thus, ecological processes are objectified as natural capital, in order to be assimilated into the economic process; with a view to the reproduction and expansion of the system.

Thus, it is necessary to stop to contemplate nature only goods and consider ourselves as isolated part of the natural environment to guide rethinking production processes under an exchange of matter and energy, such as the green economy puts adding to it the modes of recognition of existing nature by the various communities that offer alternative lifestyles and more equitable patterns of consumption and production more sustainable are an alternative to the Western conception of sustainable development.

References

Arrow, Kenneth. 1989. *Opciones sociales y toma de decisiones mediante criterios múltiples*. Unión Editorial. Madrid.

ISSN-On line: 2414-4959

Arrow, Kenneth. 1994. *Elección social y valores individuales*. Planeta-Agostini. México.

Bright, H. y U. Latacz-Lohmann. 2004. *Economics of Environmental Policy (study guide*). Imperial College London, University of London. London, UK.

Comisión Mundial del Medio Ambiente y Desarrollo (CMMAD). 1987. *Nuestro Futuro Común*. ONU. Nueva York, USA.

Common Ground. 2003. *Working for Water: external evaluation. Synthesis repor*t. Southafrica.

Echavarria, M., Vogel, J., Albán, M., Meneses, F. 2004. "The impacts of payments for watershed services in Ecuador – emerging lessons from Pimampiro and Cuenca". *Environmental Economics Programme International*.Institute for Environment and Development (IIED). London, UK.

Ellen, R. 2001. "La geometría cognitiva de la naturaleza". Un enfoque contextual. En P, Descola y Gísli Pálsson, *Naturaleza y sociedad: perspectivas antropológicas*, D.F, México: Siglo XXI, 124-148.

Espinoza, Nelson y J. Smyle. 1999. *El pago de servicios ambientales y el desarrollo sostenible.* RUTA. San José, Costa Rica.

Esquivel, Elsa. 2012. *Mecanismos nacionales e internacionales de pagos por servicios ambientales (PSA) existentes*. Alianza México para la reducción de emisiones por deforestación y degradación. México.

Ferraro, Paul. 2009. "Regional Review of Payments for Watershed Services:Sub-Saharan Africa". *Journal of Sustainable Forestry*, 28:525–550.

Frondizi, Risieri. 1972. *¿Qué son los valores?* Fondo de Cultura Económica. México.

Gómez-Baggethun, Erik; de Groot, R., Lomas, P., Montes, C. 2009 "The history of ecosystem services in economic theory and practice: From early notions to markets and payment schemes", *Ecological Economic*, 69(6):1209-1218

Kosoy, N., Martínez-Tuna, M., Muradian, R., Martínez-Alier, J. 2007. "Payments for environmental services in watersheds: insights from a comparative study of three cases in Central America". *Ecological Economics*. 61:446-455.

Gómez-Baggethun, Erik. 2011. "Economic valuation and the commodification of ecosystem services". *Progress in Physical Geography* 35 (15):1-16.

Laguardia, Jacqueline. 2003. "Pobreza y medio ambiente en el discurso global. Por una perspectiva de cambio" en G. Delgado, et. al. (edits.) *Crisis sociambiental y cambio climático*. CLACSO. Buenos Aires, Argentina.

Leff, Enrique. 1986. *Ecología y Capital. Racionalidad ambiental, democracia participativa y desarrollo sustentable*. Siglo XXI. México.

Leff, Enrique. 1993. *Globalización, Racionalidad ambiental y Desarrollo sustentable*. CEIICH-UNAM/Porrúa. D.F, México.

Leff, Enrique. 2000. "Pensar la Complejidad Ambiental". en Leff. E (cord.), *La Complejidad Ambiental*, D.F, Mexico: Siglo XXI. 259 pp.

Leff, Enrique. 2004. *Racionalidad Ambiental La reapropiación social de la naturaleza*. Siglo XXI. México.

ISSN-On line: 2414-4959

Magadlela, Dumisani y N. Mdzeke, N. 2004, "Social Benefits in the Working for Water programme as a public works initiative", *South Africa Journal of Science*, 100: 94- 96.

Martínez Alier, J. 1998. "Curso de Economía Ecológica". *Serie de Textos para la Formación Ambiental*. Programa de las Naciones Unidas para el Medio Ambiente. México.

Martínez Alier, Joan. y Jordi Roca Jusmet. 2006. *Economía Ecológica y Política Ambiental*. Fondo de Cultura Económica. México.

McCauley, Douglas. 2006. "Selling out on nature". *Nature* 443 (7107): 27–28.

Menger, Carl. 2012[1871]. *Principios de Economía Política*. Unión Editorial. Madrid.
Mises, Ludwing von. 1966. *La acción humana*. Unión Editorial. Madrid.

OECD. 1995. *The Economic Appraisal of Environmental Projects and Policies: A practical guide*. Organization for Economic Cooperation and Development (OECD). Paris, France.

Pagiola, S., Arcenas, A., Platais, G. 2005. "Can payments for environmental services help reduce poverty? An exploration of the issues and the evidence to date from Latin America". *World Development* 33(2):237-253.

Polanyi, Karl. 1944/1957. *The Great Transformation: The Political and Economic Origins of Our Time.* Beacon Press: Boston, USA.

Prudham, Scott. 2007. "The fictions of autonomous invention: Accumulation by dispossession, commodification and life patents in Canada". *Antipode* 39: 406–429

Rouget, M., B. Reyes, Z. Jonas, P. Desmet, M. Driver, K. Maze, B. Egoh y R. Cowling. 2004. *South African National Spatial Biodiversity Assessment 2004: Technical Report. vol. 1 Terrestrial Component.* South African National Biodiversity Institute, Pretoria.

Rothbard, Murray. 2011. *El hombre, la economía y el Estado.* Union Editorial. Madrid.
Stiglitz, Joseph. 2002. *Globalization and its discontents*. Norton Press. New York: USA.

Turpie, J. K., C. Marais y J. N. Blignaut. 2008. "The working for water programme: Evolution of a payments for ecosystem services mechanism that addresses both poverty and ecosystem service delivery in South Africa". *Ecological Economics.* 65:788- 798

UNEP. 2009. *Making payments for ecosystem services work.* United Nations Environmental Programme (UNEP). Nairobi, Kenya.

Vatn, Arild and D. Bromley. 1994. "Choices without prices without apologies". *Journal of Environmental Economics and Management* 26: 129–148.

Walmsley, Daniel, T. Havenga, E. Braune, C. Schmidt, K. Prasad y B. van Koppen. 2004. "An Evaluation of Proposed World Water Programme Indicators for Use in South Africa". *Working Paper* (90). International Water Management Institute. Colombo, Sri Lanka.

Wertz-Kanounnikoff, Sheila. 2006."Payments for environmental services: A solution for biodiversity conservation?".*Idées poor le Débat* (12). Institut du Développement Durable et des Relations Internationales. Paris, France.

Wunder, Sven. 2005. "Are direct payments for environmental services spelling doom for sustainable forest management in the tropics?". *Ecology and Society*. 11(2): 23.

ISSN-On line: 2414-4959

Wunder, Sven. 2006. "Payments for environmental services: some nuts and bolts". Centro para la Investigación Forestal Internacional (CIFOR). Occasional Paper 42:24. Bogor, Indonesia.

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National and International Panorama of Honey production in Mexico

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Abstract

In this paper, the contextual framework of beekeeping by reviewing levels of honey production through the panorama of national and international markets will be addressed. The importance of honey production in Mexico is that the main market of this is in export honey has no nationwide direct consumption and the price is high, it is important to mention that the honey produced in the country is very appreciated abroad. The global market for honey experienced strong growth in terms of value in 2013, reaching record highs in excess of two billion dollars in transactions. In this growth have been strong market adjustments, which include increased global demand, the emergence of new importing and exporting success stories of countries that have implemented differentiation strategies based on scientific assessment of attributes its offer of bee products.

The national beekeeping, Mexico is located between the fifth and sixth place worldwide as a producer of honey, generating 56,000 average 500 tonnes a year for the past eight years, and as the third largest exporter. A trend of exports of honey and the opening of new markets served on several continents, on average, annually 36,000 tons sold abroad in the last three years, were exported on average 123 million dollars annually honey but in Mexico beekeeping it has been presented as a relevant activity due primarily to an important source of employment in rural areas of the country and a major currency scavenging activities in the livestock subsector.

Production, world market, honey, beekeeping.

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Introduction

According to Sanchez, et al, (2013), beekeeping is considered of great importance for food security of countries, not only for the direct taking of products such as honey, pollen or royal jelly and others; most relevance lies in the effect on pollination of commercial crops; FAO estimates that of the nearly 100 crop species that provide 90% of food supplies for 146 countries, 71 are pollinated by bees. The function of these insect pollination is considered vital for the maintenance of natural ecosystems for which its use is associated with reforestation projects and are used as bioindicators.

According to the Codex Alimentarius (2005) is defined as honey, natural sweet substance produced by worker bees using the nectar of flowers or secretions of living parts of plants or excretions of plant sucking insects plant on the living parts of plants, which the bees collect, transform and combine with specific substances of their own and store and leave in the honey comb to ripen and mature. Honey consists essentially of different sugars, predominantly fructose and glucose. The color of honey varies from nearly colorless to dark brown. The consistency can be fluid, viscous or partly to entirely crystallized. The flavor and aroma vary, but owns the plant from which it comes.

In Mexico beekeeping belongs to an emerging sector with a large potential market, the sector has overcome gaps in areas such as production, technical, technological, regulatory and commercial.

To Cash et al, (2000), until recently the national beekeeping was directly influenced by the behavior of the international market for honey, with nearly 90% of domestic production is destined for export; however, the actions taken by producers and authorities have led to that today approximately 50% of national production is consumed at home, so the development of the national economy, specifically the consumer has increasing influence on beekeeping.

According Magaña et al., (2012), with respect to the internal marketing of honey, the beekeeper sells little to the final consumer, and the price received generally depends on the number and market power of those involved in the process . The largest commercial channel is including industry, which uses honey as an ingredient for the production of food such as cereals, yogurts, candies and breads; or as raw material for the tobacco and cosmetics industry, occupying more and more products such as pollen, propolis and royal jelly.

In Mexico several types of apiaries are identified, which can be grouped into three broad strata differentiated by the level of technology employed, with the tech and craft.

World I- Panorama of honey production

According to the information available to the FAO (2011), the Food and Agriculture Organization, indicates that in the last 25 years no substantial changes were recorded in the levels of world trade in honey, on average in the period 1990-1998 honey trade accounted for 26.6% of world production. Particularly in the year 1996 so as much honey imports was presented with a volume of 341.843 tons which represented 31.3% of world production. For 1998, exports registered sales amounted to 297.930 tons, involving 25.7% of world production for that year.

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As Campos (2006) cited by Blengino (2013), during the period 1990 to 2012 world production step 1.25 to 1.27 million tonnes mentioned, this implies that an average annual growth rate "MACT" item was held 0.1%. These figures therefore indicate which despite the reduced growth rates, there has been an increase in the total volume of this business, which is a positive indicator when compared with other sectors of world agriculture.

Honey production worldwide is characterized by its diversity, determined by geographical and climatic factors, as suggested Blengino (2013), China comprises about 35% of world production of honey. Followed by Turkey, Argentina, Ukraine, United States, Russia, India and Mexico, with shares of around 6% in total.

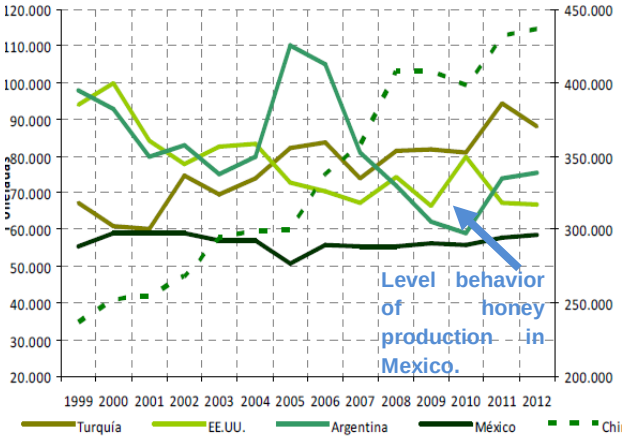
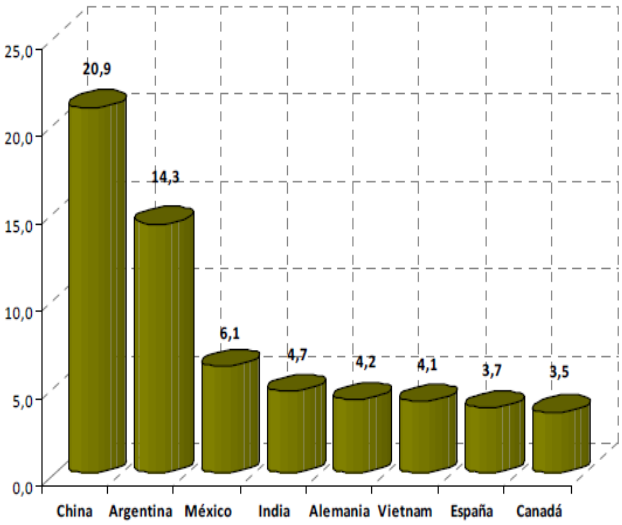


Figure 1 World production of natural honey

As shown in Figure 1, these production levels remained relatively constant over the last years. As you can see, in terms of producers, China is climbing maintaining its dominant position in the sector. In ten years the production of natural honey 65% increase while the United States has lost ground, with a reduction of 14% between 2002 and 2012. Both Mexico and Turkey have managed to maintain their market position over recent years, but without being able to increase their levels of honey production.

For the Food and Agriculture Organization FAO (2011), Mexico beekeeping production in the periods between the decade of the 90's, and the environment under which the activity and expectations developed. Both in 2008 and 2009 the volume of world production of natural honey reached 1.5 million tons. In 2009, 42.4% occurred in Asia, 23.5% in Europe, 21.0% in the Americas and the remaining 13.1% in Africa and Oceania. The indicated percentage corresponds to the participation of each country until 2012, Ministry of Economy (SE) and Bank of Mexico (BM). Based on data from SIAP-SAGARPA (Department of Agrifood and Fisheries Information) (Ministry of Rural and Agricultural Information Fisheries and Food), and National Institute of Statistics and Geography) INEGI.



Source: Agri based on Comtrade (2014).

Figure 2 Major Exporters of Honey in the World

The main South American producer in Argentina was consolidated in the last two years as second largest exporter and ranks among the top five producers in the world.

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Exporters	Exported value in 2009	Exported value in 2010	Exported value in 2011	Exported value in 2012	Exported value in 2013
China	125.697	182.513	201.375	215.051	246.550
Argentina	160.291	173.349	223.447	215.081	211.346
Nueva Zelandia	59.312	69.970	87.089	103.842	139.316
Alemania	110.016	109.864	120.716	127.246	134.316
México	81.739	84.743	90.359	101.497	112.352
Hungría	60.642	60.774	60.117	63.501	96.171
España	62.666	81.717	79.184	79.843	91.483
Vietnam	32.162	50.942	67.141	58.131	90.549
India	20.016	56.229	76.226	59.882	75.718
Otros	539.868	623.505	687.110	740.473	829.122
Mundo	1.251.909	1.493.773	1.692.870	1.764.663	2.028.214

Source: IFE - Exports Corrientes 2014.

Figure 3 Top 10 World Honey Sellers from 2009 to 2013, they are reported in thousands of dollars.

According to data provided by PASO (2014), almost a quarter of world production of honey produced in China and India, which is another important Asian country, occurred in 4.3% of the total. Among the major producers are also three European countries Turkey, Ukraine and Russia, which in 2009 participated with 5.4%, 4.9% and 3.7% respectively. In America the major producers are Argentina (5.4%); USA (4.3%) and Mexico (3.5%).

As the data shown by the IFE (2014), as shown in Figure 4, China and Argentina in the periods 2009 to 2013, they changed their positions between the first and second among the major exporting countries to different countries.

Mentions the organization PASO (2014), in 2013 Germany and Mexico were the fourth and fifth place, as can be seen the figure 3, with exports of 134 and 110 million dollars respectively. Overall, the rest of the exporting countries increased their market share, representing 58.3% worldwide, which represented an increase of 18.1% compared to 2012. These countries include Vietnam, Hungary, India, Belgium and Italy.

Importers	Imported Value 2009	Imported Value 2010	Imported Value 2011	Imported Value 2012	Imported Value 2013
USA	230.907	304.927	401.186	429.962	497.886
Alemania	256.093	289.073	277.955	279.468	322.004
Reino Unido	106.818	114.862	136.819	107.575	126.312
Japón	87.234	100.248	117.662	105.382	116.268
Francia	85.314	95.540	107.695	92.810	113.140
Italia	52.438	53.602	57.991	56.082	75.425
Bélgica	45.496	50.846	56.770	55.841	68.036
Arabia Saudita	29.482	48.332	52.443	62.016	57.235
España	36.928	38.042	43.559	48.292	53.047
Polonia	20.673	30.613	38.389	34.611	47.342
Otros	331.793	382.914	411.712	458.021	522.754
Total	1.283.176	1.508.999	1.702.181	1.730.060	1.999.449

Source: IFE expota Corrientes (2014).

Figure 4 Value of world imports, Honey, Country (millions of dollars).

To Blengino (2013), in 2013 Argentina is the largest exporter of honey in the world after China (21%), with a share of total world exports of around 14%, followed by Mexico, which is involved with 6% of the total. India, Germany and Vietnam follow them for stakes of 5% and 4% respectively.

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Regarding honey production as suggested by the Institute of Business Development IFE (2014), America's main supplier of honey to Argentina, exported worth $ 500,000 in 2013 well above the second salesman Vietnam is followed by India and Canada, ranking the United States imports, Brazil and Uruguay occupy the 5th and 6th place respectively.

According to IFE (2014) It can be seen in Figure 3, in the case of Argentina, exported worth $ 500,000 more in 2013 compared to 2012, well above the second vendor who is Vietnam followed by India and Canada, the largest importers of honey are: United States, Brazil and Uruguay occupy the 5th and 6th place respectively.

According to IFE (2014), Germany, this country is the second largest buyer of honey, with an annual consumption of almost 1kg., Annual honey per year, consumes about 88,000 tons of annual consumption in the market as from 40 years remains largely unchanged, where the average monthly expenditure on honey of a German household is 2.02 euros, being remarkable power in this market since 40 years remains largely unchanged domestic consumption of honey.

During 2013, total exports of beekeeping totaled $ 214 million, 2% less than in 2012. A much less were exported 65.165 tons per year (-14% annually) tons at a price per ton of 3,285 dollars per ton, which increased in 2013 (+ 14% annually).

One of the main importers of honey is Germany in recent years, also other importers are the United Kingdom, Saudi Arabia, United States, among other markets for Mexican producers could bring benefits to beekeeping to venture into these markets.

Mexico ranks third worldwide exporter of honey and is the fifth largest producer after China, Argentina, USA and Turkey. According to FAO (2014), production totaled 1,073,017 tons worldwide. To size the difficulties for export of honey from Mexico, it is necessary to emphasize the lack of competitiveness of beekeepers and the consequent decline in their share of world honey market. Particularly in the market in the United States, Canada and the European Union. Beekeeping is an activity that has represented and represents an important role in the agriculture of the country, thus creating jobs in rural areas, such as pickup establish itself as the third foreign exchange earner of the agricultural sector for their honey production levels .

The behavior in production levels as Agoaliments (2014), the fifth largest exporter of honey is Mexico has a high quality production, prized for its properties, as well as its aroma, flavor and color, in various countries of the Economic Community European and United States of America. It is highly appreciated internationally because of their aromatic qualities, taste and consistency. From the "creamy" Altiplane honey, harvested in autumn, orange blossom honey spring of Veracruz and Tamaulipas, honey bell Oaxaca, Puebla and Guerrero; until aromatic honeys of the peninsula as Haabín, tzitzilche, Xtabentun and Tajonal, without forgetting the honey mangrove different Mexican coast.

All Mexican Honey has a market may be national, but especially international, as it exports over 60% of national production. According to the data presented by SAGARPA (2012), in recent years there is no great trade with northern neighbors (US and Canada).

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Especially with regard to the US, which have not taken advantage of the closeness that has geographic and market size NAFTA (North American Free Trade Agreement) and the possibility that we have in the European market with the FTA (Free Trade Agreement between Mexico and the European Union). In the case of Mexican producers it is not taking advantage of agreements that need marketing.

The beekeeping industry has gained considerable importance in terms of production volumes and product quality. His leading role in the global market lies in the evolution of quality and reliability, requiring producers of honey, approval of increasingly demanding international standards.

Environment Context of Honey Production in Mexico

The honey is a very popular food sweet substance and is the main product of beekeeping, an activity that relates to the breeding and exploitation of the working bee Apis mellifera. To produce honey, bees collect nectar from flowers, transform and combine with their own substances and then store and leave to mature in hives. As Eagle et al (2008) mentions, beekeeping is an economic activity in the primary sector, the honey produced by bees is a delicacy of sweet taste.

Also they produce wax used in the manufacture of cosmetics, candles and waterproofing materials.

According to Gonzalez (2009), it is necessary to stop considering this agricultural branch as an activity of individual character, and start seeing bees and beekeeping as an indispensable heritage of society, because they ensure the pollination of many species plants that are part of the human food chain, agricultural contexts that still can not meet the growing demands.

Also according to Garcia and Ramirez (2012), this way the Mexican honey listed worldwide for its high quality, it deals in the top three places in the livestock sub-sector as a generator of foreign exchange through export.

Villanueva and Collí (1996), Munguia (1999), Zapata (2011), the national beekeeping is a productive activity that benefits the rural sector, especially the social type that is located in marginalized areas, where agriculture is not develops extensively, that takes advantage of the nectar of the main sources of pollen-bee resource areas of the country. And it has traditionally been a complementary activity of the peasant agricultural activities, particularly in the southeast region where it occurs more acutely. Mentioned Trevino (2014), beekeeping is an activity that has great socio-economic and ecological importance, since it is regarded as a major foreign exchange earner livestock activities. All products and byproducts obtained from beekeeping generate direct income and jobs for rural people, Mexico is recognized internationally for its production of honey of excellent quality and the variety of flora and climatic conditions that they support their potential.

According to research conducted Echazarreta (1999), quoted by and Guemes (2004), by the foregoing shows the social subsistence activity in the area, based on the immediate availability of the most and valuable resource that gives you even survive: family labor, seldom accounted for calculating production costs.

Its use is not a cost but responds to the logic of survival; the beekeeper is not only in production, has on average more than three family support, or the absence of them, seek the help of other beekeepers by lack of capital to hire more labor. So it is estimated that over 80,000 people are linked to beekeeping during the year.

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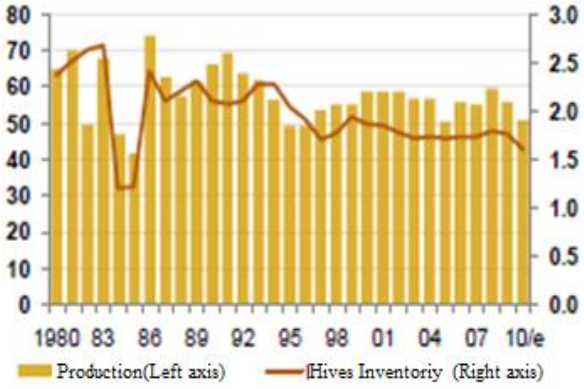
Until a few years ago in the early 90 national beekeeping it was directly influenced by the behavior of the international market for honey, with nearly 90% of Mexican production of this food was intended for export. Mexico exports four out of ten tons produced, which are obtained about 60 million dollars a year for this item.

Mexico plays an important role in international trade of honey, positioned as the third largest exporter; Mexico has gone to the international market for 47% of domestic production during the period 1995-2002 despite the ups and downs that can be found during the period. What is clear is that Mexico managed to keep export levels above 22,000 tons, even to exceed 30,000 as it was in 2002.

The main destination of Mexican exports as ASERCA (2004) of honey is primarily the European market, where Germany, the world's largest importer, absorbing 61% of the value of total exports during the period 1995-2002, while United Kingdom 10% and Belgium 1.2%.



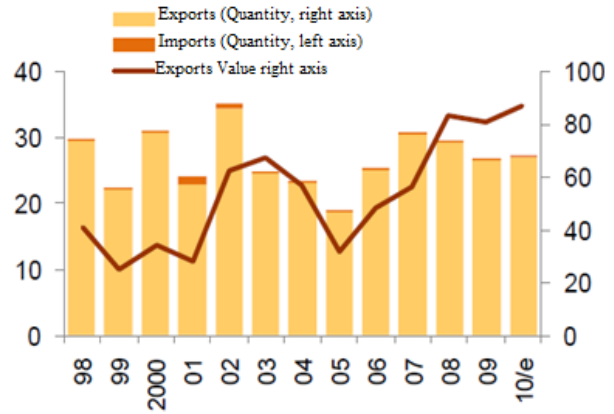
Source: SIAP-SAGARPA, FR (2011).
Executive Director of Industry Analysis.

Figure 5 Honey Production and Inventory Beehives in Mexico.

Mexican beekeeping according to Bancomext (2005), in the period 2000-2003 showed an increase, standing at 59.069 tons, indicating a positive average growth rate of about 0.4% were reported.

In the period 2000-2002, the value of honey production totaled 1,011,892 thousand pesos. These data are significant because they indicate that the participation of beekeeping in the livestock sub sector is growing. 82% of honey production is concentrated in 12 states, among which Yucatan with 14.7% of the total; Veracruz with 11.8%; Campeche with 11.24%; Jalisco 10.61%; Guerrero 7.5%; Chiapas 5.9%; Puebla and Quintana Roo 5.6%, with a share of 4.4 percent.

Mexico is exporting honey according to SAGARPA - FR (2011), Mexico is exporting honey, as shown in Figure 6, 2002 the maximum quantity exported, which amounted to 34,456 tons with a value of 63 is reached million, which decreased to 19 000 tonnes in 2005 with a value of $ 32 million, the fewest recorded between 1998 and 2009. Between 2005 and 2007 again recorded an increase in the amount of exports of 62% which decreased nearly 13% by 2009, to settle at 27,000 tonnes with a value of $ 81 million. In 2009, Mexican exports of honey were allocated 61.2% in the second largest importer, Germany.



Source: INEGI - SE (2011).

Figure 6 Exports and Imports of honey.

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12.7% goes to the United Kingdom, 7.6% in Switzerland, 6.6% in Saudi Arabia, the United States 6.1%, 3.1% to Belgium and the remaining 2.7% to countries like Japan, China, Spain, Venezuela, among others.

Sales of Mexican honey exports to be made through the customs agency in Mexico according Gurria (2015), totaled $ 147 million, not recorded in the last 20 years number.

Also, in the last three years were exported on average 123 million annual Honey dollars, the general coordinator of Livestock, the national beekeeping is located between the fifth and sixth place worldwide as a producer of honey reported, generating 56,500 average tonnes per year the last eight years, and as the third largest exporter, Germany tops the list of buyers of Mexican honey, and acquires 43% of production exported; United States, 25%, followed by Belgium with 12%, this country bought in 2014, 3,000 more than in 2013, he said, that in 2014 new export destinations such as Portugal, Colombia, Panama and Canada opened tonnes , which together account for 111.9 tons with a total value of $ 396.154.

It is currently engaged in beekeeping about 45,000 producers, distributed in all states of the country, who work with 1.9 million hives. But the amount of production is not increased by the lack of measures to potentiate this sector.

Depending on the level of technology that has the beekeeper will be the amount of honey to produce, according Echazarreta and Cash (2005), modernized 60-70 kg per hive, I semi technified 30-45 kg and not modernized of 25-30 kg of honey per hive the years.

According to FAOSTAT (2013), quoted by González (2014), Mexico ranks as the sixth largest producer in the world and the third largest exporter of honey.

For SAGARPA (2012), Mexico's status of being a producer of high quality honey, is the fundamental point that a high influx into question the foreign market to make sales, there arises the need for marketing own that international markets are made today, with the need to make beekeepers have instruments that allow them access to the demands and dynamics of the export market.

Despite the current position of the Mexican honey in international trade, it is essential to preserve and improve the quality of honey to satisfy a market every day stricter, more rigid standards that ensure quality are presented. Currently, the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), is responsible for issuing the exporters a Health Certificate Export this as an introduction to the international markets in order to maintain the reliability and presentation to international markets and thus to maintain the reliability of Mexican competitiveness.

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Num.	Entity	1991	%	Entity	2007	%
	Estados Unidos Mexicanos	106 802	100	Estados Unidos Mexicanos	33 981	100
	Península de Yucatán	19 065	17.9	Península de Yucatán	19 203	56.5
1	Yucatán	10 376	9.7	Yucatán	11 019	32.4
2	Michoacán de Ocampo	7 533	7.1	Campeche	5 067	14.9
3	Puebla	7 455	7.0	Quintana Roo	3 117	9.2
4	Jalisco	6 456	6.0	Chiapas	2 324	6.8
5	Veracruz Llave	6 217	5.8	Veracruz Llave	1 569	4.6
6	México	6 121	5.7	Puebla	1 440	4.2
7	Chiapas	5 859	5.5	Oaxaca	1 167	3.4
8	Zacatecas	5 570	5.2	Guerrero	961	2.8
9	Guanajuato	5 394	5.1	Jalisco	727	2.1
10	San Luis Potosí	5 271	4.9	México	688	2.0
11	Hidalgo	4 764	4.5	Michoacán de Ocampo	590	1.7
12	Oaxaca	4 537	4.2	Hidalgo	560	1.6
13	Campeche	4 404	4.1	San Luis Potosí	560	1.6
14	Quintana Roo	4 285	4.0	Guanajuato	538	1.6
15	Guerrero	2 907	2.7	Zacatecas	507	1.5
16	Durango	2 337	2.2	Chihuahua	326	1.0
17	Chihuahua	1 915	1.8	Sonora	318	0.9
18	Tamaulipas	1 876	1.8	Morelos	306	0.9
19	Querétaro	1 704	1.6	Sinaloa	301	0.9
20	Sinaloa	1 611	1.5	Tlaxcala	271	0.8
21	Nayarit	1 430	1.3	Durango	247	0.7
22	Nuevo León	1 309	1.2	Tabasco	228	0.7
23	Tabasco	1 292	1.2	Baja California	200	0.6
24	Tlaxcala	1 071	1.0	Tamaulipas	167	0.5
25	Morelos	958	0.9	Aguascalientes	162	0.5
26	Sonora	956	0.9	Querétaro	114	0.3
27	Aguascalientes	839	0.8	Baja California Sur	104	0.3
28	Baja California	723	0.7	Nayarit	103	0.3
29	Coahuila de Zaragoza	702	0.7	Distrito Federal	101	0.3
30	Distrito Federal	454	0.4	Nuevo León	77	0.2
31	Colima	266	0.2	Coahuila de Zaragoza	71	0.2
32	Baja California Sur	210	0.2	Colima	71	0.2

Source: INEGI (2011). Mexican United States.

Figure 7 Comparison of production units Stocks hives Entity Agricultural Census 1991 and 2007.

Because in Mexico the level of per capita consumption of honey is relatively low most of beekeeping production is intended for the international market, being even considered among the leading producers and exporters of high quality and worldwide, mainly in the European Union, where There is great demand for Mexican honey given its characteristics and quality properties.

The decrease in the census presented as the number of hives that are shown in Figure 7 between the two census events "INEGI" this decline may be due to lack of practice for control of the African bee and the varroa mite, a lack of strategies in government support, they have missed has to beekeeping in recent years, brought as a consequence that comes to low levels of honey, these factors have influenced the loss hives, consequently the actions that have been carried out have not been the most successful in recent years. However it has been showing increased demand for Mexican honey abroad, as well as weak demand in domestic consumption could be a point of opportunity.

Entity	Units of production	%	Hives content	%
Península de Yucatán	19 203	100.0	445 907	100.0
Campeche	5 067	26.4	135 767	30.4
Quintana Roo	3 117	16.2	54 174	12.2
Yucatán	11 019	57.4	255 966	57.4

Source: INEGI. (2011). Campeche. Quintana Roo. Yucatan.

Figure 8 Distribution Entity Production Units and Existence of beehives in the Yucatan Peninsula

As shown in Figure 8, according to INEGI (2011), of the entities that form the Peninsula, Yucatan is the one most stocks with 255,966 hives, spread over 11,019 production units representing 57.4% in both cases total mainland; next in importance Campeche with 135,767 hives in possession of 5067 units representing 30.4 and 26.4% respectively; Finally, there Quintana Roo 54,174 hives belonging to 3 117 units thus contributing 12.2 and 16.2%.

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Also according to INEGI (2011), Tabasco production represents only 0.3%, well below the regional average. Honey of this area has great national and international prestige, as it is characterized by its origin in single blooms, as tzitzilche and Tajonal, targeting mainly the market of the European Union.

The cultivation of citrus is of great importance in Mexico, SAGARPA (2013), the largest producer is the state of Veracruz, although it can not fail to mention Puebla, San Luis Potosi, Tamaulipas and Nuevo Leon among others. Within the Mexican citrus industry is the production of orange, tangerine, lemon, grapefruit.

The species of citrus (Citrus sinensis, Citrus limon, Citrus maximum, Citrus nobilis etc.) are medium-sized trees that grow in tropical and subtropical areas, whose fruits are delicious to the palate as you can taste fresh, dried and processed (juices , jams). A parallel activity to the citrus industry is the beekeeping,

Source: SAGARPA F. R., (2012).

Figure 9 Geographical distribution of poultry production zones in Mexico.

Which takes advantage flowering large agricultural areas of different areas and therefore the large extraction, honey considered "Citrus spp honey". Harvesting Honey Citrus spp occurs during the months of March, April and May.

For Flores (2012), it is noteworthy that the price of honey shows wide fluctuations due to the country of origin, factors of production and type of honey, competition in the market for related products, direct or indirect imports, quality of honey , market segment to which it is addressed and the country of destination.

In the North: The trends of lower participation in beekeeping (12.4% between 2005 and 2010) due to ecological and climatic conditions are unfavorable, among which climate variability, high temperatures and little rain, Data provided by INEGI (2011).

North Region

State	Price
Baja California Sur	39.00
Baja California	39.00
Coahuila	39.00
Chihuahua	39.00
Durango	39.00
Nuevo León	39.00
Sonora	39.00
Zacatecas	39.00

GULF

State	Price
Tabasco	36.00
Tamaulipas	36.00
Veracruz	36.00

Source: SAGARPA (2014).

Figure 10 and 11 Kilogram price of honey in 2013 in the Northern Region and Gulf Region.

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The Northern Region is characterized by excellent honey produced mainly mesquite. The price of honey produced in this region is the highest paid despite low production levels. The main international honey market is North America.

In the center or Altiplano Zone: This area is distinguished by clear amber and amber honey and butter called, that your presentation is highly desired, targeting mostly for domestic consumption in the country.

Data provided by INEGI (2012). The Northern Region is characterized by excellent honey produced mainly mesquite. The price of honey produced in this region is the highest paid despite low production levels. The main international honey market is North America.

In the center or Altiplano Zone: This area is distinguished by clear amber and amber honey and butter called, that your presentation is highly desired, targeting mostly for domestic consumption in the country.

Data provided by INEGI (2012).

Plateau

State	Price
Aguascalientes	40.00
Distrito Federal	40.00
Guanajuato	40.00
Hidalgo	40.00
Jalisco	40.00
México	38.00
Morelos	39.00

Center

State	Price
Puebla	38.00
Querétaro	38.00
San Luis Potosí	38.00
Tlaxcala	38.00

Source: SAGARPA (2014)

Figure 12 and 13 Kilogram price of honey in 2013 in the Altiplano region and Central Region

It has to be the second most important area with 36.1% of national production. Their conditions for beekeeping are more favorable.

Importantly, the states of Jalisco, the third largest domestic producer with an average of 5,698 tons produced annually in the period 2005-2010 and 10.3% share, Veracruz with 4,112 tons and average 7.4% share, and Puebla with 2,943 ton and 5.3% average participation is important to note that the flowering citrus prevails in northern Veracruz state. Data provided by INEGI (2012).

Pacific

State	Price
Colima	36.00
Chiapas	36.00
Guerrero	36.00
Michoacán	36.00
Oaxaca	36.00
Nayarit	36.00
Sinaloa	36.00

Yucatan Peninsula

State	Price
Campeche	34.00
Yucatán	34.00
Quintana Roo	34.00

Source: SAGARPA (2014).

Figure 14 and 15 Kilogram of honey price in 2013 in the Pacific Region and the Yucatan Peninsula.

In the South Zone: have a stake in the main producing area. It contributes 51.5% of national production. Highlights include the states of Yucatan with average 8,388 tonnes in the given period, ie 15.0% stake, and for example in the case of Campeche with 7,179 tonnes, 12.9% stake. Other participants in the levels of production states are:

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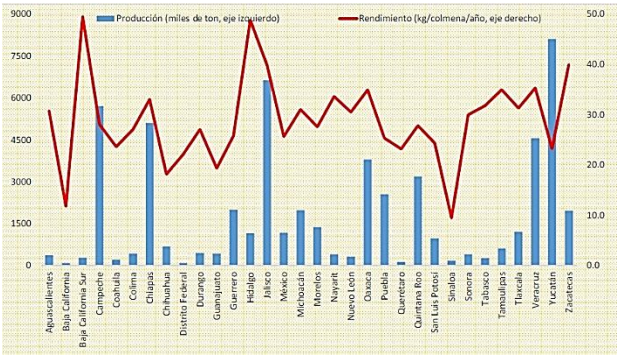
Guerrero, Chiapas, Oaxaca and Quintana Roo are also major producers and generated 7.3%, 6.5%, 5.4% and 4.0% respectively of honey production between 2005 and 2010. data provided by INEGI (2012).

Honey production in Mexico over the past four years Have Remained at around 56000 tonnes on average, giving it sixth place worldwide in honey production.



Source: Martinez SIACON data (2015).

Figure 16 Honey production in Mexico in 2014.

According to Martinez (2015), in terms of exports is concerned, Mexico is ranked fifth; during the last years and has averaged 26 thousand 600 tons, this means between 40% and 50% of total production that is aimed at countries like Germany, England and America, it generates annual revenues averaged 32.4 million dollars. Domestic production is concentrated in the Southeast entities as Campeche, Chiapas, Quintana Roo, Tabasco and Yucatan, the latter with the national leadership.

Producers nationwide are: Jalisco, Guerrero, Veracruz, Oaxaca, Puebla, Colima, Guanajuato, Hidalgo, Michoacan, Morelos, San Luis Potosi, Sinaloa and Zacatecas.

These 18 entities together account for about 90 percent of national production. In the case of the states of Morelos and Veracruz are rich in fruit trees (apple, peach, orange) and cazaguate flower, the latter very dear to give honey a special touch in its flavor and color.

Features of the Honey

Sainz et al., (2000), The flower honey is produced by bees from the nectar of flowers. Through its language, the nectar is swallowed and reaches the crop where it is mixed with saliva enzymes which, together with collecting the floral nectar, hydrolyzed sucrose nectar into fructose and glucose, the main sugars in honey. When the bee returns to the hive, the load of regurgitates nectar in areas close to the entrance of the hive cells.

Prost Jean-(2001). Where deposits and loses water through evaporation. After a few days, the nectar that has been deposited in the alveoli of the combs, is dehydrated to a water concentration of between 14 and 25%, while sugar concentration rises to 70-80% and its spectrum sugar is modified by enzymatic action. Finally, the cell lining bee honey and matured by a cover of wax.

Quality of Honey

As he mentioned in his work Soto (2005). Then mention of the importance of ensuring the quality of the raw material, ie, that honey is considered as a quality product is made, it must be within a range of 17 ° and 21 ° degrees of humidity, if exceeds 24 ° degrees, tend to decompose due to fermentation. The composition of honey depends on many factors harvested species, type of soil, geography, race of bees, physiological state of the colony.

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Average composition of honey	
Levulosa	40.50%
Glucose	34,02%
Saccharose	1, 90%
Dextrin and gum	1,51%
Ash	0,18%
Water	17,70%

Source: Biblioteca.universia

Figure 17 Media composition of the honey.

The great diversity of vegetation types and ecosystems found throughout the national territory, allows the beekeeper to have a wide variety of both flowering nectar and production seasons (monofloral). As a result of this diversity, natural resources determine the characteristics of both production systems and products that are obtained. It dominates the tropical rain forest and tropical deciduous forest and in addition there are extensive areas cultivated with citrus allowing the production of orange blossom honey characterized by their quality. This region in the north, crops are in a majority of oranges, tangerines and lemons.

Enciclopediagro (2012). Bee products are multiple products that are obtained from the tireless work of these admirable insects: Honey. It is obtained through the process of foraging (activity of the worker bees that involves collecting pollen and nectar bee flora of a particular geographical location). Because of its high sugar content, honey provides energy. Besides being an important source of vitamins and minerals, it contains a small amount of protein. Generally honey is consumed directly in food; also used in the production of syrups, candies, cookies, cakes, wine, etc. In cosmetology, it is an important ingredient of cold creams, masks, lotions, soaps and shampoos. Honey give stingless bees (Melipona) throughout Mexico have always been highly valued for its healing properties.

It is used, for example, against the discomfort of the flu and throat diseases of the eyes, bruises, pain during pregnancy and after childbirth general weakness. Among our Indians occupied an important place in pre-Conquest times: for the ills of the throat, honey hot applied snuff; epilepsy treated her with honey, and deafness with applications of warm honey with chili ears. The honey is sold mainly in the export market, consuming only 10% in the country.

Honey uses

MIFI (2009). Honey has its qualities recognized and used by humans since ancient times, as food and to sweeten naturally with power to sweeten twice that of cane sugar.

It is also used for therapeutic purposes because of its antimicrobial and antiseptic properties to help heal and prevent infection in wounds or superficial burns. In addition, it is used as raw material in cosmetic creams, cleansing facial masks, toners and other products due to its astringent and soothing qualities Nutritionally, honey is pure carbohydrates.

The most important nutritional property of honey is that it consists of simple sugars. These need not be digested sugars as they are directly assimilated by the body. This makes honey a quick energy source.

Honey is also rich in minerals such as Ca, Zn, which make it a highly desirable product in geriatric nutrition and school children. Most Common uses are:

I. Honey: It is used as food, medicine, cosmetics and toiletries, as well as to combine in industrialized corn flakes, cereals and other food products.
II. Beeswax: Used in cosmetics, toiletries, pharmaceuticals, polishes and candles.

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III. Propolis: is used as medicine and dietary supplement. It is sometimes known as 'bee glue'.
IV. Pollen: Pollen is used as a dietary supplement.
V. Royal Jelly: It is sometimes called 'bee milk'. It is used in cosmetics.
SAW. Poison: Poison is valued for its supposed medicinal qualities.

The predominant production system in beekeeping is extensive or craft, characterized by scattered producers, which have a small number of hives, which supply the regional market with a type of multiflora honey of different colors and qualities.

The traditional marketing channel used to carry your product from the farm to the consumer is the local direct selling, selling to middlemen and traders sale. The producer receives the largest share of the final price of the product, while traders higher marketing margins are awarded. Therefore for the small beekeeper may have more income will require increasing levels of beekeeping.

Conclusion

Currently the world honey production is around 1.1 million tons, where six countries; China, United States, Argentina, Mexico, Canada and Germany account for half of the total. In the last decade, world production and consumption grew strongly, a trend that is also reflected in international trade of honey.

According to data provided by the SER-SAGARPA Gurria (2015), In the last three years Mexico exported $ 123 million, annual average product; in 2014 were sold 147 million dollars, the general coordinator of Livestock reported. Currently they engaged in beekeeping about 45 thousand beekeepers, distributed in every state in the country, who work with 1.9 million hives.

Beekeeping in Mexico has a great economic importance, since it is regarded as major foreign exchange earner livestock activities.

All products and byproducts obtained from beekeeping generate direct income and are an important source of work for everyone involved in the chain of work, in addition, Mexico is recognized internationally for its production of excellent honey quality and favorable climatic conditions that support their potential beekeeping.

As for the fixed price per tonne of honey, this occurs at the lowest amount recorded in the last 10 years. Regardless of market growth honey, pricing of this product continues to take place based on the combination of the international price and parity that has the Mexican peso against the dollar, exports in recent years, mainly to the the countries of the European Union, USA, Saudi Arabia, and that can be increased by the high demand of these countries. Clearly, in the last two decades from 1990 to 2010, Mexican exports of honey have performed lower on the various factors discussed in this paper.

According to Bancomext (2010), Argentine honey exporters have shifted to Mexican exporters, the main markets for honey, beekeepers and exporters (gatherers product) compete with Mexican producers and those of Argentina China mainly. For a strategy of market diversification is necessary to increase and integrate systematically the exportable supply of Mexico, and to do so must confront and solve a series of challenges related to beekeeping, with measures that balance with the good practices production and do not interfere with the nutritional and health status of honey and other bee products generated by the properties.

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In order to generate more income for beekeepers, it should follow a strategy of increasing production and product diversification to achieve technical standardization of honey. Required by the market in the United States and the European Union.

According to SAGARPA (2013), to achieve a significant increase apiary management according to regulations factor is the dissemination of the programs and the dissemination and monitoring of the National Program for Food Safety and Quality Honey in Mexico, this program promotes the application of Good Manufacturing Practices and Good Management Practices and Packaging Honey, this can be achieved through coordination with producers and marketers of honey and traceability program, the which avoids deviations in the natural composition of honey. These programs can allow the beekeeper to provide certainty in marketing your product, provide certainty to honey both regionally and nationally and confidence in the international market.

According Rello (2001), the production strategy of rural families depends on the experiences, initiatives and capabilities that used to combine the assets they own, and obtain various incomes to improve their livelihoods.

It is noteworthy that to increase production levels is not enough to implement a product management as suggested by SAGARPA (2013). Rello (2001), Pat (1999), quoted by Delgadillo (2005), Caro, Leyva and Chi (2012), Barradas and Hernandez (2013), also require the integration of actions to potentiate the livestock industry.

The prevailing system of production in the country is small producer, the process of commercialization and economic impact of this activity is not very good for the small beekeeper, it is this job opportunity you have to dabble with good production levels exposed depending on the demand for this product.

References

Angeles Toriz Carlos, Román de Carlos Ana María (2010), La producción apícola en México, Seminario de Historia de la Medicina Veterinaria y Zootecnia.,Facultad de Medicina Veterinaria y Zootecnia UNAM, Quezada, J. y J. González, "A preliminay study of the development of colonies of Melipona beecheii in traditional and rational hives". Journal of Apicultural Research. 33(3): 167-170.

Brisa Ceccon R. (2008).,El Comercio Justo en América Latina: Perspectivas Desafios, Universidad Nacional Autónoma de México, Ciudad de México, CopItarXives 2008. Copyright© 2008 por Brisa Ceccon R.,Publicado 2008 por CopItarXives.

Bueno, E. (2000) "La dirección del conocimiento en el proceso estratégico de la empresa: información, complejidad e imaginación en el espiral del conocimiento", en Bueno, E. y Salmador M.P. (Eds.): Perspectivas sobre dirección del conocimiento y capital intelectual, I.U. Euroforum Escorial, pp.55-56.

Financiera Rural (2011), Dirección General Adjunta de Planeación Estratégica y Análisis Sectorial Enero 2011 Dirección Ejecutiva de Análisis Sectorial, 2011,
Fuentes: Codex Alimentarius para la miel CODEX STAN 12-1981.

ISSN-On line: 2414-4959

"La producción de Miel en México" (1993), "La Producción de Miel en México (2004), Modernidad y Tradición" (2005), "Programa Especial de Inocuidad de la Miel" (2010), "Producción de Miel en México, Modernidad y Tradición" y "Situación Actual y Perspectiva de la Apicultura en México" (2010), publicados en los números 4 (diciembre 1993), 128 (abril 2004), 137 (enero 2005) y 199 (marzo 2010), respectivamente, de la revista Claridades Agropecuarias de ASERCA,

Fuentes: Artículos "Programa Especial de Inocuidad de la Miel", "Producción de Miel en México, Modernidad y Tradición" y "Situación Actual y Perspectiva de la Apicultura en México", publicados en los 128 (abril 2004), 137 (enero 2005) y 199 (marzo 2010), respectivamente, de la revista Claridades Agropecuarias de ASERCA, Plan Rector del Sistema Producto Apícola (Distrito Federal).

Dirección General de Ganadería o del Centro de Estadística Agropecuaria (2011), Análisis Económico de la Producción de Miel Bajo Protocolo, Esta publicación puede ser obtenida electrónicamente a través de Internet, en los apartados de Publicaciones de la Dirección General de Ganadería o del Centro de Estadística Agropecuaria: Indicadores de actividad Económica No. 70: http://www.sagar.gob.mx .

García A., Notas Sobre la Teoría General de Sistemas [on line], España: Universidad Complutense de Madrid, 1995. Disponible en: http://revistas.ucm.es/byd/11321873/articulos/RGID9595120197A.PDF

Hernández S. R., Fernández C. C. y Baptista L. P.,(2011). Metodología de la Investigación, México: Mc. Graw Hill.

Monroy G. S., (1995). Una Introducción a la Metodología de Sistemas [on line], México: Centro de Estudios Superiores en Educación. Disponible en: http://www.cese.edu.mx/revista/metodologia_de_sistemas.htm

Parada P., (2011). Estilo de Referencias IEEE [on line], España: Universidad Carlos III de Madrid. Disponible en: http://www.giaa.inf.uc3m.es/docencia/ITIG/ReferenciaIEEE.pdf

Sitio oficial de la Organización Mundial del Comercio (OMC) (2007). Disponible en www.wto.org, consultado el 15 de marzo de 2007. Sitio oficial de Network of European Worldshops (NEWS). Disponible en: http://news.conaxis.de/index.php, consultado el 22 de abril de 2014.

Tamayo y Tamayo, (2003) El Proceso de la Investigación Científica, Editorial Limusa, S.A. de C.V.,Grupo Noriega Editores, Cuarta Edición, México.

UNIVERSIDAD DE OCCIDENTE,(2010). Centro de Asesoría en Negocios Internacionales, contacto: B. Juárez 435 Pte. Los Mochis, Sinaloa, México, Tel. 01 (68) 12-66-17.

Zamorano H.,(2001). Introducción a Conceptos Básicos de la Teoría General de Sistemas, [on line], Argentina: Facultad de Ciencias Económicas y Estadística de la Universidad Nacional de Rosario. Disponible en: http://www.galleanoyzamorano.com.ar/facultad/pp2-23.pdf

ISSN-On line: 2414-4959

www.nexoveracruz.com/infonero/alamo/6753-disminuye-la-produccion-de-mi...El presidente de la Asociación de Apicultores de este municipio Gustavo Aranga, dio a conocer que debido a los cambios climáticos que se han originado.(2011). Fuentes de Información. Consultado 2014.

Reyes R., Soto M.., (2014)., Método Sistémico para el Desarrollo de Proyectos Mecatrónicos Terminales, (Diseño de Conjuntos-Ingeniería de Proyectos), 2014, No. Reg. 03-2014-042912582900-01, INDAUTOR.

Jiménez T., Acebo C., Castro A., Aguilar J.., Betancourt P.,(2010). Integración de Tecnologías para Incrementar las Producciones Apícolas en Cuba. Instituto de Biotecnología de las Plantas. Universidad Central "Marta Abreu" de Las Villas. Cuba.

Contreras E., Pérez A.., Echazarreta C., Cavazos A., Macías M., Tapia G.. (2013). Características y situación actual de la apicultura en las regiones Sur y Sureste de Jalisco, México. SURESTE Revista Mexicana de Ciencias Pecuarias 2013;4(3):387-398.

Personas entrevistadas:

*Productor Apícola: Julio Sierra Martínez, Asociación de Apicultores de Álamo Veracruz.

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González R (2009) NoticiasApicolas.com. 19 de Agosto, Director de Apicultura sin Fronteras y NoticiasApicolas.com.

Méndez, I. E (2003) Verbenaceae. En: Greuter, W. (ed.). Flora de la República de Cuba. Fascículo 7(3). A.R. Gantner Verlag KG. Liechtenstein.

Pimentel y Ravelo, 2007. Flora apícola utilizada por la población natural de abejas de la tierra.

Vidal, F (1997). Panorámica del Mercado de la Miel en España. Agricultura, vol. LXVl, n° 774:24-32.

SAGARPA. SIACON (2010). Base de datos de la actividad agrícola, pecuaria y pesquera. México. Sistema de Información Agroalimentaria de Consulta.

Calendario para la coseñaanual de miel Fuente: M.V.Z. Oscar Trujillo Narcia, calendario apícola.

Nacional Financiera (www.nafin.gob.mx) y el Banco Nacional de Comercio Exterior, (www.bancomext.com.

Flores V. L., (2012). Competitividad de Miel en el Ejido el Progreso Municipio de Bella Vista Chiapas. Universidad Autónoma Agraria Antonio Narro. Division de Ciencias Socioeconómicas. Departamento de Administracion Agropecuaria. Tesis. Buenavista, Saltillo, Coahuila, México.

Gómez A. A. (1997). Eficiencia energética en la producción apícola. Universidad de Colima Facultad de Arquitectura. Tesis (Maestría en Bioclimática).

Sáinz C., Gómez C. (2000) ¨Mieles Españolas¨. Características e identificación mediante el análisis del polen. Ediciones Mundi-Prensa. Madrid-Barcelona-México.

Jean-Prost P. (2001) Apicultura. Ediciones Mundi-Prensa, Madrid-Barcelona-México.

ISSN-On line: 2414-4959

Secretaria de Economía (2014).

SAGARPA (2010). "RSAA". Situación Actual de la Apicultura en México No. 199, año 2010.

Caro E. J., Leyva M. M., Chi T. M. (2012). Comercialización de miel en el municipio de espita, Yucatán. Revista de Economía - Vol. XXVIII - Núm. 78, Págs: 9-35.

SAGARPA. 2009."Servicio de Información Agroalimentaria y Pesquera". México. En: Secretaria de Fomento Económico. 2010."Comercio Exterior". Revista Impulso Económico. No. 10. Gobierno del Estado de Yucatán. www.campomexicano.gob.mx/portal_siap/Integracion/.

SIAP (2010). "Balanza agropecuaria y agroindustrial". En:www.campomexicano.gob.mx/portal_siap/Integracion/Estadistica/Derivada/ComercioExterior/BalanzaComercial/balanzaAV.pdf.

Zavala O. J. A., Colomo G. Matalí P. N. A., Méndez V. A. y Vandame R., (2013). Miel de Cítricos de México.

SAGARPA (2013). Precios de Miel. Obtenidos por los Coordinadores Estatales del Programa y proporcionados por las organizaciones de apicultores y empresas comercializadoras (información del mes de septiembre). Reg. ISSN 088-179.

Barrera P. D., Valdés P., (2014). (AGRIMUNDO) Comercio Apícola, Diferenciación Oficina de Estudios y Políticas Agrarias. (ODEPA). Ministerio de Agricultura, Chile. www.odepa.gob.cl

Guerrero Cultural Siglo XXI, A. C. (2012). Apicultura, Chilpancingo, Gro., México, C.P. 39000. Email: guerrerocultural@hotmail.com, grocultural@enciclopediagro.org.

Gurría T. (2014). Exportaciones de miel, ComunicaCampeche. ttp://www.comunicacampeche.com.mx

DPCE – MIFIC (2009). Dirección de Políticas Comerciales Externas, Ministerio de Fomento, Industria y Comercio. Departamento de Análisis Económico. Managua, Nicaragua. www.mific.gob.ni

IFE (2014). Instituto de Fomento Empresarial, Informe Internacional de la Miel. Quinquenio 2009-2013. www.corrientesexporta.gov.ar .

SAGARPA F.R. (2011). Monografía de la Miel. Financiera rural.

INEGI (2011). Catálogo de especies y productos agropecuarios, forestales y pesqueros. Instituto Nacional de Estadística y Geografía.

http://www.inegi.org.mx/est/contenidos/espanol/metodologias/censos/cepafop/default.asp?c= (24 de enero de 2011).

Revista Mexicana del Caribe (2011). La apicultura en la Península de Yucatán: Actividad de Subsistencia en un Entorno Globalizado. Revista Mexicana del Caribe.

Zapata C. R. A. (2011). *Colmenas de maíz.* Universidad Autónoma Chapingo. Tesis.

INEGI (2011). Estados Unidos Mexicanos. Resultados definitivos. Tomo II. VII Censo Agrícola-Ganadero 1991-2007. Estados Unidos Mexicanos. Tabulados de resultados definitivos. VIII Censo Agrícola, Ganadero y Forestal.

Soto M. L. (2005). Mejoramiento integral para la producción de miel en Álamo Veracruz. ESIME. IPN. biblioteca.universia.net.

ISSN-On line: 2414-4959

Barradas H. j. E., Hernández G. A., (2013). Máquina Vertical para la Extracción de Miel. ESIME, IPN, Tesis.

Secretaría de Economía (2009). Oficina de representación en Tokio. Acuerdo de Asociación Económica México–Japón. Embajada de México en Japón.

Trujillo N. O. (2005). Calendario para la Cosecha Anual de Miel, Calendario Apícola.

Nacional Financiera (www.nafin.gob.mx) y el Banco Nacional de Comercio Exterior, www.bancomext.com.

Güemes R. F. J.; Echazarreta G. C.; Villanueva G., R.; Pat F. J. M., y Gómez Á,. R., (2003). La apicultura en la península de Yucatán. Actividad de subsistencia en un entorno globalizado. Revista Mexicana del Caribe, vol. VIII, núm. 16, pp. 117-132. Universidad de Quintana Roo. Chetumal, México.

Güemes y Ricalde, F. (2004). "Informe final. Proyecto Conacyt/Sisierra sobre 'Cultura de producción y consumo de miel ecológica en la península de Yucatán' 2000-2003", Chetumal, Universidad de Quintana Roo (Uqroo).

Güemes R. F., y Pat F. J. M., (2001). Condiciones actuales de la apicultura en el estado de Campeche, Campeche, Conacyt/Sisierra/El Colegio de la Frontera Sur/Uqroo.

Güemes R., F., y Villanueva G. R., (2002). Características de la apicultura en el estado de Quintana Roo y del mercado de sus productos, Chetumal, Gobierno del Estado de Quintana Roo/Sisierra/Uqroo/Ecosur.

Güemes R., F., Villanueva-G. R. y Eaton G. K., (2003). "Honey production by the Mayans in the Yucatán Peninsula", Bee World, vol. 84, núm. 4, pp. 144-154.

Urbeconomica (2014). Sectores de Producción Apícola en México. Por Zonas geográfica: www.urbeconomica.com/index.php...principales-productores-de-miel.

Blengino C. (2013), Sector Apícola. Área de Estudios Sectoriales, Dirección de Agroalimentos, Alimentos Argentinos. Informe de Coyuntura N° 3.

SER – SAGARPA (2015), Apicultores Mexicanos Logran las Mejores Ventas de Miel de los Últimos 20 Años. Secretaria de Relaciones Exteriores, Secretaria de Agricultura Ganadería, Desarrollo Rural, Pesca y Alimentación. Embamex.sre.gob.mx.

Barrera P. D., Valdés P., (2014), (AGRIMUNDO) Comercio apícola, diferenciación. ODEPA, Ministerio de Agricultura. Chile. Oficina de Estudios y Políticas Agrarias. www.odepa.gob.cl

Gurría T. F. (2015), A la Alza Exportación de Miel con Ayuda de una Agencia Aduanal en México. Grupo EI, Comercio Exterior.

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Competitive Strategy of Organizations and Production Function Beekeeping in Mexico

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Abstract

In the early 1970s, it is emerging strongly in the United States but also in other developed countries the idea that the production function directly affect the competitive strategy of the organization and started to generate the term operational strategy or production. The term production strategy "manufacturing strategy" was proposed by Wickham Skinner after doing a case study several US companies, located in India, Nigeria, Pakistan, South Africa, Spain and Turkey, in this study it was concluded there was very little concern on the part of companies towards decisions regarding operations and stated that if properly coordinated operational decisions with strategy of the organization, could achieve a significant competitive advantage, Skinner (1968). The livestock sector is not isolated from aesthetes circumstances, such as beekeeping currently has a number of problems that manifest themselves in crisis and the amount of production orientation, situation in which the producer has to income and to maintain itself in the middle to survive from the viewpoint of business.

Organization, production, competitive strategy, beekeeping.

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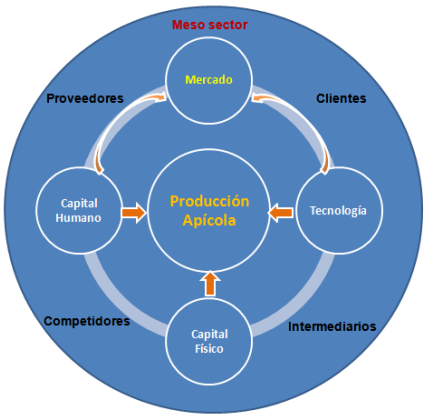
Introduction

The production strategy was seen as a purely technical activity without strategic importance, it is in 1969 when the author Skinner writes an article entitled "Production: absent factor in competitive strategy" when the focus of the production strategy is used. In this work the minimum critical importance that gave production companies in relation to the competitive strategy is carried out. Since then it begins to spread the literature on the subject of competitive strategy and organizations begin to consider production as a strategic activity. now you can study the factors that may affect the independent organization of its size, although this has direct influence on the elements of the activity, unless they can make decisions inside to seize opportunities that arise or safeguard small organization (as in the case of beekeeping) of the consequences that may arise within this field are decisions related aspects: economic, political, legal, social, technological and ecological Schermerhorn (2004), and must do with the country or the world as the competitive scope of the organization.

For others the livestock performance depends on external factors, but also developed by the same beekeeping organization to Thompson and Strickland (2004), internals strategy defines the way forward for the organization in the medium and long term concerns the variety of competitive measures and business approaches that are used to manage a cattle organization, competitive strategy can be seen from two perspectives, the first is the competitive conditions that are generated by the environment and technology and competitive capabilities referred to resources, strengths and weaknesses and market position of the organization. At present there is little empirical research on the production strategies beekeeping business and influence factors beekeeping have on profitability.

This chapter addresses the theoretical elements of production strategies and review of the concepts of production infrastructure and business performance using the following settings. The contingent perspective, which affects the consistency between production decisions and competitive business priorities and proactive perspective, focusing on the implementation of practices and promising policies for contributing to develop production capacities, this outlook is influenced by the beekeeping environment and that should be taken into account.



Source: Soto-Muciño.

Figure 1 Environment beekeeping

Business strategies emphasize the environment, for different subject matter experts, external and internal factors that are developed by the same company, as suggested by Thompson and Strickland (2004), the organizational strategy defines the way forward to medium and long term and refers to the variety of competitive moves and business approaches that are used to running the business.

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The strategy of the organization can be viewed from two perspectives, the first is the competitive conditions that are generated by the meso and industry and competitive capabilities referred to resources, strengths and weaknesses and market position of the This own organization is small, as in the case of beekeeping business.

A proposal from the view of several authors that have relevance to both the environment and to internal factors within the strategic process of a small beekeeping organization shown in Figure 1.

The infrastructure includes production systems, policies, procedures and organizational structures that support the production process and quality control, production control and inventory, human capital. The influence of the production infrastructure in the performance of small beekeeping organization and produces short and medium term as a result of a process that needs improvement.

Raises Avella (1999), so that the most competitive organizations in production are giving increasing importance to the structure and infrastructure, the strategic impact of the production infrastructure can be analyzed from two perspectives: the contingent and proactive. From the contingency approach it holds that the production infrastructure has been set up with the aim of achieving production goals (or competing priorities) defined in accordance with the business strategy. Meanwhile, proactive perspective underlines the commitment to the implementation of promising practices and policies for contributing to create production capacities.

In the case of beekeeping the imposition of the market in terms of production levels and regulations, since traditional systems are adverse production targets required by the market and this causes are clear of commercial competitiveness and diversity productive orientations, which means they will have to change the ways of current processes and the adoption of techniques and technologies that fit their environment, lack of training are conditions that increase their difficulty in making the kinds of decisions improving production or market linkages, difficulty in handling traditional forms of production, which refers to the producer's own choices when produce according to their own needs, is currently subject to guidelines of national and international policies and the market.

Strategy: Concept

The concept of strategy is old. The Greek generals led their armies both conquest and defense of cities. Each type of objective required different resource deployment. Similarly an army strategy could also be defined as the pattern of actions taken to respond to the enemy. The general had to not only plan, but also act. Thus, in the time of ancient Greece, the concept of strategy planning had many components as making decisions or actions together, these two concepts are the basis for the strategy.

"The word strategos initially referred to an appointment (the commander in chief of an army). Later it came to mean "art in general," that is, the psychological skills and character with which assumed the role assigned. At the time of Pericles (450 BC) came to explain administrative skills (management, leadership, and public speaking, power). And in times of Alexander of Macedon (330 BC) the term referred to the ability to apply force, defeat the enemy and create a unified global government "Mintzberg and Quinn (1995) system.

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The strategies of organizations are formed through commitments and actions integrators and regulated to give benefit to the competence of the organization and achieve sustainable competitive advantage. According to Hitt (2008), then all players should be clear about what you want to do and do not want to do. To achieve this coordination should be sought so-called "Strategic Alignment" which can be understood as the synchronized performance of different areas of an organization to achieve the same objectives.

Skinner (1969), cited by Domínguez (1995), in recent decades has been considered one of the areas whose alignment is key, is the operations.

Vision Strategy Organization

According Mintzberg, Quinn and Voyer (1997), in the field of administration, a strategy is the pattern or plan that integrates the major goals and policies of an organization, and also sets the coherent sequence of actions to perform. A well-formulated strategy helps bring order and assign, based both its attributes and its internal shortcomings, the resources of an organization in order to achieve a viable and original situation and anticipate possible changes in the environment and unforeseen actions of intelligent opponents. According to Johnson and Scholes (2001), strategy is the direction and scope of an organization over the medium to long term, and lets achieve advantages for the organization through its configuration of resources within a changing environment, to meet the needs of markets and meet the expectations of stakeholders.

"The strategy of an organization is the combined actions undertaken by management and aims to achieve financial and strategic objectives and fight for the mission of the organization.

This eventually will help us to how to achieve the goals and how to fight for the mission of the organization "Thompson and Strickland (1999), Ansoff (1965), states that" strategies are operational in policy terms meaning that, in an administrative system, define the operational criteria based on which specific programs can be designed, selected and implemented. "From the above it can be interpreted strategy as a pattern for achieving goals.

This pattern contains the set of actions to be taken in the form of specific plans with clearly defined goals, which contribute to a common effort to fulfill the mission of the organization.

Strategic management, which is also called business policy, refers to business management, so it is of special interest and principal task of the director of the company. Companies regardless of their size and characteristics are always competing for resources, customers, and new markets in order to achieve greater profits.

For this competition, companies have to make strategic decisions to survive. Some of these decisions have to do with the establishment of general and functional goals, the selection of products and services, the design and configuration of policies about how the company is positioned in the market, the choice of an appropriate level of diversification and company size, the design of an organizational structure that you selected strategies and policies on how to define and coordinate the work of managers and employees.

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Strategic Contingency

The contingent approach is traditionally used by authors Skinner (1985); Boyer, (1998); Adam and Swamidass (1989); Leong (1990); Hill (1993); Kim and Arnold (1996); Pagell and Boyer (2000); Sun and Hong (2002); Joshi (2003). In this view, the decisions taken within the functional area of production must be consistent with the objectives set in its business strategy; the effectiveness of the production strategy of a company can be assessed by the degree of consistency between the competitive priorities emphasized in the business strategy and production decisions.

The fit between the conceptualization of competitive strategy, competitive priorities, and improvement of operation through a production program, providing the key to developing the full potential of this production function as a competitive weapon according to these authors .

Some theoretical and methodological work of the aforementioned authors, issues also arise from the existence of a positive relationship between production competence and performance, in which it was concluded that the involvement and influence of those responsible for production processes making strategic decisions that can increase the performance of the company, through the alignment between manufacturing strategy and competitive strategy.

Hong Sun and others; Joshi studied whether business performance increases when overall direction and production management agree about competing priorities, these authors found that when certain conditions defined by organizational variables, according to the studies conducted were given, organizations seem to exhibit higher performance when implemented practices and policies that provide consistent production capabilities with their competing priorities.

The impact of manufacturing infrastructure on company performance may be contingent on the strategic position of competitive organization.

Proactive Production

Hayes and Wheelwright (1984) developed a four-stage model that reflects a path toward greater strategic involvement of the production function.

- In Stage I, this organizational area is considered neutral internally, since, through the activities performed therein are simply trying to minimize the negative impact this area can have in achieving the strategic objectives of the company but it is not expected that it make a significant positive contribution to their competitive position.

- Stage II, the production function is externally neutral, it is intended that this is as good as any competitor in the industry.

- Stage III, this business function acts as an internal support, to support the competitive strategy of the company.

- Stage IV, the role attributed to the production function is external support, ie, the competitive strategy of the company can rest, to a significant degree, on the skills that are derived from this production function, these stage show four levels of influence of this functional area in the process of making decisions of a strategic nature.

- The concept of Proactive Production has been introduced by Ward (1994), who distinguished between two dimensions of the proactivity of production:

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- The degree of involvement of the production function in the strategic processes of the business unit.

- The level of commitment to investment programs, long-term, infrastructure and production structure, aimed at building capacity in anticipation of the needs of the company.

For Gonzalez (2005), quotes Ward (1994), and defines this term Proactive Production as the tendency of an organization to be implemented in the production function through the practices, tools or management systems. For Shah and Ward (2003), suggest that the quality management, production maintenance and management of human resources, as the concept associated lean manufacturing practices, individually and jointly contribute to business performance. According to the proactive approach, investment patterns that demonstrate a positive influence on the performance prescribed and are interpreted as factors that can contribute to achieving a competitive advantage for an organization.

Production Strategies

The status of the thematic strategies of production, the place and conditions in which they are operating these actions become the basis for the approach to the improvement of the organization under study, the foundation for the strategic direction set forth .

Skinner (1974), in any consideration of the competing priorities of a firm in production underlies the "model of incompatibilities", known in the literature as a trade-off.

For Miller and Rogers (1964), presented a model entitled "Manufacturing Policy ', where four strategic approaches of an organization are collected,

- The first proposal states that there are two concepts in production. The conventional view is that a production system is constituted by people, machines and materials, through another approach, this is four aspects; the first is about continuous improvement, enhance detail does not serve as long as there is no structural change.

- The second approach is that the structure can be designed to make a limited number of tasks, because all system resources are limiting production; people, technology and management systems.

- The third approach is that there must be at least 7 criteria to be taken into account for the design of a production system; cost, speed, reliability, quality, flexibility to change product flexibility for changing volume and investment.

- The fourth tenet of the theory is that there is a poor system of decisions because the strategic objectives of the organization are unclear or are not defined and given that the production strategy is based on long-term decisions and this it is an essential part of the competitive strategy of the organization.

According to Skinner (1968) defines the production strategy as "the linkage that should exist between the decisions of business operations and corporate strategy" after other studies, the author states that one of the ways of measuring operations is the production. For some specialists have defined strategy in terms of the factors that generate added value to the system, Abernathy and Wayne (1974) define the strategy of production as "the balance between expected levels of costs against the loss of flexibility and innovation capacity. " For Schroeder (1984), "The set of four components; mission, distinctiveness, objectives and policies that help define the goals to be achieved by operations and how to reach them".

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This strategy should guide decision-making at all stages of operations and must be carefully integrated with the organization's strategy and the strategy of the other functional areas.

But Hayes and Wheelwright (1984), introduced the term competitive priority, such as road or strategic preference can select an organization to compete in the market, competitive priorities play an important role in the adoption of technology, process selection, capacity management, planning and control systems of production, development of employee skills and quality assurance.

- A series of strategic steps beekeeping. The first "internally neutral" phase is to minimize the negative potential of production, detailed internal process controls are done to evaluate its performance and production continues to be flexible and reactive.

- In the second "externally neutral" stage, it seeks to achieve parity with competitors following "the good production practices. The investment horizon of the plan in the small agricultural enterprise is extended to include it in the business cycle. The capital investment is the primary means for catch up with the competition or achieving a competitive advantage.

- The third stage: "domestic support" provides credible support the business strategy. Investments in the production system are selected according to the strategy of the small organization, livestock strategy is formulated and pursued long-term developments and trends in production they are systematically addressed.

- In the fourth stage "external support", based on a competitive edge production pursued. Efforts are being made to anticipate the potential of new practices and production technologies. Organizations that have achieved high levels in the development of its production.

Chase et. to the. (2005), the production strategy relates to the formulation of comprehensive policies and designing plans to use the resources of the organization so that support in the best way possible competitive strategy gives long term.

His approach Schroeder (1984), the production strategy consists of 4 basic dimensions that contain distinctive for each element, the mission of the operations function, distinctive capabilities, operational objectives and operating policies. The mission of operations is defined or derived directly from the strategy of the small organization and market, and states that operations should accompany the necessary strategy in this respect an organization can choose between low cost, high quality or maximizing capacity, this is defined in terms of purposes.

Distinctive competencies are the set of operations that alienates small livestock organization of the competition and can be defined in terms of uniqueness, for example the best technology to use, the application of knowledge in the management of the apiary, more guidance to people in the process, adequate facilities (meeting standards), the distinctive capabilities are defined in terms of resources.

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The objectives of operations usually relate to the cost, compliance, customer, process and product quality, asset utilization, human resources and flexibility, these objectives must be clearly defined and measurable way as part of the production strategy. Policies are usually measured as resources or functions to be performed by the area of operations and deal with aspects such as technology, human resources, capacity, inventories, quality, cost control, organization of work and the information system.

For Wheelwright and Hayes (1985), a production strategy is determined by the pattern of decisions currently being taken. (What is it ?, the owner makes the decisions?), Not by what he says the small organization, which is its production strategy, the more consistent are those decisions and to the extent that relies on those involved in the core business processes may be more effective production strategy. Although individual decisions are usually managed and supported by specific stages of labor, markets or technologies used, the main function of the production strategy is to put together all production capacities to enable it to continue its competitive strategy chosen in the Long-term small beekeeping organization. The dimensions of this strategy are as follows; capacity, facilities, technology, vertical integration and workforce.

On the other Swamidass and Newell (1987) side accepted the definition of Buffa (1984), who claims that the production strategy uses a series of answers you should choose a producer, emphasizing flexibility, market selection, quality or cost. For these authors the dimensions of the manufacturing strategy are: cost, quality, flexibility and reliability.

- Cost; It has to do with decisions concerning small economies, inventory policies, production enhancement and learning strategies / oblivion.

- Quality; It refers to quality control, training, technology and materials used, handling of the product produced.

- Flexibility; It refers to the economy of scope, time set, technology and migration.

- Reliability; It is achieved through decisions about systems of planning, programming and control systems, inventory policies, vendor management and capacity planning.

Hill's work (1989), qualified difference between market (order-qualifiers) and criteria to win orders (order-winners), the former are the objectives expected by customers, the production function should provide the criteria in levels and desired by them because otherwise the company will be in a position of competitive disadvantage features. Winning criteria orders are the reasons why customers buy products from a certain company, not those of other competitors, so are the attributes that differentiate the company's products.

But for Miller and Roth (1992), define the product strategy and the selection of patterns of exploitation taking place in the context of goals and objectives of the organization, according to their performance in production levels, size of the beekeeping organizations in three categories: small-scale, medium scale and large scale, and proposed seven factors of production strategy that can make it a success: process flow, advanced production processes, upgrading of capacity, restructuring, improving the total factor resource management program quality.

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According to Garvin (1993), before the continuous changes to which is subjected the environment and intensifying competition, companies need to develop production strategies based on a set of competing priorities or objectives in key production. The objectives relate to the aspects that the production function can operate to achieve a competitive advantage. The production strategy of each beekeepers to Miller and Roth (1994), consists of multiple tasks and best results are obtained when a combination of capabilities that when each is used singly differences strategies are associated to characteristics.

The degree of market differentiation and scope thereof, the large-scale beekeeping organizations, can not be driven by technology, but technology allows them to enter markets that apply different requirements and technology allows them to access them more easily , the domestic market can be motivated to maintain participation fee through the distribution system and respond to the opportunities of demand flexibility in their production volume. The lack of differentiation could be behind the demands of the market, where the choice is focused on price and product quality. For Hill (2000), the essence of the strategy stems from the need for small organizations to gain a detailed understanding of their current and future markets. Beekeeping strategy consists, therefore, the strategic tasks of production must meet to support beekeepers in the qualifiers and the orders of those who are exclusively responsible or jointly. These key elements are:

- Price; in many markets (national and international), particularly in phases of growth, maturity and saturation, price becomes an important criterion for winning order, the role of honey production is to cut costs enough to withstand price sensitivity of the market.

- Costs reduction; beekeeping organizations have particularly concentrated its effort to reduce direct costs, but you need to make an effort to do so in all aspects of the collection process.

- Experience curve; the basic phenomenon of the experience curve is that the cost of the process of collecting honey, how he behaves in a regular and predictable way as the total quantity produced increases.

- Reliability of supply; It is a function that affects both production and distribution, and is so important that it can form a winning order, for beekeeping this issue has to do with capacity, programming, and inventories both production levels as the collection times.

- Delivery time; a company can make orders through its ability to deliver faster than competitors or to meet the deadline required when only some or none of the competition can do.

- Quality of conformity; responsibility that are produced according to national and international specifications for the management of product produced.

- Increases in demand; markets in the ability of the small organization that will have to respond to increases in demand and is a major growth opportunity.

- Range of products; markets are characterized by increasingly seeking product difference, not similarity, however, beekeeping organization has to find a balance among other products produced by the hive and honey production volume.

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In the case of the production strategy and Ritzman Krajewski (2000), we can distinguish four types of priorities: cost, quality, flexibility and time:

- Costs; this kind of strategy is to deliver low levels of production sales price, implying lower production costs for a mass market to increase demand this can be national and international.

- Quality: This priority defines two characteristics, the first is the design of high-performance process and the second is the consistent quality of the product.

- Time; competitive priorities with respect to time are the rapid and timely delivery.

- Flexibility: consider the ability of small beekeeping organization to adapt to the changes required by the customer.

For Gaither and Frazier (2000), the production strategy is long term for the development of production levels of a beekeeping organization an action plan and provides a map of what to do if the production function are to be achieved decisions for business. Four competitive priorities are: low cost, delivery performance that contains two elements: fast delivery and timely delivery, high quality production, customer service and flexibility.

For Heizer and Render (2001), the strategy is the plan designed by the organization to achieve its goal. These authors establish three types of operational strategies: singling primacy in cost and rapid response.

- Singling: goes beyond the physical characteristics of the product and service, covering all aspects that influence the value that customers attach to it.

- Priority in the cost: achieve the greatest advantage from the point of view of the customer in terms of costs and production levels.

- Quick response: the response covers the entire range of benefits related to the development and delivery of the product in the allotted time and reliable control of time and a flexible implementation, quality management.

To achieve this they must apply the 10 strategic decisions of operations: planning of goods and services, quality, process planning and capacity, location, organization, human resources and job design, purchasing, inventory, scheduling and maintenance.

According to Miltenburg (2004), the production strategy, there is the need to measure improvement in a production system in terms of multiple competing priorities (multiple criteria), on the ground that the latter are more naturally related to a target market. The state of the art allows to state the existence of six basic competitive production priorities: quality, cost, delivery, innovation, flexibility and service.

Raises Chase et al. (2007), set in seven competitive dimensions production strategy. These are cost, quality and product reliability, speed of delivery, delivery reliability, volume change, flexibility and product quality.

According Nahmias (2007) considers the following dimensions: cost, differentiation, quality, delivery speed, delivery reliability and flexibility. For Collier and Evans (2009), the production strategy defines the way the organization runs the business strategy selected and provides 5 competitive priorities: cost, quality, time, flexibility and innovation.

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Diaz, Martin (2007), functional production strategy, collects the set of decisions, structure and infrastructure that must be taken to achieve the objectives of the production area defined and fixed in accordance with competitive strategy, in order to achieve better results and increased competitiveness.

Flowers and Vega (2010), the definition of competitive strategy applied to a particular economic activity, sector or business group has been managed since the beginning of the studies of strategic management between two variables or lines of action: (a strategy of cost, differentiation strategy). Both tools are the foundation for a competitive advantage against competitors of any economic sector.

Competitive strategic priorities shown by different authors, although they differ between what the organization should set as a priority, most agree the following:

Cost: small beekeeping organization seeks to produce at low costs, in this case as the gain product is so low, is offset by the large volumes of production, ie that such priority is adequate in two specific circumstances where the organization beekeeping has to satisfy a large market and when can guarantee permanently low costs compared to other competitors, when another competitor is able to lower their costs and handle the strict standards of the product, the organization loses its competitive advantage.

Speed: refers to the speed of delivery of orders, this type of strategy has become a great priority particularly when for small beekeeping organizations becomes difficult to compete with quality and cost is time, an important factor.

Compliance: the ability to develop the small organization to deliver the levels produced by the deadlines agreed with the client.

The authors consulted through their proposals of the exposed models that have covered the topic of production strategy, several approaches and differences between each of the models evaluated the authors studied, to analyze information differ two main concepts:

Competitive priority and strategic production decision, the first is the way the company is going to reach your target market with their products and responsive to organizational strategy and the second refers to the decisions of long-term They should be taken in the area of production and should respond to the type of competitive priority that the organization has decided to work.

A competitive organization

For a beekeeping organization is competitive in the market, it should have clearly defined the characteristics of this activity in its product range, which depends on its survival.

As mentioned Cleveland et al. (1989) suggest that the production function can contribute to improving the results, to the extent that companies develop strengths or competitive advantages in several operations priorities that meet customer needs and market requirements and, moreover, they are consistent with the competitive strategy. According to Garvin (1993), it considers that this competitive priority can be subdivided into the following categories: accuracy, speed and ease of processing of orders. However, most of the specialized manufacturing strategy literature considers that the items measures make delivery as a competitive priority production are two: quick deliveries, which means putting the product in the customer's hands the shortest possible time and the second item, on-time delivery or the fulfillment of the same, that is, the ability to get the product on the date and in the amount agreed with the customer.

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In proposing the competitive operational, Noble (1995), measured in terms of "serious or security of delivery" through the frequency of accelerations. However, no difference between the speed of delivery and on-time deliveries.

According to Ward et al., (1998), this competitive priority is the reference to "delivery time", that is, the ability to provide the right product at the time promised according to the program established. However, this assurance in meeting product delivery to the customer is not enough, the speed and the speed of delivery and is also necessary.

According to Skinner (1969), cited by Dangayach and Deshmukh (2001), and, in recent decades, interest improved through the production function and production strategy in particular has developed, both from a theoretical and empirical perspective due to the recognition of their contribution to improving the competitive position of the company and industry. From a theoretical point of view, a contextual framework that serves to clarify the need for production strategy as a functional strategy settle. According to these authors from an empirical point of view, the events produced in the companies confirmed the danger to consider the production function as a "neutral" function, unrelated to the other business areas, demonstrating the benefits of recognizing the strategic importance of this function and interaction and support it with competitive strategy. The need to improve organizations producing and increasing competition, with greater awareness of the need to give a strategic role in the production function.

According Arcudia, Pech and Alvarez (2005), as is the prevailing construction. At this property it is called homeostasis and is achieved through feedback compensating processes.

To illustrate this point it may be mentioned that when a company is not fulfilling their promises with regard to time and cost, the reaction of the environment would be disagreements expressed by customers. Which they could even become lawsuits.

If the company wants to survive you must receive this information and analyze what factors related to the operation, inputs or context, are involved in the problem, to apply corrective or remedial measures and eventually return to stable operation.

According to Swink et al. (2005) focus their research in decisions relating to the production process, management of relations with suppliers, management of human resources and quality management. The results show that these decisions are positively related to the capabilities and flexibility in product cost and volume.

To Brown et al. (2007) mentions that the process with high performance a positive relationship between production decisions regarding process technology, supply chain, capacity, location and distribution of facilities and the cumulative production capacity .

According to Perez (2007), in measuring the competitiveness of enterprises the Business Competitiveness Index (BCI), proposed by Michael Porter, which makes use of microeconomic indicators for measuring and evaluating the productive potential of an economy uses , manifested in the sophistication of its businesses and the quality of the microeconomic business environment.

At the microeconomic level, the process validated by Sarache Cardenas and Giraldo (2007), in the metalworking sector SMEs and the possibility of application in other sectors, proposes a scheme consistent improvement in three key areas, together called PSP:

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- The competitive priorities (P).

- The productive or production system configuration (S).

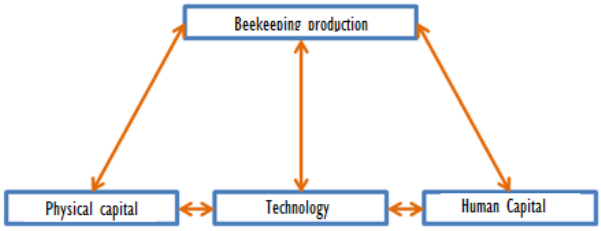
- Manufacturing levers (P).

To Krajewski, Ritzman and Malhotra (2008), the competitive priorities are:

"The crucial operational dimensions that a process must possess to satisfy internal and external customers, both today and in the future".

According Sarache and Ibarra (2008) they describe economic trends help and require that organizations focus their efforts on improving its performance factors, so that these must seek and give importance to functional areas such as operations, always looking for a complete consistency in the implementation and implementation of a strategic plan.

Cortés and Alvarez (2009), it could indicate a pattern of decision components that contribute to give answers to the above questions. Variables that guide the selection process, planning and scheduling of the various mechanical resources (machinery and equipment) required in different tasks that require good management and development of a crop.



Source: Cortes and Alvarez (2009), as amended by Soto-Muciño (2015).

Figure 2 Diagram of integrative disciplines.

Concurrence of variables, which allow product valuation likewise reduce impacts of some mechanical degrading practices on the ground and thus work the perspective of sustainability. All this will lead to formulate the set of mechanical operations more in line with the soil, climate and culture.

Cortés and Alvarez (2009), mechanization of field operations to respond to how, when and how to do it is critical in mechanized farming operations and is a central objective of the study of processes of agricultural mechanization. For the mechanization of field operations should be understood using a set of machines or systems, including animal traction, and manually operated tools, technical and economically organized by agricultural activity required tasks, looking for maximum performance with minimal waste of energy, time, money and without much impact on the environment.

Giraldo, Sarache and Castrillón (2010), an action of improvement in a production system should start by identifying the competing priorities and demands of the target market; from them, you should assess the consistency of the configuration adopted by the productive system and the performance of its subsystems or levers such competitive manufacturing priorities.

Car However, Gonzalez (2013), until very recently, the main concept used in production function has been the cost. Decisions and generally accepted for choosing alternatives, models were based on this concept. It does not think in other terms, or at least did not have the weight of it. The Production / Operations should take advantage of the cost without seeing the possibility of occurrence of any other combination of alternatives that could be handled.

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Landeros (2013), the voice of the customer in operations, it should be noted that the specifications say how to behave our product or service to satisfy the customer, however, say nothing about how operations should be to achieve, if we break one product or service, their parts are made in different departments of the company, each department has its own resources to build your share:

Staff and tools (considered as a tool the same to a computer system that machinery).

According to this author, the voice broadcast client operations is achieved when customer specifications become work instructions for each individual in each department involved in the production.

Strategy considerations for beekeeping in a small organization.

In the 80s Wheelwright and Hayes (1985), a picture that made organizations in different regions of the world will focus their strategies to present completely different aspects. Many countries, including the United States, focused on marketing as a source of strategic advantage, but the loss of markets for many companies and the intense competition that generated worldwide, allowed again the eyes turn to the field of operations .

In countries like Japan, Germany and Italy this same advantage focused from the beginning to the area of operations Hill (2000), although in other countries, for a long time this area was treated as a secondary activity of the company, whose shares It was not particularly important to the organizational strategy (Avella 1999). But long before, Skinner (1968) recognizes that through production strategy can get to establish a competitive advantage. In recent years many countries have become successful, changing the paradigm against the production area, this is the case of China.

The paradigm is based on the recognition that production can contribute to creating a competitive advantage in the small business and the role of the organization responsible for this transformation. To Chittipeddi (1992), this new paradigm, generates changes that establish a new strategy as organizations in the future will have to concentrate more on production as a source of advantage.

Assessment of the beekeeping process requires that the strategy is up and running is important to create mechanisms for ongoing evaluation in order to verify to what extent is fulfilling than planned and from that point begin to make adjustments at different levels for the achievement or redirection small beekeeping organization.

For Schulze (1992) proposes that there are two different models based on the resources, the first is the strong model and is based on the works of Barney (1991) and Wernerfelt (1984). This model emphasizes the importance of the model of behavior of rent, the second, the weak pattern is associated with the work of Grant (1991), Schoemaker (1990), and Teece et. to the. (1990). This model emphasizes the importance of efficiency in the organization. But even with the differences that characterize all models they have in common three elements:

- The first: the resources needed to conceive, choose and implement strategies are heterogeneous, Barney (1991), the second: differences in resource endowments are causally related to differences in product attributes Connor (1991). Third, the rent-seeking organizations are Rumelt (1987). These same characteristics are highlighted Connor (1991), when he explains the assumptions of the Theory of Resources and Capabilities (RBV).

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- In the case of M. Dominguez (1995) it raises eight strategic decisions which defines as a product, process, quality, capacity, distribution process, logistics, personnel and planning and production control.

- Organizations may have heterogeneous resources and strategic resources are not perfectly mobile, therefore, heterogeneity can be long lasting.
- According to Thompson and Strickland (2004) propose the following steps for achieving a strategy:

- Development of a strategic vision and business mission: Here we define what we want to convert the small beekeeping organization, and seeks to answer the following questions: what is the vision for the organization? Where should lead? What kind of business is trying to develop? What should be the configuration of the small business organization?

- Setting goals: Wanted convert the general guidelines of the organization in specific and measurable indicators to assess partial results with the business to what you want to be.

- Create the strategy for achieving the objectives: In this step we seek to define the course of action to follow for each of the levels of strategy, organization, business, functional and operational to align with the general strategy of small beekeeping organization.

In order to implement and execute strategy, here the small beekeeping organization shall establish mechanisms working in stages to run as planned in the previous steps, designing and implementing processes and procedures necessary for the fulfillment of its objectives.

For Kaplan and Norton (2004), attach great importance to the internal elements of the organization through the strategic map, set four prospects to be developed in a focused and aligned with their philosophy way, the 4 perspectives are financial, which is the way the small organization will respond financially, customer perspective, which sets the differentiating factors with which the target market (regional, national), the perspective of internal processes conquer.

It refers to the way beekeepers organized internally processes that will enable the achievement of its objectives and finally there is the prospect of growth involves personal development issues, comprehensive knowledge management, technology management and organizational capital.

Some authors as Miltenburg (2005), Anderson et al. (1991) and Skynner (1974), addressed this issue with different names within which this, Outputs Manufacturing production targets, tasks of production, production targets, but its definition are targets or goals for operations, which they are defined by the market. Miltenburg (2005) raises five competing priorities:

I. Cost refers to the manufacturing costs.
II. Quality refers compliance with customer specifications.
III. Delivery refers to the delivery of products to the customer, delivery reliability, speed of response to customer requirements and speed in processing orders
IV. Flexibility is the ability to respond to constantly changing internal and external agents that may affect the operational capacity
V. Innovation, defined as the ability to swiftly introduce new products or changes in existing

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Sarache and Ibarra (2008) mention that the objectives may evolve in parallel for different levels of the organization and referenced to De Meyer et al. (1989), which illustrates the development and improvements of priorities can make one by one and poses a sand cone model, where orders based on the quality.

Source: (. De Meyer et al, 1989) Amended by Soto-Muciño, (2015)

Figure 3 Sand Cone Model

Schermerhorn's approach (2004), which refers to the elements affecting the company without her having direct influence on these actors make decisions or having control over these factors, unless they can make decisions to take into the opportunities presented safeguard the beekeeping or small-business of the consequences that may arise within this field are decisions related aspects: economic, political, legal, social, technological and ecological and deal with the country or the world as the competitive reach of small beekeeping business.

Car and Gonzalez (2013), to implement an appropriate strategy of production, like any other functional strategy is needed continuous interactions between functions. For example, operations need market information to determine how to allocate capacity, operations and finances must work together with respect to time and the necessary funds for capacity increases.

Thus, identifying the operational capabilities needed for the future, the beekeeper responsible for operations must work closely with the staff of the process to respond to competitive threats.

Beekeeper responsibility is to plan the long-term future of the organization. For this, the small business must have a strategy of the organization, which is the plan of an organization that defines the business that it pursues new opportunities and threats in the environment and growth targets you want to have. This strategy is the small beekeeping organization must address the business strategy or how, for example, a small-business can differentiate themselves from their competition. Options include various possibilities and develop standardized or personalized products, compete on cost advantages or giving quick responses to customers.

Factors such as globalization, market s demands regarding the quality of production, demand for natural products, require increasingly competitive in order to survive and stay in a dynamic market beekeeping organizations being. According to Pardo (2005), this road will take shape in the different strategies, which would be guidelines to help choose appropriate to achieve the goals of the organization actions. For Amaya (2005), it stresses that the most important purpose in the strategies is to anticipate and decide on the future behavior of the organization to the challenges and market changes.

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Based on the reference to Miltenbug (2005), strategies are interconnected so that no functional area is left out to achieve maximum competitive advantage.

According to Thompson and Strickland (2004) propose the following steps for achieving the strategy of small beekeeping organization:

- Development of a strategic vision and business mission: Here we define what we want to convert the small beekeeping organization, and seeks to answer the following questions:

- What is the vision for the organization? Where should lead? What kind of small-company beekeeping is trying to develop? What should be the configuration of the beekeeping business small-business?.

- Setting goals: Wanted convert the general guidelines of the small beekeeping organization in specific and measurable indicators to assess partial results with the smaller organization you want to be.

- Create the strategy for achieving the objectives: In this step we seek to define the course of action to follow for each of the levels of strategy, business, functional and operational.

- Implement the strategy: Here the whole company should establish mechanisms in all areas planned to run in the previous steps, designing and implementing processes and procedures necessary for the fulfillment of its objectives.

- Implement the strategy: Here the small beekeeping company should establish mechanisms in all areas planned to run in the previous steps, designing and implementing processes and procedures necessary for the fulfillment of its objectives.

- Evaluation of the process: Once the strategy is in place is important to create permanent mechanisms of evaluation for verifying how much is being accomplished as planned and from that point begin to make adjustments at different levels to achieve or redirection Small-business.

To Tarjizán (2008), organizations throughout history have made major developments in technology, equipment, processes, quality and costs, among others, and these became their competitive advantages; but now everything is so easy to learn and copy, small-business beekeeping are facing even stronger challenges and developments and changes should be deeper, to meet the needs and expectations of an increasingly demanding and knowledgeable customer, besides that the client has a greater number of possibilities when negotiating (regional, national and international).

According to David (2008), must consider both internal and external elements and establish a model for the strategic plan, based on three main stages:

- Strategy formulation, where the organization decides what it wants to be, comes after a second stage of implementation, where the organization runs the formulated strategy and finally there is the assessment stage, which will strengthen or redirect the strategy according to the case.

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Some authors have focused on the development and strengthening of internal competencies in the organization to enable it to face the environment, rather than adapt to it. Within these theories is the Theory of Resources and Capabilities (RBV).

According to the approach of David (2008), takes into account both internal and external elements and establish a strategic plan based on three key stages: strategy formulation, where the company decides what it wants to be, it comes after a second implementation stage, where the company runs the formulated strategy and finally there is the assessment stage, which will strengthen or redirect the strategy of the company as irrelevant.

For Kaplan and Norton (2004), attach great importance to the internal elements of the organization through the strategic map, set four prospects to be developed by the company focused and aligned with its philosophy way, the 4 perspectives are financial, that is how the company will respond economically to its shareholders, the customer perspective, which sets the differentiating factors with which the target market be conquered, the internal process perspective, it refers to the way the organization internally the processes that enable the achievement of its objectives and finally is the growth outlook implies development issues of the improvement of physical capital, human capital and technological improvement.

According to the approach it has on the strategy of beekeeping organizations of small businesses. Flores mentioned and Vega (2010), small and medium enterprises (SMEs) are economic organizations formed to generate employment and income to support the family, they are almost always small businesses from the perspective of job creation.

However, many tend to grow and succeed based on strategic planning, a proper family environment, social responsibility, quality of products and services, use of technology and competitiveness of small businesses.

Competitive strategies are an essential part for the performance of family SMEs, as markets become increasingly competitive and demanding. In the globalized world, business organizations have found that the rate at which competition is growing increasingly consciously take this situation allows organizations to establish plans, strategies, actions and initiatives that deliver results and competitive improvements. Also, competitive strategies can be taken as a systemic approach towards more and increasingly important for the overall strategy of the bee family SMEs responsibility; ie relating to the small business environment (micro, meso and meta) establishing its position, so to ensure its continued success and protected against any contingency that may arise. Proper implementation or not of a competitive strategy can determine in the future the competitiveness of the organization and its performance in the market. However, for the implementation of this strategy it should be supported by the owners of small beekeeping business and have the accessibility, availability and capacity of staff to achieve the goals pursued by the SME family.

Conclusion

For a strategic approach in a small beekeeping organization, it is necessary to establish competing priorities defined, these priorities were raised in a series of consistent decisions in the process and infrastructure as suggested by Boyer and McDermott (1999).

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Therefore, the coherence between the priorities and decisions regarding changes in the process and provide the key infrastructure to develop the area's potential as a competitive weapon production Skinner (1969); Wheelwright, (1978); Schroeder (1986); Swamidass and Newell (1987); Hayes, (2005).

This strategy involves decisions about the design of a process and the need to provide support for the process infrastructure. The design process is related to strategic elements as selection of appropriate technology for extracting honey (process) and how beekeepers will get its production.

Infrastructure decisions are related to the shape of the small organization as the work plan, production control and product quality.

In the case of process technology, tasks and structure of the process characteristics, scale, materials used (complying with regulations) and labor. In this case the low-cost strategy implies that the contribution by production is lower, but is offset by the higher volume, the rate of capital investment rises while the flexibility of this investment drops and there is better weather and the division of labor that extend to the production process and are intended to rationalize and improve the flow line of work operations.

Moreover, the process is segmented to exploit economies of scale are small beekeepers and vertical integration, which allows the capture of sources of supply with reduced costs, because the costs can be minimized in the process is needed are generated. Streamlining the process leads to greater specialization in beekeeping tasks and can improve product handling and management of the required quality of product required.

These changes alter the process so that the skill needs of the flexibility of the craftsman will pass the skill of beekeeping expert. The strategy proposed in the production area will directly affect the development of capabilities in terms of production, quality, human capital, technology, in turn, the development of these production capabilities can affect the choice of decisions in improving the process and infrastructure that would make the functional production strategy.

Furthermore, both aspects that makes up the content production strategy, which influences the results of beekeeping organization.

References

Carro P. R., González G. D., (2012), Estrategia de Producción y Operaciones. Facultad de Ciencias Económicas y Sociales. Universidad Nacional de Mar del Plata.

URGAL G. B. (2007), ¿Cómo influye la infraestructura de producción en el rendimiento de las empresas manufactureras?. N.º de clasificación JEL: M11. ISSN: 1131 - 6837 Cuadernos de Gestión Vol. 7. N.º 2, pp. 13-27.

Molina D. O., (2010), Análisis de la Cadena de Valor Apícola en Honduras., PYMERURAL y PRONAGRO.

Porcuna J. L., (2007), Producción integrada. Una estrategia de tránsito hacia sistemas más sostenibles. Sanidad Vegetal. Consellería de Agricultura. Silla, Valencia. Ecosistemas 16 (1): 37-43. Enero.

Arias G. M.de los A., Leyva R. A., (2012), El Camino Hacia la Sustentabilidad Agrícola. Una Visión Sociológica del Cambio. Procuraduría Agraria, Cuba.

ISSN-On line: 2414-4959

Juan Manuel Pat F. J. M., López L. R., Wal H., V. D., Villanueva G. R., (2012), Organización social productiva: situación y perspectiva apícola de la sociedad unapincare en la Reserva de la Biosfera Los Petenes, Campeche, México. El Colegio de Sonora, ISSN 1870-3925.

Campos M., Suárez J. y Ojeda R., (2013), Modelo de gestión estratégica para la toma de decisiones en entidades agropecuarias. Implementación en una UBPC del municipio Martí (Parte II). *Pastos y Forrajes*, Vol. 36, No. 3, abril-junio, 364-370.

Ortiz-Avila T., Masera C. O. R., (2008), Subsidios y Estrategias de Producción Campesina: el caso de Casas Blancas, México. Revista Iberoamericana de Economía Ecológica Vol. 7: 61-80.

Chaparro D. C., at, (2009), Estrategia ARPCC en la producción de semillas germinadas. Grupo de Investigación Innovaciones Agroindustriales con Proyección Social, Facultad de Ciencias Agropecuarias, Universidad del Cauca.

Boza S. (2013), Incidencia de las políticas públicas en la evolución del sector agrícola-ecológico: el caso de Andalucía, España. SICI: 0122-1450(201307)10:72-291:IPPESA-2.0.CO;2-U.

Martín M. L., Díaz E.,(2007), El modelo de competencia en producción y la estrategia de operaciones: revisión, análisis y aplicación. Revista Europea de Dirección y Economía de la Empresa, vol. 16. Num. 1.pp. 137-158. ISSN 1019-6838.

Martín P. M. L., Díaz G. E., (2010), Un análisis del impacto de la estrategia de producción en los resultados empresariales. Revista Europea de Dirección y Economía de la Empresa, vol. 20, núm. 2 (2011), pp. 53-72. ISSN 1019-6838.

González M. C., Espilco B. L., Aragón L. E., (2003), Análisis de estrategias competitivas en sectores industriales del Perú. Vol. (6) 2: pp. 88-93. Estudiantes de la Maestría en Ingeniería Industrial Facultad de Ingeniería Industrial, UNMSM.

Porter, E. Michael. (1997). "Estrategia Competitiva: Técnicas para el análisis de los sectores industriales y de la competencia". Cía. Editorial Continental, México.

Vázquez, C. R.; Santos, V. M. L.; Sanzo, P. M.J. (1998), Estrategias de Marketing para Mercados Industriales: Producto y Distribución. Ed. Civitas S.A.,Madrid-España, pp. 65-98.

Kotler, Phillip; Armstorng, Gary. (1996). Mercadotecnia.Prentice Hall Hispanoamérica S.A., México, 6ª edición, pp. 700-715.

Hill, M. R., Alexander, S. R. y Cross, S. J. (1980). Mercadotecnia Industrial. Diana, México.

Healey, J.J. (1998). New Ideas in Industrial Marketing. Coram & Hill, USA, pp.21-28.

Álvarez F. S., (2012), Huertos orgánicos como instrumento estratégico para la regeneración urbana en canarias. la Universidad Internacional de Andalucía. Esta edición electrónica.

Algranti J, Bordes M., (2009), Observaciones sobre las estrategias de producción de sentido frente al cambio social Argumentos, vol. 22, núm. 61, septiembre-diciembre, 2009, pp. 159-185 Universidad Autónoma Metropolitana Unidad Xochimilco. Distrito Federal, México. ISSN: 0187-5795.

SEPYME (2010), Sistemas productivos locales. Políticas Públicas y Desarrollo Económico. ISBN 978-987-1560-16-5. Programa de las Naciones Unidas para el Desarrollo (PNUD).

ISSN-On line: 2414-4959

BOZA M. S., (2010), La agricultura ecológica como parte de la estrategia de desarrollo rural sostenible en Andalucía. Universidad Autónoma de Madrid Departamento de Estructura Económica y Economía del Desarrollo. Tesis.

Sánchez A. L. M., (2011), Estrategias de producción para PyMES colombianas del sector de la comunicación gráfica. Bogotá Colombia: Universidad EAN. ISBN: 978-958-756-122-7. Tesis.

Cardín P. M., (2010), Indicadores de Sostenibilidad para el Desarrollo Rural. Actitud y perspectivas de los agricultores. Universidad de Santiago de Compostela. Departamento de Ingeniería Agroforestal. Tesis.

Böcker Z, R.,(2005), Desarrollo, planificación estratégica y corporativismo local: El caso de Mar del Plata (Argentina). Facultad de Ciencias Económicas y Empresariales Universidad Rovira i Virgili. Tesis.

FERRO M. S., (2014), Análisis estratégico de los sistemas agroalimentarios agroindustriales de carne caprina de las provincias de la pampa y San Luis, Argentina**.** Universidad Nacional de Córdoba. Facultad de Ciencias Económicas. Tesis.

Pino D. J., (2011), Análisis Estratégico de la Investigación sobre Áreas Protegidas en España: Ingeniería y Cartografía del Conocimiento". Universidad de Granada. Tesis.

Kaplan y Norton (2004): "Mapas Estratégicos". Gestión 2000

Kaplan y Norton (2001): "Como utilizar el Cuadro de Mando Integral" (The strategy focused organization). Harvard Business School Press.

Niven (2004): "El Cuadro de Mando Integral paso a paso". Gestión 2000.

Porter, M. (2000). Estrategia competitiva. Técnicas para el análisis de los sectores industriales y de la competencia (edición revisada). 27ª. ed. México: Compañía Editorial Continental

Porter, M. (1999). Ventaja competitiva. Creación y sostenimiento de un desempeño superior. 18ª. ed. México: Compañía Editorial Continental.

Pozner de Weinberg, P. (2008). El directivo como gestor de aprendizajes escolares. 5a.ed. 5ª. reimp. Buenos Aires: Aique Grupo Editor.

Sarasqueta, V. et al (2010). Liderazgo y negociación: capacidades integrales para el desempeño eficaz de contextos competitivos. Buenos Aires: Temas Grupo Editorial.

Serra, R. (2000). El nuevo juego de los negocios. Los ganadores no son los mejores sino los que dominan el juego. Buenos Aires, Argentina: Grupo editorial Norma.

Scholes, K. (2001). Dirección Estratégica. 5ª. ed. Madrid, España: Pearson educación.

Ghemawat, P. y colaboradores (2000). La estrategia en el panorama del negocio. Texto y casos. México: Pearson educación.

Hax, A. & Majluf, N. (1997). Estrategia para el liderazgo competitivo. De la visión a los resultados. Barcelona, España: Ediciones Granica.

Johnson, G. y Scholes, K. (2001). Dirección Estratégica. Quinta edición, Madrid, España: Pearson educación

ISSN-On line: 2414-4959

Manés, J. M. (2008). Gestión estratégica para instituciones educativas: guía para planificar estrategias de gerenciamiento institucional., Buenos Aires, Argentina: Granica

Mintzberg, H., Quinn, B., Voyer, J. (1997). El Proceso Estratégico. Conceptos, contextos y casos. México: Prentice-Hall

Serna, H. (2007). Gerencia estratégica. Teoríametodología, alineamiento, implementación y mapas estratégicos índices de gestión, 9 ed. Bogotá: 3R Editores.

Punt, K. F. (2004). A conceptual synergy model of strategy formulation for manufacturing. International Journal of Operations & Production Management,

Sarache, W. A. (2001). La función de producción en la pequeña y mediana empresa de confecciones del Tolima. Congreso de Ingeniería de la Producción. Working paper. Medellín: Universidad EAFIT.

Sarache, W. A.; Cárdenas, D. M., y Giraldo, J. A. (2007). La estrategia de manufactura. Aplicaciones en la industria metalmecánica. Cuadernos de Administración, 20 (33), 103-123.

Skinner, W. (1969). Manufacturing - missing link in corporate strategy. Harvard Business Review, 1, 136-145.

Kathuria, R.; Porth, S.; Kathuria, N.; and Kohli, T. (2010). Competitive priorities and strategic consensus in emerging economies: evidence from India. International Journal of Operations & Production Management, 30 (8), 879-896.

Krajewski, L. y Ritzman, L. (2000). Administración de operaciones. Estrategia y análisis, 5a ed.,
México D.F.: Prentice Hall.

Leong, G. K.; Snyder, D. L.; and Ward, P. T. (1990). An exploratory study of the manufacturing strategy. International Journal of Management Science, 18 (2), 109-122.

Li, S.; and Scullion, H. (2010). Developing the local competence of expatriate managers for emerging markets: A knowledge-based approach. Journal of World Business, 45 (2), 190-196.

Lin, S. H.; Moore, M. A.; Kincade, D. H.; and Avery, C. (2002). Dimensions of apparel manufacturing strategy and production management. International Journal of Clothing Science and Technology, 14 (1), 46-60.

Hill, W. L. y Gareth, R. J. (2009). Administración estratégica, 8ª ed. México: McGraw-Hill. Ibarra, S. y Sarache, W. A. (2008). Dirección de la Producción: su papel estratégico en la competitividad empresarial. En F. Becerra (Ed.), Gestión de la Producción. Bogotá: Editorial Universidad Nacional de Colombia

Miltenburg, J. (2005). Manufacturing strategy. Portland: Productivity Press.

Hayes, R. H.; and Pisano, G. P. (1994). Beyond world class: The new manufacturing strategy. Harvard Business Review, 72, 77-84.

Domínguez, J. A.; Álvarez, M. J.; Domínguez, M. A., García, S. y Ruiz, A. (1995). Dirección de operaciones. Aspectos estratégicos en la producción y los servicios. Madrid: McGraw-Hill.

Ahmad, S.; and Schroeder, R. G. (2002). Dimensions of competitive priorities: Are they clear, communicated and consistent? The Journal of Applied Business Research, 18 (1), 77-86.

ISSN-On line: 2414-4959

Arafa, A.; and ElMaraghy, W. (2011). Manufacturing strategy and enterprise dynamic capability CIRP Annals Manufacturing Technology. Article in press.

Boyer, K. K.; and Lewis, M. W. (2002). Competitive priorities: investigating the need for trade-offs in operations strategy. Journal of Production and Operations Management, 11 (1), 1-13.

Wilensky, Alberto. (1997). Claves de la Estrategia Competitiva. (http://www.fundacionosde.com.ar/pdf/biblioteca/claves.pdf). Editorial: Buenos Aires: Fundación OSDE

Borello, Antonio. (2000). El Plan de Negocios, de herramienta de evaluación de una inversión a elaboración de un plan estratégico y operativo. México. Editorial
McGraw Hill.

Ferruzca N., M. V.; Rodríguez M. J., (2011). Diseño Sostenible: Herramienta estratégica de innovación. Revista Legislativa de Estudios Sociales y de Opinión Pública, num 8 (vol.4), pp47. Recuperado de: http://departamentodecienciapolitica.itam.mx/docinves/2012/Rev.Leg.%20num.%208%20completa-2012.pdf

Orgullosamente Hecho a Mano. (2013). Cool Hunting Magazine, Recuperado de: http://magazine.coolhunting.pro/libros/orgullosamente-hecho-a-mano/

Noriega L. G., (2013), Plan de negocios para la producción y comercialización de productos de diseño contemporáneo bajo la marca "Tributo", elaborados por artesanos mexicanos con técnicas tradicionales para iniciar operaciones en el mercado mexicano y posteriormente en el internacional. Facultad de Ciencias Económicas. Universidad Nacional de La Plata. Tesis.

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Mexican foreign trade through the Trade Policy Reviews WTO

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Abstract

The major changes registered in the Mexican foreign trade system can be considered a recenthistory, no more than thirty years old, could be defined as a series of important and deep transformations of the economical and foreign trade policies have caused a new orientation of it´s industries, now looking for new customers abroad. However, the results of the before mentioned efforts can be qualified as mixed. According to WTO´s reports, Mexico is one of the most free trade market in the world, and the country has been involved in the development of a series of reforms in diverse fields and reach. Such reforms have produced important changes in the ecomic and commercial arenas in the country which, amazingly, haven´t prompted a radical improvement in the economic growth and development conditions of most part of the country´s population.

Foreign Trade, Trade Policy, WTO, FDI, Mexico.

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The unilateral liberalization of foreign trade in Mexico

The report issued by the WTO on October 2, 1997, technically identified with the TPRB / 63 key, is the first assessment made by the WTO in relation to the Mexican economy and its trade policy. In it, the organization highlights the efforts of Mexico to continue the process of unilateral and gradual opening of its foreign trade. Mexican trade liberalization is mainly characterized by the negotiation of various trade agreements such as NAFTA, primarily, on the other hand, the reduction of tariffs by the treatment of Most Favoured Nation (MFN) treatment accorded to other member countries of the WTO, which together account for over 98% of world trade.[9]

The report highlights the growing dependence of Mexico's foreign trade, especially in the export destination relative to the United States, a trend that is not only maintained but has deepened. The ISU is illustrated when one considers that the proportion of Mexican exports to the US increased from 75% in 1992 to 80% in 1996.[10] The strategy of the Mexican government, since to date, with the increasing concentration of our foreign trade, has been nothing to negotiate trade agreements with several countries like Costa Rica, Bolivia, Colombia and Venezuela, with trade blocs like the European Union.

However, the result of that attempt to diversify the destination of Mexican exports has not had the desired result, but the concentration of Mexican exports to the US grew 85%.[11] The, as was projected by trade authorities in the late nineties, Mexican trade liberalization was characterized by the elimination of non-tariff barriers and amendments to laws related to public procurement, changes or amendments to the customs valuation and trade competition . A sign or evidence of Mexican trade liberalization is related to the greater protection offered by the country's industrial property and the rules governing copyright, which was a direct result of the implementation of the agreements they gave rise to and shape WTO, and satisfied the provisions of NAFTA on the matter.

A characteristic of the stage of commercial opening of Mexico is that is differentiated. That is, preferably Mexican trade liberalization benefited the countries that negotiated a trade agreement with Mexico compared to other WTO members.

An example of that selectivity, relative to the tariff preferences, given the WTO for 1997 noting that Mexico reduced its tariffs on manufactured goods from 50% to 35%. In comparison it goes further when he emphasizes that the average tariff was 13.2% for countries with treatment of Most Favoured Nation (MFN) countries with which Mexico has a free trade agreement but are members of the WTO, a percentage that is much higher than 4.2 %, on average, they collected on imports from the United States.[12]

[9] World Trade Organization, *Mexico's regional agreements stimulate liberalization but complicate trade regime*, Primer comunicado de prensa, Ginebra 2 de octubre 1997, p. 1
[10] *Ibíd.*, p. 1

[11] US Embassy in Mexico, Mexico and the United States at a Glance; Economy and Commerce, Mexico 2006, available at: http://www.usembassy-mexico.gov/sataglance_trade_info.html, accessed September 2, 2010.

[12] World Trade Organization, *op. cit*. p. 4

The MFN clause states, in the framework of the WTO membership that the grant of tariff concessions primarily to a member of the organization to the other participants of the same is extended. The exceptions to the MFN are three: free trade areas, customs unions and preferential treatment agreements such as the Generalized System of Preferences. It is striking that the WTO contrasted the measures implemented by the Mexican government to strengthen trade liberalization with the increase in "... the use of contingency measures (mostly anti-dumping) ...", increase the organization identified as a protectionist remaining by Mexican authorities.[13]

The above remark is questionable because the anti-dumping measures due to an investigation that was conducted in order to correct a distortion of the market and not as a form of trade protectionism. Complementarily we can say that, and as discussed in previous chapters, the number of penalties on dumping is not significant in relation to total imports of a country.

Trade liberalization is not without industrial sectors affected by it. An example of this is the agricultural production, which affected its development as a result of the agreements signed by Mexico. So that Mexican producers recorded declines in both supports and subsidies received reductions reflected in the sectorial trade balance and its contribution to the GDP of Mexico.

The above scenario was recorded even though the NAFTA negotiations tariff reduction envisaged in the case of Mexican agriculture, protection provided by import quotas and reductions in import tax rates of previously traded goods.

Mexican tariff reduction occurred in terms up to 15 years. The above concept can be explained as follows: if a product has a tariff of 60%, the allowance to 15 years mean that the tariff will drop 20 points every 5 years, so that in the year 16 the product in question is exempt from payment of tariff. In the aforementioned reduction in the contribution of agriculture to the GDP of Mexico in 1997, it can be noted that according to INEGI, in 1983, that sector contributed to 7.1% of GDP; by 1999 that proportion fell to 6% of this indicator. As the value of the sector, it was 95.163 million pesos (at 1993 value). That amount was more than 33% compared to 1983 with the proviso that the population in that year was seventy million compared to nearly one hundred million 1999.[14]

A complement to the unfavorable scenario for the agricultural sector after the Mexican trade liberalization summarizes a study of the Chamber of Deputies as follows:

Eight years after NAFTA entered into force, its main results in the agricultural sector in Mexico are as follows: imports of agricultural products have increased considerably, in some cases to displace domestic producers.

[13] World Trade Organization, "October 1997 Mexico" in Mexico's trade agreements stimulate the liberalization but complicate the trade regime, Press release, Geneva October 2, 1997, available at: http: //www.wto. org / spanish / tratop_s / tpr_s / tp063_s.htm

[14] Barcelata Hilario Chavez, the Mexican economy. Crisis and Structural Reform 1984-2006; Crises and vulnerability of agriculture in Mexico, Encyclopedia and Virtual Library, Málaga 2008, p. 303

On the fiscal side, revenues from tariff-quota that have not been collected between 1994 and 2001, estimates that amount to little more than 2 thousand 400 million dollars, while the loss of tax revenue from the elimination of other products agricultural estimates that amounted to 415.0 million dollars.[15]

Despite this, it is worth noting that the measures implemented by the Mexican government not only remedied inequalities registered until 1997, but is accentuated as evidenced in the analysis of the following evaluations carried out on the Mexican economy in 2002 and 2008 especially in the case of agricultural subsidies in countries such as Mexico they have been falling, while developed countries virtually unchanged agricultural policy despite recommendations from bodies such as the WTO, the World Bank or the IMF.

In the case of manufacturing, Mexican exports have been stimulated due to the result of the implementation of various trade policy measures. Sectorial programs to encourage exports are examples of these.

Temporary Import Program to Promote Exports (PITEX) Program Companies (ALTEX), and the Joint Commission for the Promotion of Exports (Compex), etc., as well as the continuation of the regime maquiladoras.

The effect of these programs can be related to the increase in manufactured exports on total exports.

Trade Balance of Mexico for 2001 shows that the share of manufacturing exports, including those for the automotive industry and parts, which is regarded as representative for the Mexican trade authority integrated with foreign industry, it stood at 86.54% in 1997 and reached a maximum of 90.71% a year later.[16]

In the service sector, we can say that Mexico has received large telecommunications service providers. However, monopolistic practices extend to all activities of the industry. Economic development generally reflects the services or tertiary sector is becoming increasingly important in economic activity in the country as a whole.

The services sector contributes a majority in the composition of the national GDP with 70%, similar to that recorded by the US economy among other percentage, and employs over 18 million workers, equivalent to more than 50% of the economically active population (PEA) of the country.[17]

Full implementation of trade liberalization measures in key service industries such as banking, air transport, telecommunications among others, at least on an MFN basis, allow Mexican producers to reduce their production costs in relation to its competitors industry abroad.

15 House of Representatives, Congress of the Union, Impact of Tariff Total in 2003 and 2008 of some Agricultural Products, CEFP / 018/2002, Center for the Study of Public Finance, Mexico in April 2002, p.4

16 National Institute of Statistics, Geography and Informatics, How diversified are our exports ?, Table1 Total Exports, Selected Sectors Participation and Hirshman Index - Herfindal, Mexico 2002, p. 3

[17] Atlantis Coll Hurtado and Juan Cordoba and Ordonez, Globalization and the service sector in Mexico, UNAM Geographical Research, Mexico 2006,p. 8

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I- The trade instruments used by the Mexican government in the context of economic liberalization

Instruments or measures that the Mexican government used in the nineties to continue the liberalization of Mexico's trade, along with the signing of trade agreements, can be identified as follows: the tariff reductions caused both by the signing of trade agreements and concessions which gave the product of trade negotiations within the WTO country.

The tariff reduction process began in 1983, and was characterized by a gradual reduction in the level and dispersion, although import permits remained. In 1984 they started removing these trade barriers so that the controlled imports fell by 83.5% of the total.

Moreover, the dispersion of tariff rates averaged 10.4% in the General Tax Act and Export and Import of 6.1% in average import transactions actually made, therefore this indicator was reduced to a range of 0-20%, with only five established rates a total of just over 11 thousand tariffs.[18]

By joining the GATT, Mexico continued the process of reducing tariffs and the replacement of direct controls, leading to determine a maximum tariff of 50%.

Between 1986 and 1987 the opening process continued at a maximum tariff of 20% set and eliminated prior import permit much of the manufactured consumer goods which led to a coverage permits only 20% of the value of imports in 1988, they are representing more than 28 billion amount.[19]

From 1993 to 1997 Mexico unilaterally eliminated tariffs under MFN treatment to over 1,200 products; tariff-free products increased from 414 in 1993 to 1.658 in 1997. The main products on which Mexico adopted the said tariff elimination were inputs and machinery used in the agricultural, chemical, electrical, electronic, textile and Publishin.[20]

Although the simple average tariff has remained at around 13% in the last four years, from 1993 to 1997, the weighted average tariff, or average, is down significantly, from 7.8% in 1993 to 2.9 % in 1996 and 2.7% in 1997.[21]

In 1990, the government provides tax incentives for exporters, especially with the creation of the Temporary Import Program to Produce Export Goods (PITEX). Under this program, as amended in 1995, companies were entitled to temporarily import raw materials, parts and containers; fuels and lubricants; and machinery, equipment, tools, molds and others.

18 Mariano Torres Velasco, "Trade Policy in Mexico: scope and limitations on the objectives of the so-called first-generation reforms, 1982-2002"., On Contributions, Journal of the Faculty of Economics, BUAP, Year IX, No. 26, May -August 2004, p.100

19 Susana Fernando Clavijo and Valdivieso, "Structural reforms and macroeconomic policy: the case of Mexico 1982-1999," Economic Reforms in series No. 67, ECLAC Mexico 2001, p. 11

[20] World Trade Organization, *op. cit.*, p. 23
[21] *Ibíd*., p. 23

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The main purpose of the temporary importation is that the goods entering the country under the regime to return to the outside either in the same state in which they entered, or making it transformed into an article that was modified or repaired. In the case of fuels and lubricants used by a company when they are not raw materials, it can hardly be satisfied with either of the two aforementioned objectives, why classified as temporary importation is highly questionable.

Companies that were entitled to import the goods grouped in the first three categories of export goods should be billed at least 10% of its total sales, while companies that were entitled to import goods classified in the last two categories should commit to check at least 30% of its total sales as exports.[22]

The creation of other export incentives exemplified in 1990 with the opening of the program Highly Exporting Companies (ALTEX) and was amended twice in May 1991 and May 1995. The use of this program stated that companies you were authorized by SECOFI, they must meet the following requirements to receive a permit: direct exporters must show a surplus in its trade balance and its direct exports represent 40% of total sales; indirect exporters should check the export at least a value equal to 50% of total sales.[23]

As secondary commercial instruments may include mandatory standards related to quality, marking and labeling, known as Official Mexican Standards (NOM).

The normal duration of such standards is five years, and at least a year in advance is to be published in the Official Gazette its possible replacement, cancellation or endorsement.

The WTO report highlights the fact that Mexico is not part of the Government Procurement Agreement, which limits the participation in public tenders to foreign suppliers of goods and services because preferential treatment is given to nationals.[24]

In contrast to the previous remark, and derived from NAFTA, Mexico is obliged to apply the same treatment to a US or Canadian supplier compared with a Mexican in public tenders that are not restricted by national laws.

Importantly, the enactment of the Federal Law of Economic Competition (FLEC), which entered into force in 1993, and the creation of the Federal Competition Commission as an administrative agency of SECOFI that has technical, operational autonomy and to dictate resolutions; also it is responsible for preventing, investigating and combating monopolies, monopolistic practices and mergers in terms of the FLEC.[25]

- In the context of trade liberalization, he continued the modernization of the Mexican customs procedure. The head of the Executive Branch promotes the publication of a new Customs Law came into force in 1996. The provisions attempt to expedite the same goods crossings, both export and import through the different country customs.

[22] Ministry of Economy Decree establishing temporary import programs to produce export goods, Article 6, restored May 12, 2003, Mexico.

[23] Ministry of Economy, Decree for the Promotion and Operation of Highly Exporting Companies, renovated in May 1995, Article 5, Mexico 1995.

[24] World Trade Organization, *Mexico's regional agreements stimulate liberalization but complicate trade regime*, Primer comunicado de prensa, Ginebra 2 de octubre 1997, p. 21

[25] Fernando Ramirez Hernandez, competition policy and regulatory process in Mexico 1993-1999, Faculty of Economics, UNAM, Mexico 2000, p. 115.

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- However, this law has some provisions that are unclear and have even declared unconstitutional in certain points of Articles 152, 153 and 157 relating to the identification and punishment of the Administrative Procedure in Customs Matters, irregularity which has not been corrected to date.

- Among the changes implemented by the General Directorate of Customs dependent SHCP, they highlight four:

- Loading and unloading of goods of maritime customs in private facilities is permitted.

- To provide greater legal certainty for users, you can take early consultations held in tariff classification and responsibilities of the broker and the importer in the foreign trade operations are delimited.

- Unnecessary procedures were eliminated to allow inland customs office is mainly engaged in the intermediate goods and capital, and to allow the import duty for exporters is made possible through bank deposits; In addition, the virtual export of goods was regulated.

- In accordance with international commitments, the method constructed value as the taxable base for imported goods under the Customs Valuation Code joined WTO.[26]

Despite these actions, we can say that the Mexican customs system in the late nineties, was slow, inefficient, highly bureaucratized and identified as corrupt.

However, in the following decade the operation of customs procedure significantly improves, in the opinion of the authority, in terms of efficiency and speed of operation.

Foreign investment in Mexico

Previously it noted that Mexico considered one of the main objectives of its trade policy attracting larger amounts of FDI. In fulfillment of that goal the Government issued the Foreign Investment Law (LIE) in December 1993, which was amended in December 1996. This law together with the access provisions contained in NAFTA, represent a profound change the policy on foreign direct investment.

The position of the Mexican government, in the late nineties, seeking to attract foreign investment can be summarized in the following statement:

In the last four years the foreign investment regime was liberalized in key sectors for the country's development, such as ports; telecommunications; air transport; storage, transportation and distribution of natural gas; railways; financial services; and airports. As a result, Mexico has become one of the most open in the world to competition from foreign service providers countries.[27]

As a complement to the above remarks, Mexico has incorporated provisions or measures related to investment attraction and protection of the same in the various free trade agreements it has signed. All these instruments have been based, as regards investment, the NAFTA model, providing greater legal certainty to investors.

[26] World Trade Organization, *op. cit*., p. 26

[27] World Trade Organization, op cit., p. 28

Mexico has signed various agreements on the Promotion and Reciprocal Protection of Investments (BIT). These agreements, 27 to date, the following business areas: investment definition, scope, promotion and admission, treatment of investment, expropriation, transfers and resolution of Investor-State disputes and State-State.[28]

The result of the actions described and related to the liberalization of foreign investment translates into the fact that Mexico received 47,700 million dollars of foreign direct investment from 1994 to 1997, being the second largest recipient among developing countries, at that time, after China. This amount exceeded government estimates which placed the amount of FDI between 1994 and 1997 in 39 billion dollars.[29]

Opportunity Areas of Mexican foreign trade

- In the trade policy review of 2002 can be highlighted on some practices and arrangements for the Mexican customs procedure, issues that are virtually the same as those observed in the previous review of the trade policy of Mexico and that can be summarized in the following points :

- The bound rate tariffs and tariffs.

- The tariff quotas on imports of agricultural products.

- The compatibility of the special arrangements for imports, including maquila and PITEX with the WTO rules.

- The concept of regional content in the automotive industry; Y

- The protection of intellectual property rights.[30]

On the first point, on Mexico's tariff structure as well as in most countries, it is of stepped type. That is, different tariffs according to the type of product and its origin as a result of preferential trade agreement or perhaps implementing a sectorial program to encourage exports and the case were assigned PITEX.

Tiered tariff structure is divided into two types: first, the bound tariff or tariff rate bound aka MFN. It can be defined as the maximum authorized by the WTO to cash or applied to imports of another member of this state and second tariff, preferential tariff is charged on imports from countries that have some kind of tariff preference.

As already it noted, in Mexico there are over 12 thousand tariff in their TIGI. Fraction of that total, the average tariff in 2000 was 16.2%, with highs and lows of 35% to 0%. Assigned bound tariffs on agricultural imports and manufacturing were 50% and 35% respectively, while the average tariff is 22% and 13% for the same categories of imports.[31]

[28] Proméxico, Agreements on Promotion and Reciprocal Protection of Investments, Mexico in September 2010, available at: http: // www. Promexico .gob.mx / wb / Promexico / acuerdos_para_la_ promocion_y_ _reciproca_ protection, accessed October 29, 2010.

[29] Enrique Dussel Peters, foreign investment in Mexico, Network Investment and Corporate Strategies, ECLAC Productive Development Series, Santiago de Chile 2000, p. 26.

[30] World Trade Organization, op. cit., p. 28

31 Johannes Heitmann, major trends in trade, trade policy and integration agreements in the countries of the International Association of Caribbean States (ACS) Trade Series No.. 18, CEPAL, Santiago de Chile noviembre 2001, cuadro 28, p. 75.

An additional tool for determining tariffs in Mexico corresponds to tariff quotas. These work like a quota or limit import products such as poultry, cheese, beans, wheat, barley, corn, cacao, coffee, condensed milk and sugar containing products.

Finally, there are seasonal tariffs charged to agricultural products such as sorghum, soybean and safflower. Using this mechanism stated that a tariff of 10% for sorghum and soybeans were charged in 2002 and 15% in safflower. Other planned FTA tariff concessions included, and special regimes such as the maquila exports and PITEX.[32]

The concept of regional content that applies to the automotive industry, which is a clear example of the complex nature of NAFTA Chapter IV included in the calculation of tariffs. The treatment to the goods of the industry illustrates the use of the rules of origin for the protection of an industry. In practice, this sector is the only one in the area of NAFTA requires the calculation of regional content in order to grant tariff preferences or not. Besides the benefit of the accumulation is excluded in its determination.

Replacing the accumulation in the calculation of regional content, and the subsequent determination of the appropriate fee, under the NAFTA is given a crawl of each of the stages of production of the good, and finally on the basis of the method net cost is claimed that the product meets a high percentage of regional content: cars, light trucks and engines, 56% for 1998 and 62.5% in 2002; for other vehicles and parts they had to reach 55% and 60% respectively.[33]

- The main discrepancy between the maquila, the PITEX program and the rules governing the WTO are summarized in the impossibility of an exemption from import duties on machinery and inputs that are used in the manufacture of export products. To resolve this difference, the Mexican government issued January 1, 2001 a decree which requires companies registered in maquiladoras and programs to promote exports as the PITEX to pay any duties although they are exempt from VAT.

- Finally, under the protection of intellectual property rights, Mexico signed the WTO TRIPS; however, the situation presented by the aforementioned protection in the Mexican case is disappointing. To support the above statement, we can say the following:

- Mexico ranks 72 of 125 countries on the protection and rights of access to physical and intellectual property, according to the International Property Rights Index (IIDP), which is composed of three categories.

- In the first one, Mexico scored 4 points out of 10 and ranked at 83 in the "legal environment and politics."

- The second category, "physical property rights" related to the physical protection of the rights of Mexico assigned a rating of 5.3 out of 10 and placed the country on the 85th.

- Finally, in the category best evaluated in the Mexican case, "intellectual property rights" related to the protection of patents and trademarks, Mexico received a score of 4.9 out of 10 points, and ranked at 59.[34]

[32] *Ibíd.,* p. 75

[33] Maria Elena Cardero and Patrick Low, who won and what lost to NAFTA, UNAM Institute of Social Research, Siglo XXI, Mexico 1996, p.116

[34] CNN Expansión.com, "Mexico worsens in private ownership," CNN Expansión, Mexico February 24, 2010, available at: http://www.cnnexpansion.com/economia/2010/02/24/me

Mexican economy since 2006

In the third and most recent report on Mexican trade policy was published in 2008, the WTO noted that Mexico's GDP grew by 3.9% annual average over the period 2004-2006 compared with the poor growth same variable between 2001 and 2003. This increase partly due to the US economic slowdown, which was characterized by a decline in aggregate with the consequent reduction of imports demand.[35]

In the analyzed period both GDP increases 1.7% annual average between 2001 and 2006, and per capita GDP reached the level of $ 8,000 in 2006. However, even though between 2005 and 2006 recorded the highest increase was recorded GDP, 3.9%, while per capita income grew due to a low population growth of around 1%, compared to GDP in the period. Despite the increase referred the penultimate Mexican per capita GDP was within the group of OECD countries surpassing only to Brazil.[36]

Under the management of public finances, prudent fiscal management and containment of inflation, public sector budget balance recorded between 2005 and 2006. This balance was a result of several factors; including high oil prices and the reduction of public debt in proportion to GDP.

Mexico's public debt showed a mixed performance. Ie the ratio of external public debt / GDP rose from 7.9% to 5.5% between 2005 and 2006, while domestic / public debt to GDP rose from 13.8% to 16.2% in the period.

This is equivalent to point out that the Mexican government changed, but did not reduce the debt origin.[37]

With regard to the deficit in the current account, you can highlight the reduction observed in that variable in 2006 compared to the previous year: -4.776 and -4.881 million dollars respectively. This decline was attributed to increased remittances and high international oil prices.[38]

The current account deficit increased significantly in 2007 and 2008, and amounts to -8.660 -16.174 million dollars respectively. The aforementioned imbalances occurred despite the highs they reached the Mexican economy in items such as international remittances.[39]

Remittance income was improperly recorded as part of Mexico's GDP. The amount of that income and exports, amounts reached 26.069 million dollars in 2007 and 291.343 million dollars in 2008 respectively; while imports totaled just over 308 billion dollars in 2008.[40]

In the line of employment, in 2008 the number of employed persons grew 10% to reach 58.8% of the economically active population (EAP), although the unemployment rate for the 2006-2008 period recorded an average rate of 3.7%; however, the above figures should be considered 27% of the PEA, who was working in the informal sector.[41]

Additionally, it can be mentioned that 27% of the labor force that is in the informal sector of the economy, you can add another 25% of the labor force that is underemployed.

xico-empeora-en- , intellectual property-consulted September 20, 2010.

35 World Trade Organization Trade Policy Review of Mexico WT / TPR / S / 195, Review Body Trade Policy Geneva in January 2008, p. 1

[36] National Institute for the Evaluation of Education, National Education System Indicators 2008, first edition, Mexico 2008, p.104

[37] Chamber of Deputies, *op. cit*. p. 35

[38] *Ibíd*., p. 36

[39] *Ibíd.*, p. 37

[40] *Ídem*

[41] World Trade Organization Trade Policy Review of Mexico WT / TPR / S /*195,* p. 12

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That percentage may be considered high even in the case of emerging economies like Mexico.[42]

The improvement in the Mexican labor market resulted solely on its unemployment rate, which stood at 3.3%, which was lower than the mean average of the OECD countries with 5.6%. However, there are data representing areas of improvement for the Mexican authority in economic and labor matters.

61.1% of the EAP has employment rate is low compared with OECD countries which have the highest occupancy rates in Iceland, with over 80% of the employed population, followed by Switzerland, Denmark, Norway, Sweden and Canada with slightly less than 80% rate.[43]

In corresponding to the possibility of obtaining employment line, access is differentiated between men and women: while 93% of men between 25 and 54 years of age have jobs, similar to the proportion who heads Iceland list only half of women in the same age range was used, which placed Mexico in the penultimate place in the OECD ranking, beating Turkey.[44]

Regarding monetary policy, the WTO report stressed inter alia that between 2004 and 2008, the Bank of Mexico established the necessary mechanisms for the elimination of the "short", defined as the cumulative daily accounts of banks balance the Bank of Mexico as the main instrument to induce changes in monetary policy.

The elimination of that instrument envisaged replacing it with a target interest rate for bank funding operations within one day.

In this sense, the WTO report noted that the goal set by the Bank of Mexico on the inflation rate, or Consumer Price Index (CPI), estimated that it will be located at a maximum of 3% for the period 2002 -2006 tolerance having a relatively high, plus / minus one percentage point.[45]

The establishment of the inflation target by the Mexican government, in the analysis of the Mexican economy in 2008 was endorsed by the International Monetary Fund. The agency praised the measures of fiscal and monetary policy implemented by the government as a way to boost economic growth and reduce poverty.

As proof of the failure of the official forecast for the rate of inflation, the Bank of Mexico said: "The rise in prices that occurred in 2004 was the result of external shocks, particularly the surge in energy prices, while the increase registered in 2006 came from supply shocks on a small group of goods and services, among which stand out the tortillas and sugar".[46]

Contribution of foreign trade to the Mexican economy in 2008

In 2006, the WTO said Mexico's foreign trade had increased its share of GDP nearly 10 points compared to 2001, from 52.6% to 60.3%. Likewise, imports accounted for 30.5% of GDP while exports amounted to 29.8%, Table 1. Foreign trade of Mexico 2002-2008, in millions of dólares.ambos data for 2006.[47]

[42] Central Intelligence Agency, "The World Factbook" in Mexico Economy Overview 2009, available at: https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html, accessed September 21, 2010.
[43] Organization for Economic Co-operation and Development, Employment Outlook, How does Mexico Compare ?, Paris 2008, p. 2, available at: http://www.oecd.org/dataoecd/43/10/40905834.pdf, accessed September 22, 2010
[44] *Ibíd.* p. 2.

[45] International Monetary Fund, "Country Focus Mexico 2007", en *Finance & Development*, vol. 44 núm. 3, Washington septiembre 2007, p. 56
[46] Banco de Mexico, Inflation Report October-December 2006. Mexico 2006, available at: http://www.banxico.org.mx/tipo/publicaciones/index.html, accessed September 24, 2010.
[47] World Trade Organization Trade Policy Review of Mexico *WT/TPR/S/195,* p. 17.

Concept	Year						
	2002	2003	2004	2005	2006	2007	2008
Exports	161,046	164,766	187,999	214,233	249,925	271,875	291,343
Imports	168,679	170,546	196,810	221,820	256,058	281,949	308,603

Source: Based on data of the Chamber of Deputies, Historical Statistics

Macroeconomic indicators 1980-2009.

As can be seen in the analyzed period 2002-2008, the Mexican foreign trade deficit and further dependence on oil exports grew from 2000, doubling its value and participation in relation to total exports.

Exports of petroleum and petroleum products reached 15% in 2006, mainly due to high oil prices, which in June 2008 was more than $ 128.00 a barrel in 2008, which contrasted with the lower price of $ 58.00 recorded in 2009.[48]

Mexican exports in 2008 can be divided into the following areas: concentration of exports in a small number of companies, large share of the maquila sector, with a share of 55% in total exports. Furthermore, they manufacture and not complementary substitutes were exported and, finally, the recipient is greater America again.

A notable aspect of Mexican foreign trade and that the available statistics may not reflect accurately corresponds to the real importance of some trading partners, mainly because the majority of Mexican exports go to or are carried by U.S.

The use of data, for example, imports from Mexico recorded by third countries, rather than those registered as exports by Mexico, suggests that the value of Mexican exports to partners such as Canada, China, EU, Korea and Japan It would, individually, be underestimated between 30% and 180%.[49]

The explanation of this discrepancy can be attributed to commercial criteria. These include the dispatch of goods exported to the United Mexican States, which forwards them to the destinations mentioned in the previous paragraph. This redirection or re can find its justification in the high costs of transportation, customs services, loading and unloading maneuvers in ports and airports in Mexico or in the greater availability of air and sea routes in the United States compared to Mexico.

In Mexico oil trade balance recorded a deficit in the fourth quarter of 2008. The deficit reached an amount of 224 million dollars just in the month of November. The shortfall was mainly due to the reduction of 32% in Mexican exports, from 3.435 to 2,322,000 dollars of oil products compared to the previous month.[50]

The aforementioned deficit "summed up the responsibility of governments past and fate overtook us, because for the first time in decades the country imported in (and other fuels) Petroleum quarter more than it exported amount of crude oil and derivatives".[51]

In corresponding to the attraction of foreign direct investment (FDI), priority of Mexican trade policy, the said indicator line had an irregular evolution over the period 2001-06.

During that time, FDI flows to Mexico totaled just over 124,000 million, equivalent to an annual average of $ 20.667 million or 3% of GDP.

[48] *Ibíd*. p. 21
[49] World Trade Organization, op. *cit.*, p. 21

[50] National Institute of Statistics and Geography, revised Mexico's trade balance for November 2008 Information, Table Balance of Trade of Oil Products in 2008 communiqué 005/09, Aguascalientes January 2009,p. 3
[51] David Marquez Ayala, "Mexico's foreign trade in 2008," in Economic Vector, Mexico March 2009p. 2

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Of this amount, approximately 45% went to the manufacturing sector, followed by the financial sector and the social, professional services and tourism sector, 29% and 9%, respectively.[52]

FDI in Mexico fell 20.4% during the first half of 2008 compared to the same period last year, decreased mainly caused by the slowdown in the US economy. From January to June, the country received 10,536.7 million in investments, compared to 13.244 million raised in that period of 2007.[53]

From December 2006 to September 2010, foreign exchange outflow of Mexicans and their companies abroad, both banks to do business, reached 55 thousand 503 million dollars. It is an amount 266% higher than left the country for the same purpose between January 2001 and September 2004, the comparable period of the administration of former President Vicente Fox Quesada, who was 15 thousand 141 million dollars. That is, for every dollar of FDI that entered Mexico in the indicated period, came two of the country.[54]

The Mexican trade regime in 2008

The policy of export promotion in Mexico includes the negotiation of trade agreements. To date, the country has 12 agreements with 44 countries that are the source and destination of the vast majority of Mexican exports and imports.

This network of agreements is considered the largest in terms of number of countries and importance of the economies involved.

In practice, however, we can say that except in the case of NAFTA, most of trade agreements have been virtually discarded or ignored by Mexican exporters as shown in the foreign trade deficit with the European Union, Japan and several other countries with which Mexico has negotiated preferential agreements.

Among the reasons for the underutilization of different FTAs NAFTA can be cited, among others, the high cost of transportation from Mexico, lack of assistance to small exporters and the lack of sources of financing on preferential terms for new exporters.

In that sense, the trade agreements signed by Mexico as part of a strategy of trade liberalization and according to the experiences of other countries in a similar situation complicates the Mexican foreign trade in view of potential exporters and importers abroad . As a result of this multiplicity of agreements and tariff structures altered economic incentives and resource allocation is recorded.[55]

Graph 1 shows the evolution of the curve is seen to GDP growth in the period 1994-2009, which has a very similar to the share of Mexican exports behavior. That is, the evolution of Mexican exports conditions the growth of the Mexican economy.

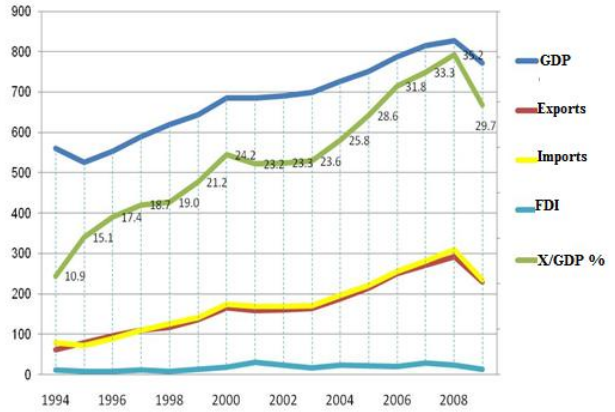
[52] *Ibíd*. p. 22

[53] CNN Expansion, "Mexico loses luster for FDI" in FORTUNE, Mexico September 24, 2008, available at: http://www.cnnexpansion.com/economia/2008/09/24/mexico-es-menos -attractive-in-ied. consulted September 25 2010

[54] Roberto González Amador, "With Calderon Mexico have left 55 thousand million dollars: BdeM" in La Jornada, Mexico, Friday November 26, 2010,p. 30.

[55] World Trade Organization Trade Policy Review of Mexico *WT/TPR/S/195*, p. 15.

The growing importance of Mexican exports relative to GDP growth, especially during the period 1994-2009, peaking in 2008 when exports contributed 35.2% of the total volume of the economy. Foreign sales reached in that year amounting to 308.603 million dollars.



Source: Based on data from the Center for Public Finance of the House of Representatives

Graph 1 GDP Ratio Foreign Trade and Foreign Direct Investment in Mexico, 1994-2009

In another important aspect of foreign trade and in relation to their legal framework was considered in 2008 that there were considerable changes compared to previous years; however, antidumping before the Supreme Court were filed. In this regard, it is worth noting the existence of a dispute in legal matters according to the positions of the First and Second Collegiate Court in Administrative Matters of the First Circuit.

The First Court found that foreign firms (exporters) did have interest at the time of filing a lawsuit guarantees or protection before a final determination on dumping. This criterion prevailed against the position of Second Court considered nonexistent interest of an exporter because it was not sanctioned basis of receipt of compensatory quotas allocated to importers in Mexico.[56]

On the issue of regulatory reform, as part of the regulation of foreign trade, consolidation and changes aimed to continue the actions of the trade authorities for over three administrations he appreciated. The main objective of the activity of the authority seeks to facilitate the relationship between business and government in order to promote the creation and consolidation of business in the country.

In pursuance of this objective, the Federal Administrative Procedure Act (FAPA) and the Federal Commission for Regulatory Improvement (Cofemer), a body responsible for supervising the Federal Register of Formalities and Services (RFTS), which comprises all the paperwork was issued and services related to the Federal Government. The record included to May 2007, 3,327 procedures and services. That figure far exceeded the 1,172 registered procedures and services in late 2001.[57]

The expansion in the number of procedures and controlled by said record reflects the federal government's effort to simplify regulatory activity into smaller and smaller bodies and thus facilitate economic activity in the country services.

[56] Mansilla and Maria Elena Mejia, legal interest of foreign companies on dumping, Legal Research Institute of UNAM, Mexico 1999,p. 158

[57] World Trade Organization Trade Policy Review of Mexico *WT/TPR/S/195,* p. 16

The concrete results of these measures in the framework of the regulatory reform can be summarized as follows:

It is estimated that the creation of new businesses in 2009 increased 6%; this increase originated another job in 2.6% and falling prices by an average of 1% due to the incorporation of new competitors in economic activity for the Mexican case.[58]

The document published by the World Bank, Doing Business, measured or dimensioned reforms or changes in regulatory matters according to a scale of 1-181 points and Latin America located somewhere in the middle of it, with 92 points, while the average of the OECD countries is 27.[59]

In assessing the company-government relationship, there is the index of economic freedom countries. This indicator is published by the Wall Street Journal and places the Mexican economy at the site 41 of 183 countries evaluated with a rating of 68.3 points. The top 5 of this classification correspond to Hong Kong, Singapore, Australia, New Zealand and Ireland, who achieved scores close to 90 points. Mexico's rating is higher than that of France, India, Argentina and Russia, but is lower than in El Salvador.[60]

Implementation of measures to facilitate foreign trade of Mexico in 2008

Regulatory reform and administrative simplification in the management and operation of customs in the country is characterized by "certain procedures and customs procedures are still complicated". As an example we can mention the case of customs valuation of goods, which requires in the case of products subject to a penalty on dumping, the determination of an estimated price set by the authority.[61]

An additional factor that hinders and encourages foreign trade operations in Mexico, when not made under preferential tariffs granted by an FTA refers to payment of Customs Procedure Law (DTA), payable in export and import operations, and to calculate the amount, either 1.76, export, or 8 per thousand depending on the purpose and type of product to be imported must follow the provisions of Art. 49 of the Federal Law.

In contrast, in 2006 the government decided to merge exports, Maquila and PITEX the main tax building programs into one and the IMMEX (Programme for the Manufacturing, Maquiladora and Export Services) was established.

Programs that retain their essence and application are ALTEX (Highly Exporting Companies) and ECEX (Companies of Foreign Trade). While the mechanism of drawback or refund of taxes paid on imports, despite being available to Mexican importers, has in practice many restrictions, making it unprofitable application to importers in general.

[58] The World Bank Group, Doing Business 2009: Five years of Doing Business Reforms, International Finance Corporation, Washington, 2010, available at: http://www.doingbusiness.org/Features/Feature-2008-22.aspx, accessed September 25 2010.

[59] *Ídem*

[60] Wall Street Journal 2010 Index of Economic Freedom, The Heritage Foundation, New York 2010, available at: http://www.heritage.org/index/ranking.aspx, accessed 25 spetiembre 2010

[61] World Trade Organization Trade Policy Review of Mexico *WT/TPR/S/195*, p. 31

In 2006 there were 3,179 companies had Maquila programs and 3,339 who had a PITEX program; Together, the companies had such programs, Maquila and PITEX, contributing 65% of Mexican exports, a proportion which in turn accounts for 82% of manufacturing exports in that year. Also, the figures and companies that had programs like ALTEX and ECEX in 2006 amounted to 2,644 and 340 respectively. On the other hand, requests for Drawback in the period 2002-2006 amounted to 46.989.[62]

The Customs Law enacted in 1995 and amended several times, provides that the export and import operations, is required to hire a customs broker to represent exporters and importers in all types of operations and customs procedures except for import purposes personal. On the other hand, the General Administration of Customs (GAC) dependent SHCP, has the Integral Automated Customs System (SAAI), which enables automation and processing of information in all motions export and import licenses issued in any of the 49 customs of the country.

Concerning the crossing of goods through customs in the country, the AGA reports that the review mechanism is random. The AGA said that in 2006, as a result of random review mechanism, 85.3% of shipments was not subject to it, while 12.9% did so through the first survey and 1.8% did so through the second recognition (another unnecessary procedure, which takes customs activities), which carried out a private company, the Swiss SGS, through a government grant.[63]

In the context of government procurement contracting services to the government, the WTO report notes that Mexico is not a member, even an observer level, the Agreement on Government Procurement, which means that despite foreign companies wishing to do so, to participate in tenders or public auction, the Mexican authorities will continue to give preferential treatment to companies based in the country.[64]

Despite the shortcomings and obstacles to trade represented above customs practices, in 2003 Mexico joined the US program FAST (Free and Secure Trade), which provides for the designation of special lanes and review points for transport on roads Customs crossing on the border with Mexico.

In 2007, Mexico and the United States signed the Bilateral Customs Plan, whose main objective is to facilitate customs operations on both sides of the border. The benefit of this plan is evident to the economic agents involved in the growing trade relationship between Mexico and the United States.

As noted above, the customs system in Mexico is complicated and confusing for the general public. Proof of this represents the criteria that the Mexican authorities used in relation to the rules of origin. Preferential and non-preferential: In Mexico two criteria are considered. The first applies in the case of imports, mainly from countries with which Mexico has a free trade agreement in force, while the preferential applied in other operations. For the importer receives preferential treatment must present a certificate of origin recognized as valid by the authority.

[62] World Trade Organization. Trade Policy Review of Mexico *WT/TPR/S/195*. p. 69
[63] *Ibíd*. p. 31.
[64] *Ibíd.* p. 32.

Preferential tariffs depend on the trade agreement and relevant industrial sector. However, in 2007 the preferential tariffs in Mexico ranged between 0% and 1%, except those relating to trade agreements with Israel and Japan, which are between 1.9% and 7.6%. Compared with the previous review, the number of tariff lines, 8 digits or import increased from 11,387 to 20,021 to 11, 948 in 2007. Furthermore the AGM decided the continuation of payment of specific and seasonal tariffs for various agricultural products such as sugar, powdered milk and certain imported vehicles and tires.[65]

Inconsistencies Mexican tariff system has effects on the competitiveness of domestic firms. These discrepancies are recorded when the tariffs on imported inputs are higher than in the case of imports of finished products. Examples of the above statement can be found in a variety of industries such as food, machinery, automobiles, etc..[66]

- With regard to quality standards applied to the products, both imported and domestic, that are marketed in the country ranking of these standards is divided into three groups for the Mexican case and control depends on the General Directorate of Standards:
- The Norma Oficial Mexicana (NOM) correspond to binding standards and are intended to preserve the integrity of consumers and ensure the quality of products sold on the domestic market.
- The Mexican Standards (NMX) serve to guide the consumer and are voluntary; however, they are become mandatory in case of lack of NOM.
- Finally, there are the NRF, Federal Regulatory Standards, which are issued by the Federal decentralized agencies such as PEMEX and CFE Public Administration. Your application becomes mandatory in the absence of a NOM or NMX.[67]

Despite this, the certification standards in Mexico is in its initial stage. Standardization Directorate acknowledges that existing NOM 800 to date, only 150 of them are certified to international standards. The remaining 650 are applied to discretion, which causes the sale of products is given without the slightest assurance that the products and services offered to the Mexican consumer meet the standards required by foreign markets.[68]

References

Banco de México, *Informe sobre Inflación de Octubre – Diciembre 2006.* México 2006, disponible en: http://www.banxico.org.mx/tipo/publicaciones/index.html, consultado 24 de septiembre 2010.

Barcelata Chávez Hilario, *La Economía Mexicana. Crisis y Reforma Estructural 1984-2006; Crisis y Vulnerabilidad de la Agricultura en México*, Enciclopedia y Biblioteca Virtual, Málaga 2008

Cámara de Diputados del H. Congreso de la Unión, *Ley Federal sobre Metrología y Normalización*, publicada en el Diario Oficial de la Federación el 1 de julio de 1992, última reforma 30 abril 2009.

[65] World Trade Organization, *op. cit.*, p. 40

66 Economy Secretariat, Concrete actions to increase competitiveness, Undersecretary of Industry and Commerce, Mexico, October 2004, available at: http://www.economia.gob.mx/ P = 2025, accessed September 28.

[67] World Trade Organization, op. cit.p. 54

[68] El Semanario, "Quality standards are not strictly enforced in Mexico", in Terra Economy, Mexico June 3, 2010, available at: http://economia.terra.com.mx /noticias/noticia.aspx?idNoticia= 201006031421_ TRM_ 79055622, accessed September 27 2010.

Cámara de Diputados, H. Congreso de la Unión, *Impacto de la Desgravación Arancelaria Total en el 2003 y 2008 de algunos Productos Agropecuarios*, CEFP/018/2002, Centro de Estudios de las Finanzas Públicas, México abril 2002

Cardero María Elena y Patrick Low, *Qué ganamos y qué perdimos con el TLC*, Instituto de Investigaciones Sociales UNAM, Siglo XXI, México 1996

Central Intelligence Agency, "The World Factbook", en *Mexico Economy Overview 2009*, disponible en: https://www.cia.gov/library/publications/the-world-factbook/geos/mx.html, consultado 21 de septiembre 2010.

Clavijo Fernando y Susana Valdivieso, "Reformas estructurales y política macroeconómica: el caso de México 1982-1999", en serie *Reformas Económicas* No. 67, CEPAL México 2001

CNN Expansión, "México pierde brillo para la IED", en *CNNExpansión.com*, México 24 de septiembre de 2008, disponible en: http://www.cnnexpansion.com/economia/2008/09/24/mexico-es-menos-atractivo-en-ied. Consultado 25 de septiembre 2010

CNN Expansión.com, "México empeora en propiedad privada", en *CNN Expansión*, México 24 de febrero 2010, disponible en: http://www.cnnexpansion.com/economia/2010/02/24/mexico-empeora-en-propiedad-intelectual, consultado 20 de septiembre de 2010.

Coll Hurtado Atlántida y Juan Córdoba y Ordóñez, *La Globalización y el Sector Servicios en México*, Investigaciones Geográficas UNAM, México 2006

Dussel Peters Enrique, *La Inversión Extranjera en México*, Red de Inversiones y Estrategias Empresariales, CEPAL Serie Desarrollo Productivo, Santiago de Chile 2000

El Semanario, "Normas de calidad no se aplican con rigor en México", en *Terra Economía*, México 3 de junio 2010, disponible en: http://economia.terra.com.mx/noticias/noticia.aspx?idNoticia=201006031421_ TRM_ 79055622, consultado 27 de septiembre 2010.

Embajada de los Estados Unidos en México, *México y los Estados Unidos de un Vistazo; Economía y Comercio*, México 2006, disponible en: http://www.usembassy-mexico.gov/sataglance_trade_info.html, consultado 2 de septiembre 2010.

González Amador Roberto, "Con Calderón han salido de México 55 mil mdd: BdeM" en *La Jornada*, México, viernes 26 de noviembre de 2010

Heirmann Johannes, *Las tendencias principales del comercio, la política comercial y los acuerdos de integración de los países de la Asociación de Estados del Caribe (AEC)*, Serie Comercio Internacional Núm. 18, CEPAL, Santiago de Chile noviembre 2001

Instituto Nacional de Estadística Geografía e Informática, *¿Qué tan diversificadas están nuestras exportaciones?*, Cuadro1 Exportaciones Totales, Participación de Sectores Seleccionados e Índice de Hirshman - Herfindal, México 2002

Instituto Nacional de Estadística y Geografía, *Información revisada sobre la balanza comercial de México durante noviembre de 2008*, Cuadro Balanza Comercial de Productos Petroleros en 2008. Comunicado 005/09, Aguascalientes enero 2009

Instituto Nacional para la Evaluación de la Educación, *Indicadores del Sistema Educativo Nacional 2008*, primera edición, México 2008

International Monetary Fund, "Country Focus Mexico 2007", en *Finance & Development*, vol. 44 núm. 3, Washington septiembre 2007

Mancilla y Mejía María Elena, *Interés jurídico de las empresas extranjeras en materia de* dumping, Instituto de Investigaciones Jurídicas UNAM, México 1999

Márquez Ayala David, "El Comercio Exterior de México en 2008", en *Vector Económico*, México marzo de 2009, p. 2

Organisation for Economic Co-operation and Development, *Employment Outlook, How does Mexico Compare?*, Paris 2008, disponible en: http://www.oecd.org/dataoecd/43/10/40905834. pdf, consultado 22 de septiembre 2010

Organización Mundial de Comercio, "México octubre de 1997", en *Los acuerdos comerciales de México estimulan la liberalización pero complican el régimen comercial*, Primer comunicado de prensa, Ginebra 2 de octubre de 1997, disponible en: http://www.wto.org/spanish/tratop_s/tpr_s/tp063_s.htm

Organización Mundial de Comercio, *Examen de las Políticas Comerciales México WT/TPR/S/195*, Órgano de Examen de las Políticas Comerciales, Ginebra enero 2008

Proméxico, *Acuerdos de Promoción y Protección Recíproca de las Inversiones*, México septiembre 2010, disponible en: http:// www. promexico .gob.mx /wb/ Promexico/ acuerdos_para_la_ promocion_y_ protección _reciproca_, consultado 29 octubre 2010.

Ramírez Hernández Fernando, *La política de competencia y el proceso de regulación en México 1993-1999*, Facultad de Economía UNAM, México 2000

Secretaría de Economía, *Decreto para el fomento y operación de la Empresas Altamente Exportadores*, reformado mayo 1995, Artículo 5, México 1995.

Secretaría de Economía, *Decreto que establece Programas de Importación Temporal para producir artículos de Exportación*, Artículo 6, reformado 12 de mayo 2003, México.

Secretaría Economía, *Acciones concretas para incrementar la competitividad*, Subsecretaría de Industria y Comercio, México, octubre 2004, disponible en: http://www.economia.gob.mx/ ?P=2025, consultado 28 de septiembre 2010.

The World Bank Group, *Doing Business 2009: Five years of Doing Business reforms*, International Finance Corporation, Washington 2010, disponible en: http://www.doingbusiness.org/Features/Feature -2008-22. aspx, consultado 25 de septiembre 2010.

Velasco Torres Mariano, "La política comercial en México: alcances y limitaciones en los objetivos de las llamadas reformas de primera generación, 1982-2002", en *Aportes*, Revista de la Facultad de Economía, BUAP, Año IX, Núm. 26, Mayo-Agosto de 2004

Wall Street Journal, *2010 Index of Economic Freedom*, The Heritage Foundation, Nueva York 2010, disponible en: http://www.heritage.org/index/ranking.aspx, consultado 25 de spetiembre 2010

World Trade Organization, *Mexico's regional agreements stimulate liberalization but complicate trade regime*, Primer comunicado de prensa, Ginebra 2 de octubre 1997

World Trade Organization, *Mexico's regional agreements stimulate liberalization but complicate trade regime*, Primer comunicado de prensa, Ginebra 2 de octubre 1997

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The fall of the Shanghai stock exchange and the world economy

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Abstract

The news of the Shanghai stock market fall added to the slowdown of the Chinese economy has caused concern in the world. In Europe, the London recorded a loss of 6.36%, the Paris fell 8.28%, Frankfurt was down 6%, Milan lost 4.84%. Gold prices and oil prices declined between 2010 and 2015, from 175.29% to 3.34% and from 95% to 47.31% respectively. The falls were fatal in commodity prices in the countries of Latin America, the price of oil went from -43.12% in 2014 and -9.95% in 2015, the gold price -7.91% to -63.50% in 2014 and 2015. For silver step growth of -7.93% in 2014 and 3.63% in 2015. The Mexican Stock Exchange was not exempt from this global crisis which recorded a fall of 6.38%. In the case of raw materials, the growth of silver in 2014 and 2015 was -2.70% and -49.26% respectively. In the case of gold, resulting in falling 0.20% in 2014 and -45.59% in 2015.

China, Economic Growth, Latin American, México, Raw Materials, Stock Exchange.

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The Stock Exchange is a private organization that provides tools for members, attending the mandates of its clients, enter orders and conduct negotiations for buying and selling securities, such as shares in companies or joint stock companies, public bonds and private facilities, degrees of participation and a wide range of investment instruments. China has several bags which can highlight the Shanghai Stock Exchange, one of the largest in the world with the Shanghai Stock Exchange or SSE index.

"On Monday August 24, 2015, the morning news radio, television and digital news portals in the country with great concern the reported fall of 8.49 percent of the Shanghai Stock Exchange, which caused major European stock markets also recorded sharp declines, so the London Stock Exchange closed the day of the day with a loss of 6.36 percent, the Paris fell 8.28 percent, Frankfurt was down 6 per cent, Milan lost 4.84 percent". [1]. This news is worrisome because China is the second largest trading partner in Europe and the United States, one of the main partners in Latin America. China's share in imports from the EU in the world increased from 11.1% in 2002 to 19% in 2012, this represents a growth of 71.17%. Second only to the area of NAFTA (Mexico and Canada). China was responsible for 30% of global consumption of coal, steel, cotton and rice and 15-20% of global consumption of aluminum, copper, soybeans, wheat and platinum; China is already the world's largest producer of coal, steel, cement, aluminum or copper; China is also the world's leading manufacturer of textile products, and the country is entering successfully in sectors such as computer manufacturing and biotechnology [2]. It goes without saying that a healthy Chinese economy is good news for developed and developing world.

The aim of this study is to determine the impact of the fall of the Shanghai stock exchange in the world economy with particular emphasis on the situation in Mexico. In the first section the impact of the slowdown of the Chinese economy into the world economy, particularly in Europe, then in the second section, its influence on the Latin American economy are presented, focusing on the case of Mexico where exports and imports They were affected by this slowdown. Finally, conclusions and recommendations for Mexico and the world are presented.

The position of China and the world economy

Strong growth in China has had major impacts on trade flows in recent decades, both on prices and on the volumes. The economic performance of China is crucial because it has one of the highest in the world Gross Domestic Product has grown at high rates of growth in recent decades, placing it in 2013 as the second largest economy after the United States and represents about 15% of the world population. As a result of strong GDP growth and the commercial boom that has occurred in recent years, China has become the leading power in world trade with 11% share surpassing the United States, which holds 10.4%. In other words, the second largest global economy adds an amount which amounted to 2.21 billion dollars, an increase of 8% over the previous year, down from China, the second place was United United. The greatest world power generated net 1.57 trillion, while Germany, the dominant economy in the euro area was ranked third with 1.45 billion in 2013, the value of world merchandise exports reached a value of 18.8 trillion (BDD), 2% higher than 2012, while world exports of commercial services recorded a growth rate of 6% equivalent to 4.6 BDD [3].

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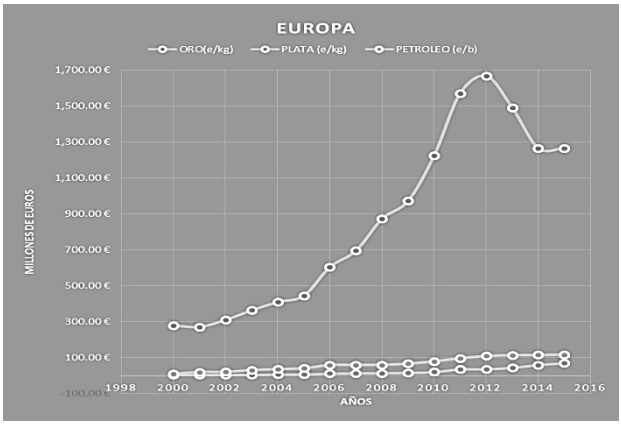
Chinese imports of agricultural, food and fishery products have grown at an average annual rate of 21.5% since 2001, while total imports have made 18%. Also in 2001, Chinese imports of food, agricultural and fishery products reached US $ 9.8 billion, representing 2% of total global purchases, while in 2013 this figure was multiplied 10 to US $ 100.8 billion, 6.7% of world imports of food [4].

The drop in the Shanghai stock market crash of the Chinese market and uncertainty about economic growth, problems in export industries and the decline in commodity prices, caused a chain reaction not only in equity markets but also in the price of oil, copper and other raw materials. Meanwhile, global stock markets have lost about US $ 5 billion (nearly a third of US GDP). In Europe, the Milan Stock Exchange and Frankfurt were the most affected, with declines of 2.6 and 2.34%, respectively. They also closed in negative territory Paris (-2.06), Madrid (-1.81) and London (-0.56). The index compiled by Bloomberg Commodities fell to its lowest level since 2002 and accumulated a 7.2% so far this month, dragged down by the decline in oil prices, nickel and sugar [5].



Graphic 1 Growth of prices of gold, silver and oil. Millions of euros. (2000- 2015). Based on data from the World Bank.

Graphic 1 shows the evolution of the prices of gold, silver and base oil in Europe. From 2000 to 2005 the price of gold fell to 444.80 € 279 per kg. What gives a growth rate of 59.4%. Between 2005 and 2010 prices increased from € 444.80 to 1224.50 per kg respectively. Which gives a growth rate of 175.29%. Finally between 2010 and 2015, prices are as follows, € 1,224.50 for the first year against 1265.60 for the next. Here the rate of price growth is 3.34%.

In the case of silver, the phenomenon is different. From 2000 to 2005 the price of silver rose from 5 € to 7.34 per kg. The growth rate is 46.8%. Then between 2005 and 2010, the price increase spending 7.34 € to 20.16. Which presents a growth rate of 174.65%.

Then, for the years 2010 and 2015, the price continued to rise, to go from € 20.16 to 69, with a growth rate of 242.26%. Finally, the oil has the following prices for 2000 and 2005: 10.14 and € 40.57 respectively.

Which gives a growth of 300%. Then between 2005 and 2010, prices are € 57 and 40. 79.42. Growth slows to 95% and after 2010 and 2015, prices vary between € 79.42 and 117 respectively. This leads to a growth rate of 47.31%.

We can see a net decrease in the growth rate of gold in recent years, while the slowdown and the decline in demand for silver China have not affected the growth of the price. Therefore, the growth rate of the price of oil has fallen over the period 2000-2015.

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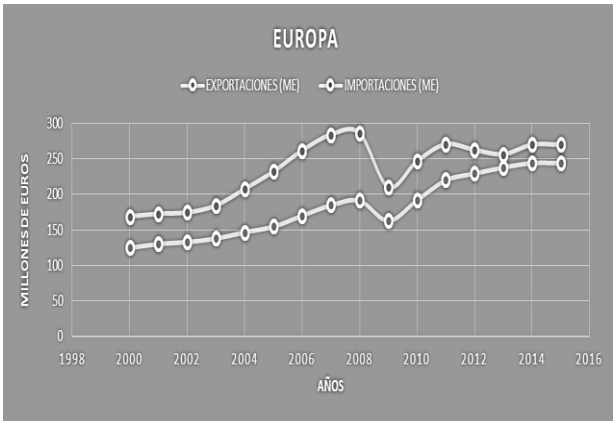

Graphic 2 Growth rate of foreign trade in Europe. Millions of euros. Based on data from the World Bank.

Is China presence in international trade affects the growth of export and import activities in Europe in current crisis? Graph 2 shows the evolution of international trade in Europe. Exports between 2000 and 2005 showed the following amounts: EUR 124 784 000 and 154 846 respectively. Which gives a growth of 24.09%. For the years 2005 and 2010, the amounts were 154 846 000 and 191 912 euros respectively. Which gives a growth of 23.93%. This decrease is mainly due to the financial crisis originated in the United States. Finally, for the years 2010 and 2015, exports totaled EUR 191 912 000 and 244 534. Representing a rate of 27%. It can be seen that exports to Europe after a slight decline grew favorably between 2010 and 2015.

In the case of imports, it can be seen that between 2000 and 2005, the amounts were EUR 169 059 000 and 232 124, resulting in a growth of 37.30%. For the period 2005 and 2010, the amounts are of EUR 232 124 000 and 246 674, an increase of 6.26% is obtained. Then between 2010 and 2015, the amounts vary from EUR 246 674 000 and 269 852. Here, the growth rate becomes 9.39%. A slight increase but far from the growth period of 2000-2005.

It can be concluded that the slowdown of the Chinese economy poses many problems for the world economy. In the case of Europe, the fall of the Shanghai Stock Exchange has affected financial markets as mentioned above, also prices of basic commodities like oil and gold. Foreign trade has not suffered, nor suffer much from this crisis.

The fall of Shanghai Stock Exchange and the situation of the Latin American economy

The biggest economic and commercial weight of Latin America in the world is unquestionable, even considering the economic slowdown experienced by the region in the years 2013-2014. From 1990-2012 the region's participation in economic activity in the world has gone from 5.1% to 7.8% in world trade from 4.1% to 6.1% and Foreign Direct Investment (FDI) from 2.7% to 4.9%. The prices of raw materials on international markets rose sharply - in particular due to the rise of China in the world economy. [6]. In fifteen years, China has gone from being a relatively insignificant economic partner in Latin America to be the number one trading partner of some of the largest economies in the region. [7]. Figure 3 shows an evolution of Latin American foreign trade from 2000 to 2008. However, a tremendous slowdown seen in 2009 due to the severe financial crisis in the same year in the United States. After recovery in 2010, we see a significant drop in imports relative to exports. Since 2012, a stagnation of growth is observed

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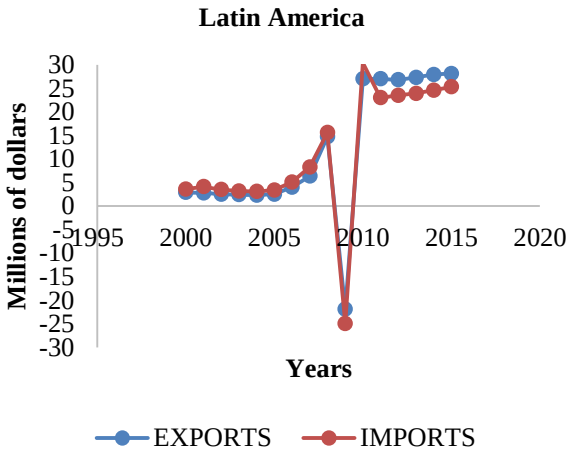
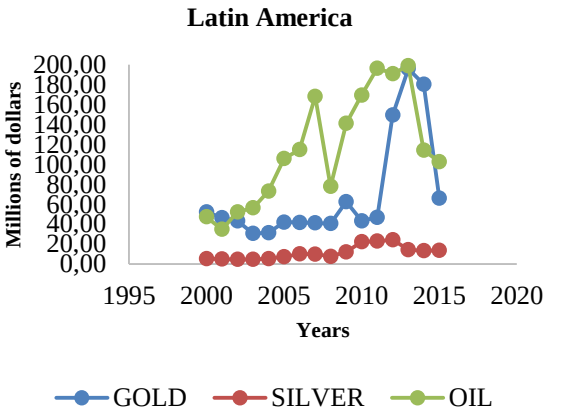


Graphic 3 Foreign trade of Latin America (2000- 2015) million.

Based on data from the World Bank

Due to increased demand from China and other emerging economies, commodity prices have risen sharply since the beginning of the decade of 2000-2007, particularly in the case of minerals and metals, in this case gold, silver and Oil.



Graphic 4 Evolution of the prices of gold, silver and oil in Latin America (2000-2015) Millions of dollars. Based on data from the World Bank.

This has favored the growth of the countries in the region that export these products, especially those in South America. Shown in the graph a slowdown between 2007 and 2008 explained by the global crisis occurred this year and next year. After a spectacular recovery in the case of oil, a slowdown in prices observed since 2013 to date. This represents a growth rate of -43.12% in 2014 and -9.95% in 2015. The case is similar gold after holding steady from 2002 to 2010, the price accelerated strongly through 2013. Months later, he observes a until the present slowdown with a growth rate of -7.91% -63.50% in 2014 and 2015. Finally, the price of silver has been stable in the early 2000s until the years 2008 an increase was observed between 2009 to 2012. The price of silver has experienced a decline and stagnation at present growth rate of -7.93% in 2014 and 3.63% in 2015. This situation can be explained by reduced demand for raw materials by China. This decline in commodities results in difficulties for exporting countries. In recent months the turbulence resulting from this fall have rocked the middle globe, from Brazil and Chile, where the lower value of exports has led to a sharp slowdown in their economies asserts Stein of Oxford Economics [8].

The fall in global stock markets represents an announcement of a crisis in the major economies of the world and affects developing countries such as Mexico, which is heavily dependent on external factors. Below the graph 5 presents the evolution of prices of raw materials such as gold and silver. The two products have evolved steadily between 2000 and 2007. Then comes a period of continuous rise for gold until the beginning of 2014. Then come a drastic drop in the gold price in the course of 2014 and 2015.

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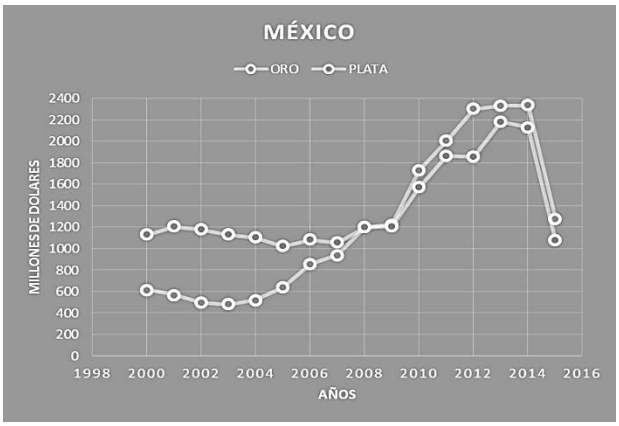
This period coincides with the slowdown of the Chinese economy and especially the fall of the stock market, this decline translates into 0.20% in 2014 and -45.59% in 2015. For the price of silver, the way is practically the same, unless recorded a small decrease in 2012, recovered very quickly in 2013. During 2014 and 2015 the price has slowed rapidly in 2014 and 2015 the growth rate was -2.70% and -49.26%.



Graphic 5 Evolution of the prices of gold and silver in Mexico. Millions of dollars Based on data from the World Bank.

The news of the collapse in global stock markets including that of Mexico, was accompanied by a sharp depreciation of the peso against the dollar and falling oil prices in the international market as shown in the following chart. You can see a price decrease between 2000 and 2001, then a quick recovery until 2005. The global economic instability, the premises of a possible financial crisis in the United States and the stock market crash in Shanghai in 2007 may explain the decrease oil prices between 2006 and the early 2010. Then comes a time of stagnation in the course of 2010 and 2014. It is clearly seen that by 2015 oil prices fell sharply with a growth rate of -56.76%. The slowdown of the Chinese economy affects the price of oil because as we saw earlier, is the best buyer and consumer of commodities in the world.

An economic slowdown implies a reduction in exports and consequently less revenue for Mexico.

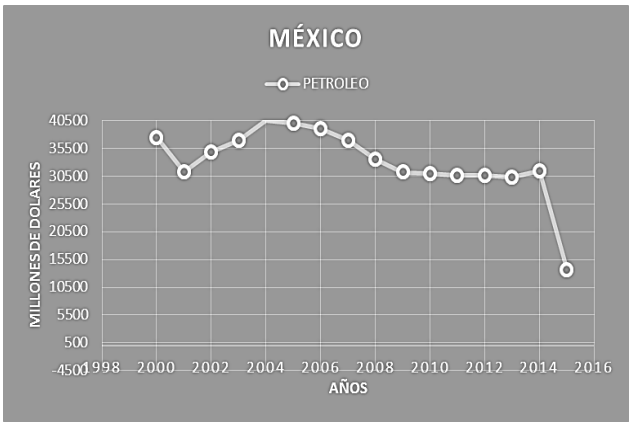
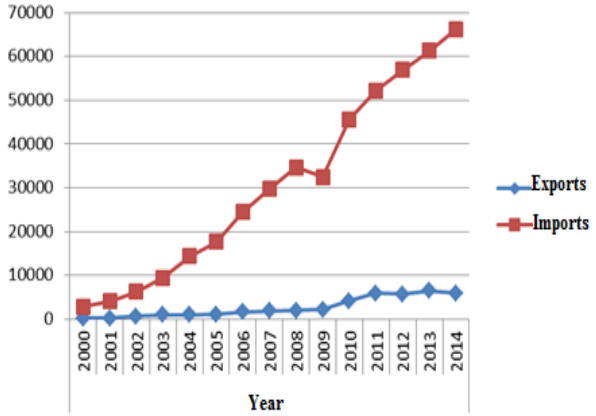


Figure 6 Evolution of oil prices. Million (2000-2015)

Based on data from the World Bank

The following graph represents the evolution of Mexico's foreign trade with China and it is no surprise to note that imports are much higher than exports. This situation is not close to finishing activities as imports continue to grow faster than the export growth rate. This shows the dependence of Mexico with China. The fall of the Chinese stock market means there is loss of confidence to invest, there is less demand for products and energy, which causes negative effects also in Mexico.



Graphic 7 Foreign Trade of Mexico with China (exports and imports) [9].

Conclusions

The aim of this paper is to show the effect of the slowdown in the Chinese economy through the stock market crash in Shanghai in the global economy. It was observed that in Europe You can see a net decrease in the growth rate of the gold while China decreased demand for silver has not affected the growth of the price. Therefore, the growth rate of the price of oil has fallen over the period 2000 to 2015. On the other hand, the fall of the Shanghai Stock Exchange has affected financial markets, foreign trade has not suffered much from the crisis . In Latin America, it shows a net decrease of foreign trade, going from 23% from 2006-2011 to 7.2% in 2012-2015 on average. Commodities have fallen sharply from 2012 to date, especially oil and gold. Finally, Mexico has not been exempt from this crisis. The prices of raw materials such as gold, silver and oil have declined dramatically from 2012 to date, also the Mexican Stock Exchange was affected. This imbalance in the world economy reflects the weight that China into the world economy. To avoid this situation country more generally exposed developing countries such as Latin America and Mexico will replace the Chinese market for the African market. It is time to diversify their exports and channeled to new horizons. The African market is the current trend; given its various funds, net population growth and political and economic stability it offers. In fact according to research, by 2015 it is projected that Africa will be the world's largest market with a population of two (2) billion.

References

[2] **Bustelo, G.** (2005). China en la economía mundial fortalezas, debilidades y perspectivas. Cuadernos de Información económica, Nº 186, 74-81.

Dirección General de Relaciones Económicas Internacionales. (2014). China como comprador mundial de productos agrícolas, pesqueros y alimenticios. Oficina de Estudios y Políticas Agrarias: Departamento de Estudios. Chile.

[1] **Esquivel, e. (2015). "**Importancia de las bolsas de valores del mundo y su impacto en México" spdnoticias.com, consultada el 20 de octubre a las 7:00 horas.
http://www.sdpnoticias.com/nacional/2015/08/25/importancia-de-las-bolsas-de-valores-del-mundo-y-su-impacto-en-mexico

[6] **Estévez, A, B**. (2014). La explosión de la inversión exterior latinoamericana: tendencias y evolución reciente de las multilatinas. Latin American Program. Woodrow Wilson International Center for Scholars.

[3] **Orozco, M, N.** (2015). Los 15 países con más exportaciones a nivel mundial. Forbes México. Consultado el 20 de Octubre de 2015. http://www.forbes.com.mx/los-15-paises-con-mas-exportaciones-a-nivel-mundial/

[8] **Fariza, I.** (2015). La debilidad china lleva las materias primas a mínimos de 13 años. El PAÍS. Consultado el 12 de Noviembre de 2015. http://economia.elpais.com/economia/2015/07/26/actualidad/1437937870_327794.html

[7] **Ray, R y Gallagher, K.** (2013). Boletin económico china- américa latina. Global Economic governance initiative.

[9] **Secretaria de Economía**. (2014). Comercio Exterior de México con China. Subsecretaria de Comercio exterior. México.

ISSN-On line: 2414-4959

[5] **Télam. (2015).** "Fuerte caída en principales mercados internacionales por temor a nueva desaceleración de la economía a nivel global". Agencia Nacional de Noticias**.** Consultada el 20 de agosto de 2015http://www.telam.com.ar/accesible/notas/201508/117039-economia-china-revalorizacion-euro-mercados.html.

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Development of technological innovation in SMES in the municipality of Tepetlaoxtoc, State of Mexico

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Abstract

In the municipality of Tepetlaoxtoc, State of Mexico, the various reasons why micro, small and medium enterprises suffer from a lag in technological innovation that prevents its growth are unknown. The magnitude of the problem, a descriptive research was applied as characteristics or features of the situation or phenomenon under study are outlined. (Bernal, 2010). an assessment tool for Business Innovation was applied to quantify the major deficiencies that had MSMEs in Tepetlaoxtoc, State of Mexico. Given the above, according to the survey of MIPYMES in the municipality, it was found that over 90% of companies are micro, which are not registered with the Servicio de Administración Tributaria (SAT), which further complicates the process to generate technological innovation on their own, since they are not suitable to apply to the various programs, funds and incubators to which it gives free access federal and state government.

Tepetlaoxtoc, Mexico State, Technological Innovation, MSMEs, backwardness**.**

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Introduction

During the period 1940-1970 industrialization in Mexico, given accelerated way funded by the agricultural sector, starting the import substitution model where dynamism generated in MSMEs starts, allowing them to thrive in a closed economy context and the small domestic market.

Subsequently, the entry into force of NAFTA in 1994 put an end to this model with the opening to the outside market. Faced with this change, Mexico is at a great disadvantage to the industrialized countries that already relied on methodical and scientific processes for the creation and development of innovation and technology, which the country had been tightening.

Schumpeter (1912) says that "the engine of economic development and structural change is innovation a process that goes beyond macroeconomic shocks and fluctuations in demand and that drives the economy to break with his "circular flow".

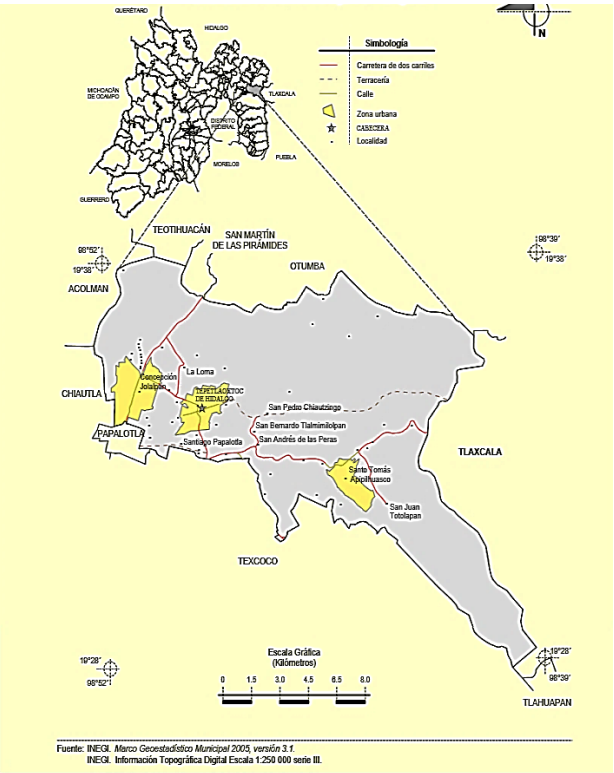
The theory of the "technology gap" argues that the main effects of technological change on specialization, are reflected in the innovations provided to specific countries and sectors most dynamic and enduring competitive advantages that are based on unit labor costs (Fagerbeb 1988 Dosietal, 1990 and Wakelin, 1997).

In this paper, the results that were reached based on research, and giving possible solutions to solve their organizational problems are mentioned.

Finally, conclusions and recommendations that were reached based on the issues raised will be presented.

Tepetlaoxtoc: A Brief Overview

Tepetlaoxtoc comes from the Nahuatl language and means "In the caves of tepetate". It is located at the eastern end of the Valley of Mexico. It limits the north with the municipalities of Teotihuacan, San Martin of the Pyramids and Otumba; south with Papalotla and Texcoco; east with the states of Tlaxcala and Puebla; and west by the municipalities of Acolman and Chiautla. It covers an area of 172.38 square kilometers and has 42 communities. Apart it occupies 0.8% of the state's area.[69]



Fuente: INEGI. *Marco Geoestadístico Municipal 2005, versión 3.1.*
INEGI. Información Topográfica Digital Escala 1:250 000 serie III.

According to the results of the Census of Population and Housing 2012, conducted by the INEGI, the municipality had a total record of 27.944 inhabitants of which 10,925 constitute the economically active population (EAP) and 95.22% are occupied.

[69] Source: Municipal Electoral Platform Tepetlaoxtoc 2013-2015

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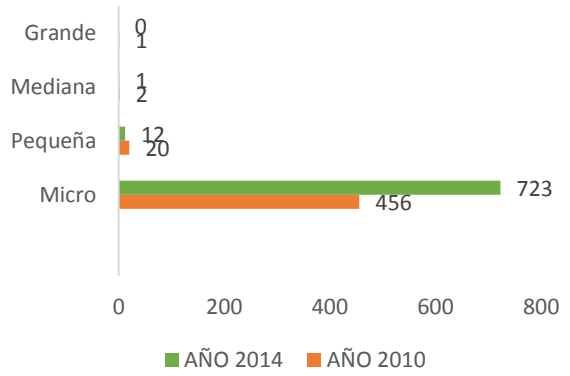
The 51.31% are employed in the tertiary sector, 36.63% are occupied in the secondary sector and 10.21% in the primary sector.

According to records in the National Statistics Directory of Economic Units (DENUE), in 2010 there were 526 economic units, of which a filter, where he was ruled to organizations of educational, health and government sector was held, determining that the municipality were 479 companies, divided into micro, small, medium and large enterprises.

2014, and updating records DENUE, 821 economic units were registered, and doing the same filter, the number decreased to 736 economic units. Registering an increase of 257 companies in four years, representing 71.39% growth.

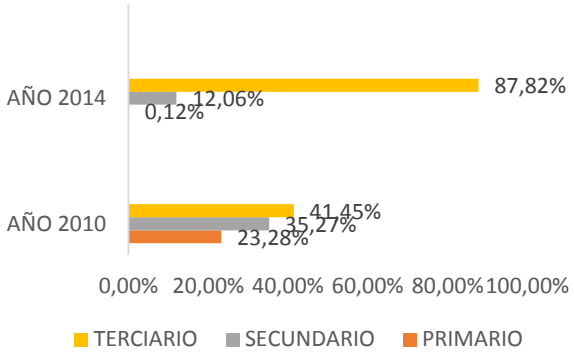


Source: Made by myself. Based on data from the National Statistics Directory of Economic Units (DENUE). 2010 and 2014.

Graphic 1 Number of Companies

Moreover, growth was markedly different economic sector between 2010 and 2014, by 2010 the primary sector accounted for 23.28% of the companies engaged in this sector, no clutch, in 2014 was severely reduced 0.12%.

The secondary sector 35.27%, declined to 12.06%. Finally, the tertiary sector grew by more than 50% over 4 years. From 41.45% in 2010 to 87.82% for 2014.



Source: Made by myself. Based on data from the National Statistics Directory of Economic Units (DENUE). 2010 and 2014.

Graphic 2 Growth Sectors

Micro enterprises are mainly engaged in the tertiary sector, contributing more than 80% of the town's economy**.** With respect to gross domestic product (GDP) was generated in the Municipality for 2010 was 402 (2003 million pesos), equivalent to 0.05% of the state total. But for 2012, the GDP fell to 368.75 (Millions of pesos) Municipal GDP (Base 2003 = 100), equivalent to 0.04% of the state total. As for 2012, the GDP of the State of Mexico of 9.14% nationally. And the GDP per capita of the population of the municipality of Tepetlaoxtoc of 1,836 pesos per capita.

For the eighties technological innovation was visualized as something coming from outside in the form of equipment, tools, patents and / or licenses (static approach).

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However, in complex and turbulent environments as is characteristic of globalized markets, it emerged, and now with greater intensity, an interest dominate the competition with media developed within the organizations (dynamic approach), recognizing innovation technological and non-technological developed within the organization or outside of it by combining both a key element in the prosperity of a country due to the processes developed to generate knowledge, to produce research and building human capital.

Technological innovation

Technological innovation goes beyond R & D (Research and Development), given that encompasses all phases trade finance scientific, technical, and necessary for the development and successful marketing of new or improved products.

The technological innovation activities include:

- Investigation and development.
- The acquisition and generation of relevant or new to the firm, such as the acquisition of foreign technology in the form of patents, non-patented inventions, licenses, know-how, trademarks, designs, models and other scientific and technical knowledge related services with the introduction of technological innovation and the purchase of software packages; acquisition of machinery and equipment technologically improved performance, related to innovation implemented by the company.
- The priority related to production, such as the development of tools, process engineering and industrial designs, tools and equipment, personnel training, among others.
- Furthermore, technological innovation is a result of two factors:
- Increased knowledge; Y
- The way to achieve technological innovation is applying new knowledge or discovered by others in order to get an upgrade.

MSMEs and Innovation

In Mexico, of the 4 million registered economic units, 99% are MSMEs (micro, small and medium enterprises). These businesses contribute 52% of the total Gross Domestic Product (GDP), while the remaining 48% is contributed by the top 1% of large companies. (INEGI, 2010)

The State of Mexico is the most populous state of Mexico with 15 million 175 thousand 862 people living in an area of 22 000 353 km2. The surface of the body is not very large for the population thus has only found above Hidalgo has a population of 2 million 665 thousand 018.

"The economic indicators show that the state entity of Mexico ranks second in the country with a high value of 91 thousand 268 million dollars (mdd) more Gross Domestic Product (GDP), representing 9.14% of the national volume total. To get an idea of the volume of GDP in the entity, just say it's more than the total GDP of Puerto Rico totaling 77 000 136 billion. However, because the company is also the most populous, the per capita GDP of 5000 is $ 759, lower than the national average of 8000 $ 635 figure. Furthermore, it ranks 23 in the State Competitiveness Index. This index examines the ability of a company to attract and retain talent and investment, and has 10 sub-indices that can be divided into three categories: 1) Political and Government, 2) system environment and society, and 3) economy, market and innovation factors.

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The Mexiquense Council of Science and Technology (COMECYT) emerges as an institution within the State of Mexico that promotes human capital formation, scientific research, technological development, innovation and dissemination of science in order to generate higher productivity, competitiveness and modernization of the State of Mexico. For it carried out the following functions: a) provides scholarships and financial resources for the training of students and professionals in areas of scientific and technological expertise; b) made financial contributions to the projects of CTI, and facilitates collaboration agreements between educational institutions, CI, public and private organizations; c) detects and tracks human resources with scientific and technological skills in the organization and links by performing stays, symposiums, conferences and other events; d) recognition and encouragement given to citizens with merits and achievements in the areas of science and technology. COMECYT mission is to promote and support the progress of science and promoting the development and use of new technologies to meet the needs of society mexiquense, with transparent processes that enable optimal utilization of the resources allocated.

Innovation is the introduction of a new or significantly improved product, process, organizational method or marketing in the company (Oslo Manual, 2006). Companies engaged in innovation in order to increase production, reduce costs or gain competitive advantage over their competitors; All these activities generate growth for the company and its economic environment. In this regard it is of utmost importance to the economies have a measure of innovation activities and technological efforts by companies in order to foster or continue to promote these activities.

Patents are one of the most common indicators for global innovations because they contain information about the inventiveness of companies necessarily have potential to be produced at industrial level.

In the State of Mexico the number of applications has grown steadily over the whole period analyzed, with an average annual growth rate of 6.3%. In 2012 the participation of the entity in the total number of patents at the national level was 7.4%. The state ranks fourth nationally in the number of applications submitted throughout the period; the first place is the City, followed by Nuevo Leon and Jalisco.

Innovation as a strategy to increase the competitiveness of companies consolidates its position in the market and competes in the long term. Innovation is a complex process capable of measuring through the monitoring of various activities including, in general, the generation of new processes and the development and introduction of new products. Survey Research and Technological Development (ESIDET) can generate indicators that characterize the innovative activities, the scope of new products and business processes, and the degree of involvement of the companies.

Based on information from the ESIDET of 2012 is that the State of Mexico has a relatively high number of companies carrying out innovation activities, with a rate of 9.82 per thousand innovative companies domestic companies the entity exceeds the national average 8.23 companies. The technological maturity of the companies is a derived indicator ESIDET which measures the degree of assimilation and development of new technology companies through an index on seven levels, whose interpretation is rising: from low to high degree of technological maturity.

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Thus it is that production companies in the State of Mexico with a rate of 1.32 have a degree of technological maturity with relatively lower than the national index of 2.07**.** In addition to the above in the entity only 16.3% of companies made incremental product innovations, ie changes that improve their performance valued by customers, but where the essence of them is not changed. Also it emphasizes that only 18.55% of the entity companies innovated product with global reach, while nationally it takes 21.3% of the companies. Finally it is noted that the entity 21.61% of companies state they operate in linking innovation, a percentage that places the entity below the national average of 36.85%".[70]

Instrument Construction and Design of the sample

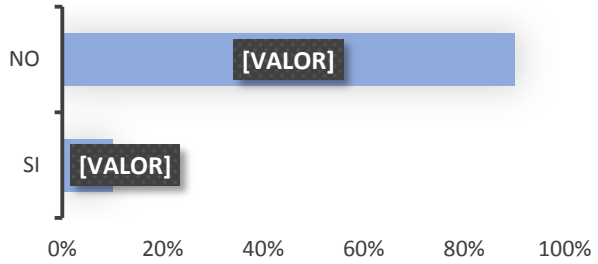
The tool consists of six blocks. The first block is to identify the participating company. The second collects information on general aspects of innovation of products and / or services developed in the surveyed company. The third section focuses in more detail about the characteristics of innovation processes acquired. Then, the fourth block analyzes the sources of information for innovation activities. After the fifth block mentioned factors hampering innovation activities. Finally, the sixth block lists the intellectual property rights of innovation.

According to records in the National Statistics Directory of Economic Units (DENUE), in 2010 there were 526 economic units, of which a filter, where he was ruled to organizations of educational, health and government sector was held, determining that the municipality were 478 companies, divided into micro, small, medium enterprises.

[70] Source: Diagnostics State for Science, Technology and Innovation 2014, p. 23-43.

II- Results

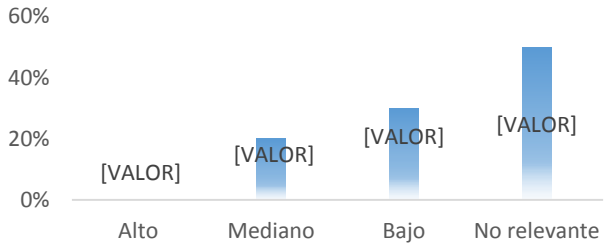
The results of the surveys conducted in the municipality of Tepetlaoxtoc entrepreneurs are presented.



Source: Own elaboration

Graphic 1 Development of innovation activities for products or services During the years 2010 to 2014

In Figure 1, we see that only 10% of MSMEs in the municipality of Tepetlaoxtoc, State of Mexico, active in innovation in products or services offered. Remarkably, this corresponds to only 10% of small and medium enterprises sector. Leaving lag to micro enterprises, which account for 90% of establishments in the municipality.



Source: Own elaboration

Graphic 2 Importance of Innovation

This table can be seen as only 20% of the companies interviewed considered a medium status to the importance of innovation, 30% established a low status, and 50% said they would be relevant implementing innovation in the organization.

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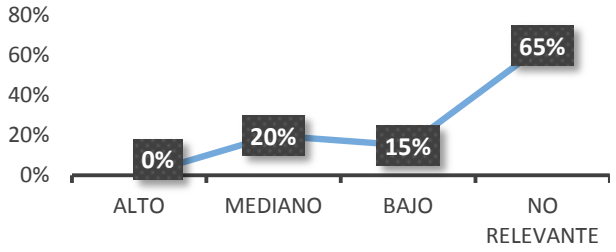
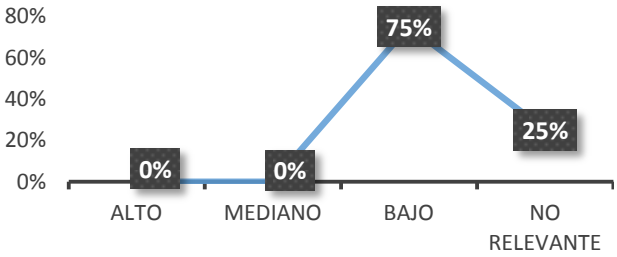
With these results, and through the application of the questionnaire, it was found that within MSMEs need a corporate culture that allows inform, develop and implement the benefits that the implementation of innovation within the organization.



Source: Own elaboration

Graphic 3 Entering new markets or increased market share through innovation

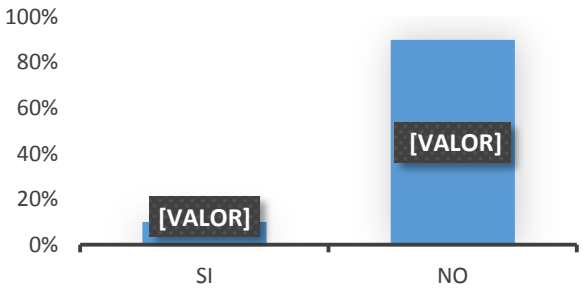
Innovation companies that were implemented in the period comprising the years 2010-2014, only 20% had a degree of medium-range to entry for new markets for their product or service; 15% noticed low and 65% was not a relevant factor, since not implement innovation.



Source: Own elaboration

Graphic 4 Improved qualities of products or services

In this graph, companies that implemented innovation, they noticed a low percentage compared to improving the quality of products or services offered to its market. While 25% represent companies that did not implement innovation.



Source: Own elaboration

Graphic 6 Has implemented organizational innovation during the years 2010-2014

With regard to the organizational implementation, 90% of MSMEs, said failure to implement any improvement or internal significant change in the company. In addition, only 10% introduced this type of innovation, having resulted in a median change from time reduction in responding to the needs of its customers. Moreover, this limited their search for suppliers to obtain raw material.

Remarkably, 90% of organizations that did not implement organizational innovation said they were not interested in its future implementation. And the remaining 10% only saw one more method, unable to distinguish their advantages.

Moreover, since most companies are micro, they did not have adequate staff to such implementation, hence, lack of interest. Affecting the way of marketing your product or service.

Since these micro and small enterprises are mainly engaged in local market that circumscribed their municipality. How to distribute your product, it did not have a structure and even a method. So most guests had to go to the hotel for their product, and in the case of services, the attention was a little lengthy.

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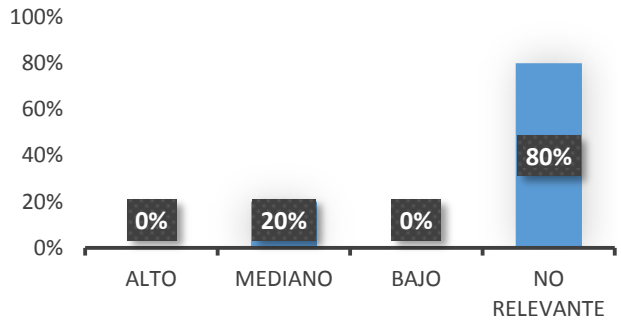
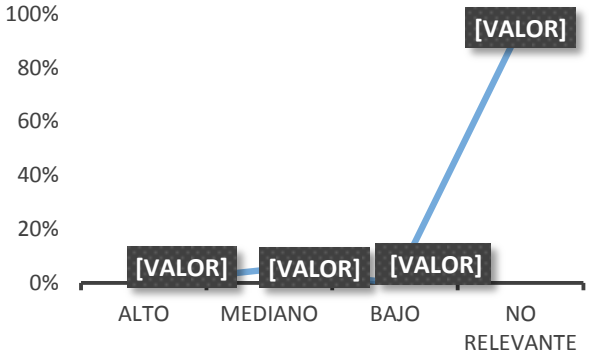


Source: Own elaboration

Figure 7 Effects of innovation in the organization



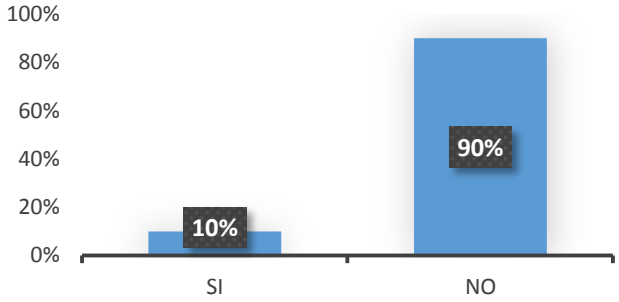
Source: Own elaboration

Graphic 8 Reduced prices through promotions

In the graph we can see how the application of innovation in the organization, such as new or significant changes in company structure or management methods that are intended to improve the use of knowledge or efficiency workflows, hit only 20% in medium grade companies that introduced the change.
Note that the generators of this innovation, part of the range of small to large enterprise. This means that less than 1% of firms in the town of Tepetlaoxtoc induced this change, and over 99% are still in a structural and business lag affecting its improvement by not considering significant positive changes they can make.

In addition, only 5% lowered prices through promotions, this is clearly reflected in the cost that had the implementation of business innovation.

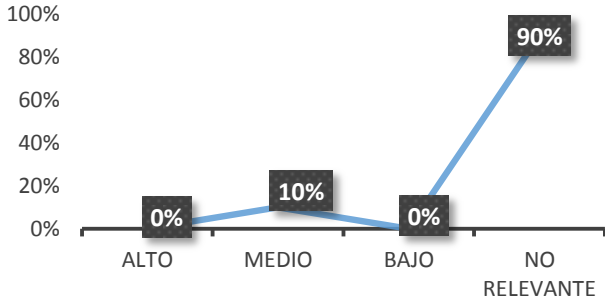
However, when asked about the cost I had the innovation process and why not about generating more promotions to make their products or services more accessible to consumers, survey participants chose to omit the question.



Source: Own elaboration

Graphic 9 Conducted innovation activities in the production of a product or service during the years 2010-2014

In this graph, during the four years, only 10% of businesses started and finished a process of innovation in the production of its products or services, while 90% were not relevant to them, or they obtained tools to reduce common or commercial production processes.



Source: Own elaboration

Graphic 10 Effects of process innovation

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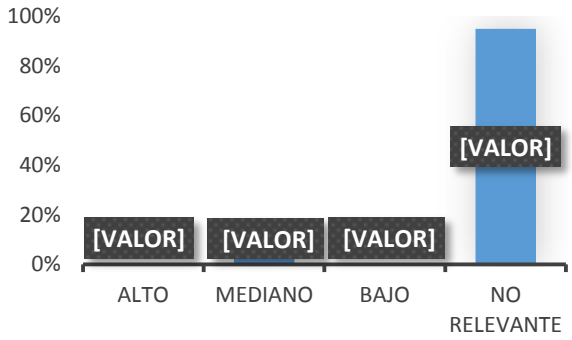
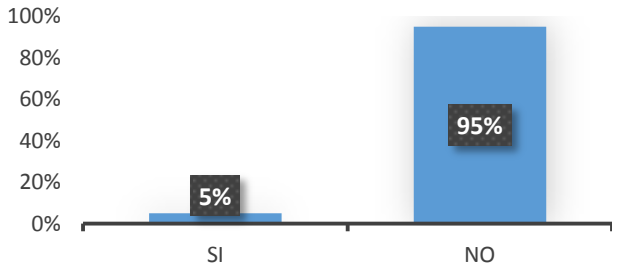
The effects seen by the owners in the implementation of innovation in production processes had a grade average of 10% relevance. What it says it had an impact, but still was not as expected. While the remaining 90% representing MSMEs not implemented innovation in production.



Source: Own elaboration

Graphic 11 Reduction of time to respond to customer and / or supplier

Derived from the innovation in the organization and production, and the customer being the main factor for the success and development of MSMEs and large business, the effect seen by only 5% of business owners noticed a mean change in reducing time to respond to their customer needs. Now the process inventories possibly used reduced the time to obtain raw materials from suppliers.

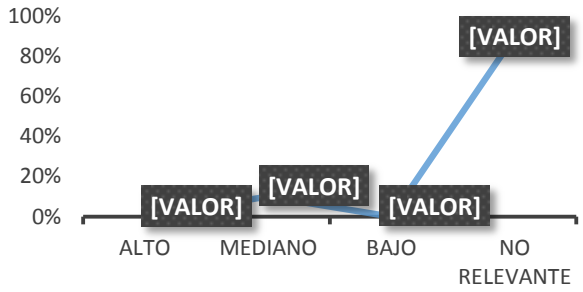


Source: Own elaboration

Graphic 12. Has commercial innovation activities implemented during the years 2010-2014

Regarding commercial innovations, which is the implementation of new or significantly improved designs as sales and distribution methods to increase the attractiveness of its products and services and thus enter new markets, making only 5% of MSMEs applied or they are being implemented, while 95% did not implement any commercial innovation.

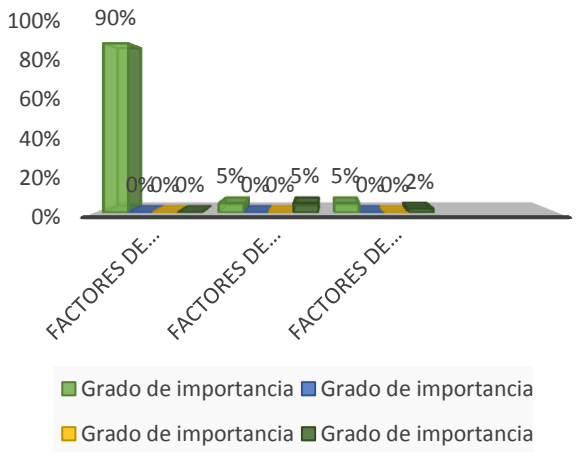
The factor for not implementing innovation was the cost of this and the time required for development.



Source: Own elaboration

Graph 13 Effects of innovation in marketing

However, businesses that implemented marketing innovation, only 10% had an average degree of development as the cost for implementing required both materials and trained personnel. And 90% are companies that abandoned innovation or not tried to implement or did not know what commercial innovation was.

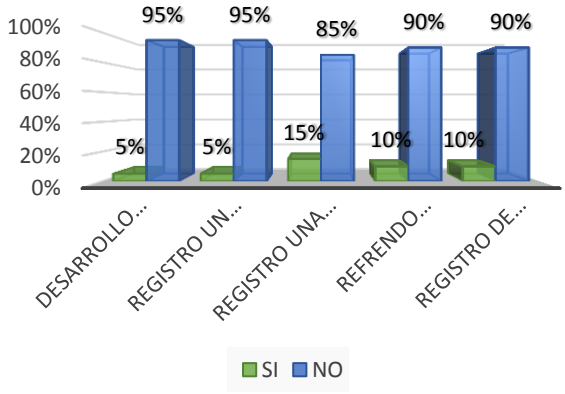


Source: Own elaboration

Graphic 14 Factors that hamper innovation

In this graph, we can see clearly as the biggest obstacle to the development of innovation in MSMEs in Tepetlaoxtoc, MEXICO State are the cost factors. At the interview, many business owners, said they had no notion of institutions or funds to support the implementation of innovation.

Making access to financing the biggest problem to attack, deriving to impede other factors, both knowledge and market.



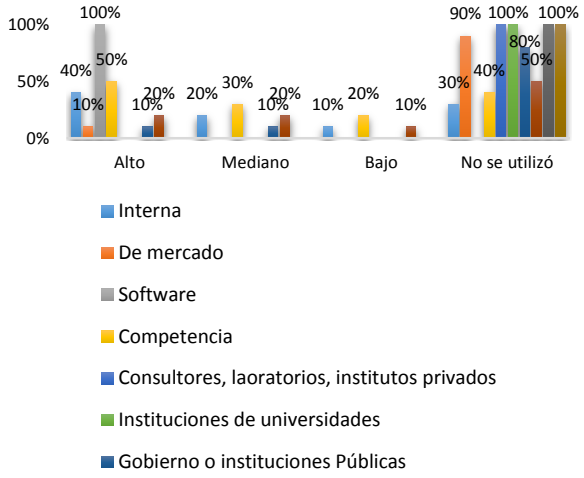
Source: Own elaboration

Graphic 15 Intellectual property rights

Since the cost factors are the main problem for the development of MSMEs, information on the benefits of innovation is also ignorance for trademark registration.

In addition, MSMEs that have low growth prospects and this no more than two years. Doing that only companies that reach small, but consist of a solid form, and midsize companies go on to develop patents, registered industrial design, trademark registrations, copyright endorsement and registration of a logo.

It is the highest percentage of the registration of a trademark, 15% of companies, only considered to SMEs, in addition to forming the lowest percentage in relation to companies established in the municipality of Tepetlaoxtoc, State of Mexico.



Source: Own elaboration

Graphic 16 Sources of innovation cooperation

In the graph on the sources of innovation cooperation, many of the owners or representatives of MSMEs Tepetlaoxtoc Township, State of Mexico, concluded that their total resource is due to the use of software developed primarily by an external agent the company, but that generates innovation and exclusively within the organization. While getting help to generate innovation was not obtained directly from the government sector, so that innovation expenditures were made directly by the organization. And to visit and be involved in conferences and exhibitions had a degree of 50% not be used.

Conclusions

Based on the results obtained from the survey of the MIPYMESS Township Tepetlaoxtoc, State of Mexico, one could deduce that there is a lag in technological innovation in the city, since most do not have a notion of innovation development.

For the years 2010 to 2014 only 10% of MSMEs active in innovation in products or services offered. On the other hand among the major causes of poor development of innovation, the cost was 90% of relevance within the main obstacles to the implementation and development of innovation.

Since there are 478 economic units in the city mostly devoted to the tertiary sector, with the main feature in the market informality and poor internal organization, generating an increase in the rate of negative results corresponding to the 4 main types of innovation mentioned in the survey, representing 90% of poor results.

Not to mention, given the nature of the question, was not obtained clear whether the development of these innovations are still carrying out or stopped in the corresponding period a year 2010-2014, this information was restricted by policies and distrust the same organization. The most notorious were the following issues, human resources, technology, financing and management of the legal framework. So we propose:

- Carry out the strategic plan for technological innovation in MSMEs, of Tepetlaoxtoc, State of Mexico, to reduce informality and involve businesses and government support programs that aid the organization in its development and continued market , achieving a boost to the establishment of their own innovation.

- Helping micro businesses in their struggle for the permanence of their companies in the market, creating competitive advantage employment of university students and their development as future business managers and management of SMEs, being a being hand cheap labor, but full of innovative ideas that will contribute positively to its improvement.

- Measure the results after the implementation of the plan to create a new action tool that provides innovative ideas for MSMEs.

- Encourage micro entrepreneurs in developing your organization to generate more jobs and prosperity for the growth of micro enterprises.

References

Calahorrano, M. Sara. (2011). La Innovación Tecnológica conlleva Competitividad y Rentabilidad. Expansión. Recuperado el 10 de Marzo de 2015 de http://www.expansion.com/2014/11/24/economia/1416819462.html

ISSN-On line: 2414-4959

Comité intersectorial para la innovación. (2011). Programa nacional de innovación. México.

CONACYT. (2012). Desempeño de la innovación en México. Recuperado el 10 de Julio de 2015 de: http://www.conacyt.gob.mx/siicyt/index.php/centros-de-investigacion-conacyt/indicadores-cientificos-y-tecnologicos/tabulados-en-encuestas/2005--311/file

CONDUSEF. (2015). Programas y Opciones de Financiamiento para PYMES. Recuperado el 10 de Julio de 2015 de: http://www.condusef.gob.mx/index.php/empresario-pyme-como-usuarios-de-servicios-financieros/118-programas-y-opciones-de-financiemiento-para-pymes

Estrada, Salvador, y Heijs, Joost. (2003). Innovación Tecnológica y Competitividad: Análisis Microeconómico de la Conducta Exportadora en México. España: Instituto de Análisis Industrial y Financiero. Universidad Complutense de Madrid.

Fernández Sánchez, E., y Vázquez Ordás, J. (1996). El Proceso de Innovación Tecnológica en la Empresa. España: Universidad de Oviedo.
Fondo PYME. (2015). Fondos para MIPYMES. Recuperado el 22 de Mayo de 2015 de: http://www.fondopyme.gob.mx/

Foro Consultivo Científico y Tecnológico, AC, Gobierno del estado de México y COMECYT. (2014). Diagnósticos Estatales de Ciencia, Tecnología e Innovación 2014, Estado de México. México: Estado de México.

Gobierno del Estado de México. (2012). Plan de Desarrollo 2012-2017. México.

Goycochea Pineda, Yennely Eloisa. (2012*). Diseñar Sistema Estratégico de Innovación Tecnológica para las PYMES Manufactureras*. (Tesis para Maestría). Unidad Profesional de Ingeniería y Ciencias sociales y administrativas. Instituto politécnico nacional.

Gutiérrez, Gabriela. (2011). El Emprendedor Extranjero "Ama" a México [En línea]. CNN Expansión. Recuperado el 25 de Febrero de 2015 de http://www.cnnexpansion.com/expansion/2011/11/25/un-lugar-de-oportunidades
IMSS. (2015). Registro patronal. Recuperado el 3 de Mayo de 2015 de: http://www.imss.gob.mx/tramites/imss02001g

Mabel Fernández, Fernanda. (2009). *La innovación Tecnológica. Pautas para una Comunicación Predictiva a los Usuarios Externos*. (Tesis Doctoral). Facultad de Ciencias Económicas. Universidad de Buenos Aires.

Municipio de Tepetlaoxtoc, estado de México. (2012). Tepetlaoxtoc, Plataforma Electoral Municipal 2013-2015. México: Estado de México.

OCDE y Eurostat. (2005). Manual Oslo. Guía para la Recogida e Interpretación de Datos sobre Innovación. Editorial Grupo Tragsa Empresa de Transformación agraria, S.A. Tercera edición.

OLA (2007). Las MYPIMES en Latinoamérica. Latinoamérica: Estudios e Investigación en la Organización Latinoamericana de Administración.

ISSN-On line: 2414-4959

Pardo Millán, Eva Alejandra, y Rojas Zúñiga, Estefanía. (2012). *Factores que Limitan el Crecimiento y la Apertura Comercial de las MIPYMES en un Contexto Globalizado: Un Estudio Aplicado al Municipio de San Luis Potosí*. (Tesis para Licenciatura). Facultad de Economía. Universidad Autónoma de San Luis Potosí.

Sáez Vacas, F., García, O., Palao, J. y Rojo, P. (2003). Innovación Tecnológica en las Empresas. España: Universidad Politécnica de Madrid.

Secretaria de Desarrollo de Económico del Estado de México. (2015). Registro Estatal de Tramites Empresariales. Recuperado el 1 de Agosto de 2015 de: http://www.edomexico.gob.mx/rete/rete.htm

Secretaria de Economía. (2014). Innovación y desarrollo tecnológico en las PYMES. México: Instituto Nacional del Emprendedor.

Servicio de Administración Tributaria. (2010). Guía Práctica: Ingresos por Actividades Empresariales, Régimen Intermedio. Recuperado el 1 de Junio de 2015 de: http://www.sat.gob.mx/fichas_tematicas/declaracion_anual/Documents/Guia_Actempresariales_RIntermedio2010.pdf

SAGARPA. (2011). Agenda de Innovación Tecnológica para el Estado de Baja California Sur. México: Estado de Baja California Sur.

SAGARPA. (2012). Programa de Desarrollo de Capacidades, Innovación Tecnológica y Extensionismo Rural. Evaluación Estatal del Funcionamiento y la Operación 2012, en el Estado de México. México: Estado de México.

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Liberalization of gasoline prices and inflation in Mexico

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Abstract

The aim of this work is to measure the impact of a policy of deregulation of gasoline prices on inflation in Mexico, from a controlled price to an uncontrolled one determined by supply and demand. The hypothesis establishes that upon an increase in the gasoline price in a magnitude equivalent to the one needed to eliminate the fuel´s subsidy, the inflation would rise exceeding the limits established by the Central Bank of Mexico. The consumption and demand patterns of gasoline in the economic sectors and in the population are analyzed. The Input-Output price model is used. This model helps to analyze the impact on the industry of an increase in the gasoline price as well as to measure the impact on the price index.

Gasoline Prices, Inflation, Input-Output, IEPS.

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Introduction

The Mexican government operates a policy of oil prices-particularly from Magna and Premium gasoline and Diesel- in which they are administered, ie, are not determined by market supply and demand. Because the formula to calculate it, one of the taxes that form part of the price of gasoline-the Special Tax on Production and Services (IEPS) - has represented for some years, a transfer of resources from government to consumers to maintain prices for those fuels in the set level. In 2012, the transfer of resources for these fuels IEPS totaled 203,128.5 million pesos (SHCP, 2012). This has been considered to delineate the pricing policy of Magna and Premium gasoline and diesel, which consists of newspapers and gradual increases in fuel prices, which seeks to reduce expenditures for IEPS performing the government.

To eliminate the transfer of resources -subsidy-, the IEPS should have a value equal to or greater than zero. This is possible through politics or current prices through price increases made at once and subsequent liberalization of prices with which this tax can take positive values. The liberalization of gas prices involves changing its managed one free character, allowing the IEPS stop being negative and that its value is at least equal to zero. This would imply that prices, according to their calculation fluctuate according to the international reference price,[71] which it is characterized by high volatility and reaching record highs.[72]

Also, gasoline is one of the goods which is incorporated in the basic package and uses the National Institute of Statistics, Geography and Informatics (INEGI), to calculate the National Consumer Price Index (CPI). This index is used to measure the change in prices over time of this basket, which is representative of expenses by families in Mexico; that is used to measure inflation. Therefore, variations in gas prices directly impact on the NCPI through spending that makes the population for use primarily in private vehicles, and impacts indirectly on inflation to be used in industry or transport goods and passengers, although its use is to a lesser extent.[73]

The objective of this work is to estimate the impact that the liberalization of Magna gasoline prices on inflation in Mexico. Accordingly, this liberalization would have a positive potential effect on the overall price level, and therefore negative in the purchasing power of the population. To measure the effect of price liberalization through elimination of the subsidy, a simulation of an increase in the price of gasoline equivalent necessary to ensure that the IEPS is zero. For this, the input-output matrix of Mexico (2003) is used. One possible use for this is to encourage the implementation of measures, the pair can be taken to mitigate the potential positive impact that could have on inflation.

There have been studies for Latin America and the Caribbean that has proven this hypothesis (see, for example, Iraheta et al, 2008;. Rincón, 2011; Pincheira and Garcia, 2007). The results indicate that the impact on inflation of a clash of fuel prices is low and that the presence of such fuels subsidies could influence the resulting magnitude.

[71] Spot price of regular unleaded gasoline in force in the American Gulf Coast of Mexico.

[72] The price of Magna gasoline in December 2012 was 10.81 pesos per liter in Mexico and 12.49 in the US.

[73] While gasoline demand is primarily for use in private transport vehicles with internal combustion engine, also it has other uses that represent a small part of its total demand.

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However, the results of these studies are based on the method and the peculiarities of the country. In the methodology we used either an econometric model with vector autoregression (VAR), or the model input-output matrix and in general, the results of these studies show relatively low magnitudes compared with the obtained in this work.

The work is divided into three sections. In the following, the theoretical framework in which inflation is defined and approaches that explain their origins (as well as the instruments of monetary policy in Mexico) in paragraph three discusses background and discuss the determination is exposed price of gasoline. the fourth section presents the model that measures the impact of the elimination of the subsidy on gasoline prices and their results. The last part presents the conclusions.

Inflation: some notions

Inflation is defined as the continued rise, widespread and sustained (usually six months) prices of goods in an economy. Inflation is not a one-time increase in the general level of prices; also it refers to the increase in the price of one or a few products in the economy (Frisch, 1988). When talking about inflation, rising prices is sustained in representative goods household spending in a country.

Several types of inflation which can be classified according to different criteria. For example, according to the magnitude of inflation, this can be classified as creeping, moderate, galloping and hyperinflation (Frisch, 1988). The creeping inflation is one in which, besides the absence of high inflation expectations, its magnitude is not greater than 3%. For moderate inflation they were greater than 3% and reaches 30% (Cottarelli and Szapary, 1998).

Galloping inflation is one in which the general price level is higher than those recorded in moderate inflation and rising faster. Finally, hyperinflation occurs when the annual inflation rate is equal to or greater than 1000%. In this type of inflation, rising prices are on an accelerated, causing increasingly greater demand for currency by the population (Dornbusch et al., 2004).

Besides, to measure the change in the general level of prices over time the CPI, which is representative of spending on goods and services by households in an economy at a particular point in time is used. To measure this variation, the index is calculated using a base period or reference, used to allow comparison of the change in the general price level at two points in time. Goods used for calculating the CPI are grouped into concepts that are weighted according to the weight that within the total expenditure.

A method for calculating the consumer price index is (Frisch, 1988):

$$P_t = P_0 + 100 \sum_{i=1}^{n} g_i \frac{\Delta p_i}{p_i^0} \quad (1)$$

Where P_t is the index that represents the overall price level in period t, Δpi is the change in price of good i between period t and base period, PI0 is the price of good i in the base period, gi is the weight of price of good i in total goods consumed in the basket of goods, P0 represents the price level in the base period. The value of this index in the base period is equal to 100, while in period t can be represented by the sum of the price level in the base period plus a weighted sum of the rates of change in prices for each of the various goods (Frisch, 1988).

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To calculate the CPI in Mexico Laspayres index formula is used, whose main characteristic is to keep both goods fixed base period, as the weights of the groups of goods. Thus, in the comparison of price levels in two periods, only the change in price rather than the quantities of goods of the consumer basket it was observed. This gives you an advantage over other indices such as Fisher and Pasche. As Laspayres index is a method used worldwide, inflation in Mexico is comparable with that of other countries.

In Mexico, the CPI is calculated in two stages (INEGI, 2011). First called generic rates, relatively homogeneous grouping together goods are calculated. These indices are a result of calculating a geometric mean:

$$I_j^{b:t} = \prod (\frac{p_i^t}{p_i^b})^{1/n} \quad (2)$$

Where I_j^{bit} is the index of the generic j in period t, pit represents the price of an i homogeneous group of goods and services (specific) at time t, and GDP is the price of a homogeneous group of goods i and (specific) services the base period. Second, generic indexes are used to calculate rates of aggregation, ie sub-indices, which are determined by applying the following formula weighted arithmetic mean:

$$I^{b:t} = \sum w_j^b I_j^{b:t} \quad (3)$$

Ibit where is the index of the generic j in period t is the weighting WJB generic information j expense in the period b; with Σwjb = 1. Finally, these sub-indices are grouped to lead to inflation. In Mexico, the INEGI calculates the weights using information from household spending nationwide, through an expense ratio of property and the total household spending. Each weighting corresponds to a "generic".

There are 283 generic concepts in the basket to calculate the CPI. In the case of Magna and Premium gasoline, its weight in the total household expenditure is 3.79 and 0.44 respectively; Magna gasoline is the third most heavily weighted generic product after homeownership, and snack bars, taverns, and taco torterías (Table 1).

Generic product	weighting
homeownership	141.493
Snack bars, taverns, and taco torterías	387.540
Low-octane gasoline	379.455
Restaurants and similar	342.580
Rent housing	338.020

Source: INEGI (2013).

Table 1 Generic products greater weight

Besides, in the literature are the main explanations for the causes that give rise to inflation. On the one hand, the inflation caused by "pressure demand", increased the general level of prices occurs when an increase in aggregate demand occurs so quickly that exceeds the speed of response of aggregate production of goods and services, which makes people pay increasingly high prices for relatively scarce goods (Slawson, 1981). Increases aggregate demand can be caused by several factors, such as increasing the propensity to consume and the levels of private investment, government spending increases and increases the money supply and exports (Frisch, 1988).

On the other hand, inflation for the "cost push" occurs when commodity prices rise, increasing the costs of production of other goods whose inputs are now more expensive, so the producers of these goods increase their Prices also (Slawson, 1981). According to Lindbeck (1980), three types of cost-push inflation.

The first is the exogenous cost inflation, in which the source of the increase in the general level of prices is a result of increases in the prices of imported intermediate goods and an increase either of the profit margins of producers or the wages. An example of the increases in prices of imported intermediates may be international oil prices.

The second is that in which the producers who have market power, maintain a fixed price of an input to another producer relationship, following the behavior of prices that they take as a reference. In this case, inflation can occur when aggregate producers to obtain higher levels of income at current prices.

The last type is the "inertial inflation" which occurs when firms increase their prices by providing an overall higher price level for the foreseeable future products; in order to maintain without actual variations of current income levels (Frisch, 1988).

Both inflation pressure of demand, such as push costs are the main reasons mentioned in the literature which cause the general increase in prices. However, its limitations, and the difficulty is also drawn empirically to distinguish which of the two sources causes an inflationary process. Also, the static nature of both approaches is an additional limitation, as the price increase is considered one-time, not continuous and dynamic (Frisch, 1988).

Of the exposed approaches, pushing cost is one that best fits the case of a clash of fuel prices, namely a combination of inflation rates exposed. Under it, a rise in fuel prices may cause inflation because oil fuels are not only a good end-use, but also intermediate products, affecting other industries. In addition, a significant proportion of the gasoline consumed in Mexico are imported, a factor that also influences inflation, if the price of these were assumed as an unmanaged price.

Also, inflation inertia, related to inflationary expectations are elements that have the potential to contribute to the spread of inflation once the inflationary process unleashed in response to a crash in the price of fuels and liberalization.

Besides, the importance of calculating the inflationary effect of volatility and high prices of both oil and gasoline has been considered in the literature. Iraheta et al. (2008) conducted a study that estimated the impact of higher domestic gasoline prices, inflation in the member countries of the Central American Monetary Council. The results show that the impact of oil prices on fuel prices has been moderate, given that fuel prices do not fully capture the effect of increases in international oil prices due to domestic rigidities associated with subsidies and involvement of public entities in the determination of fuel prices. It also found that inflation responds slightly to changes in fuel prices, have a significant impact on inflation when these vary substantially. It emphasizes that the low response of inflation is associated with the existence of subsidies.

Besides, Pincheira and Garcia (2007) analyzed the effect of rising oil prices on total inflation in Chile and a set of industrialized countries through direct and indirect effect. The first does not affect core inflation, as only captures the increase in energy costs; while the second considers the price adjustments throughout the economy. The latter is divided into two components: one relating to costs, in the sense that the oil price is transmitted to the cost structure of the rest of the goods; and one that could occur as a chain of events that starts with a shock of oil prices amending inflation expectations anticipating a decline in real wages, so the nominal wage is pressed on the rise along with prices end the whole economy, reflected in core inflation.

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The results indicate a moderate positive effect in the short term, all non-core and core inflation, but economic importance for Chile.

The International Energy Agency (2004) conducted a study to quantify the impact of medium-term macroeconomic variables (including the consumer price index) of an increase in oil prices, for two groups of countries: members Organization for Economic Cooperation and Development (OECD) and developing countries (including Argentina, Brazil and Chile). The results indicate a negative and statistically significant impact of short-term and limited in the medium term, the consumer price index for the OECD countries; while for developing countries, the impact on the index is higher.

Corner (2011) studied the pricing of fuels in Colombia and calculated the inflationary effect of the removal of subsidy applied. An annual increase of 20% gasoline and fuel oil engines as well as reach the international price in the medium term, and uses the corresponding index weightings producer prices. Through the use of input-output, it estimated that an increase in gasoline prices imply a 20% increase in inflation from 0.54% in gasoline and 0.1% from fuel oil engines.

In the case of Mexico, Vergara and Diaz (2010) study the behavior of the CPI, the purchasing power and prices of certain products including fuels in Mexico; They conclude that the increase in administered prices of fuels like gasoline and diesel, coupled with the volatility of food prices, among other factors contribute to inflation and loss of purchasing power. Furthermore, Rye (2010) mentions that rapid increases in gasoline do not necessarily imply inflation climbs.

Policy gasoline prices

Prices of goods and services produced and provided by the Federal Public Administration in Mexico are established and reviewed by the Secretariat of Finance and Public Credit (SHCP). Within these goods are petroleum products produced by the state company Petroleos Mexicanos (Pemex). Currently, retail prices of Magna and Premium gasoline and diesel are administered; that is, they are not determined by market supply and demand, but at a certain level set by the authorities, so there is a lag between their movements and market trends.

The pricing of petroleum aims to "issue appropriate mechanisms through prices that reflect the opportunity costs in an open economy (using the price of a particular product on the international market) economic signals; so that market conditions are simulated in the context of the presence of a state monopoly, in addition to pricing mechanisms that provide a quick response to the conditions of supply and demand and achieve transparency in the price integration " (Ministry of Economy, 2010).

Furthermore, the Regulations of the Federal Law of Parastatal Entities (2008) states that the prices and rates of the entities are determined according to criteria of economic efficiency and sanitation, for which: i) prices and tariffs for goods and services susceptible traded internationally are set considering prevailing in the international market; and ii) for those goods or not likely to be placed on the international market services, pricing and tariffs are set considering the cost of production resulting from a valuation of inputs to their actual opportunity cost.

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The types of gasoline are traded internationally are distinguished by their octane number. Regular Unleaded gasoline has an octane rating of at least 87; in the case of gasoline midgrade, the minimum rate is 89; Premium gasoline and a minimum rate of gasoline 92. Mexico called Magna and Pemex Premium Pemex produced. The first is equivalent to Regular Unleaded gasoline while premium gasoline is equivalent to the international market. According to the IEPS, the international reference price used for gasoline is the spot price of regular unleaded gasoline in force in the American Gulf Coast of Mexico.

Regarding the current structure of gasoline prices, it must consists of two prices: the producer and retail. The first is applied by Pemex to sell in their sales agencies or storage terminals and then are distributed to service stations, where it is marketed to the consumer. The producer price, unlike the retail price, it is unmanaged. It is determined as (Ministry of Energy, 2011):

Producer price = Reference price + Quality adjustment + Shipping Cost Price + Cost management (4)

The quality setting is one that is applied to the reference price depending on whether quality among domestic gasoline and considered that the international market is different; transportation cost is one that is considered to transport the product from the refinery to the terminal storage and distribution (TAR); Operating costs are costs incurred to maintain the product in the TAR. The retail price is one that applies to final consumers and their components are:

Retail Price = Producer price + Charter + Commerical Margin + Taxes + $IEPS_{federal}$ + $IEPS_{estatal}$ (5)

Freight is the cost of transport sales agency Pemex service station; the profit margin is set by Pemex authorized to sell gasoline at the pump outlets; VAT is the value added tax, which applies to the sale of goods and services, the rate is 16% inside the country; IEPS is the special tax on production and services. In the case of state IEPS, it is a flat fee, while the federal IEPS is a variable rate.

Of the elements making up the price of gasoline, those who are relatively variables are the reference price and the IEPS, given varying monthly while others are determined based on criteria involving more temporary, so it could be considered fixed in the short term. The IEPS is a tax that applies to petroleum, including gasoline sales (among others). According to Article 2 A of the Law on Special Tax on Production and Services, the tax is divided into two parts: state and federal tax. The state tax is a fee that applies to the final retail price of gasoline and diesel, and varies according to the fuel. In the case of Magna gasoline share is 36 cents per liter; Premium for gasoline are 43.9 cents per liter for diesel and 29.8.

State fees are a fixed tax in which the consumer pays a fixed amount determined for each unit consumed, that is, the amount corresponding to the state fee tax is not in price, but the amount the consumer purchases. The federal tax is calculated monthly according to Article 2ºA, Section I of the IEPS law:

$$IEPS = \left[\frac{(\text{PVP}*\text{factor}) - [(\text{PR}+\text{quality adjustment} + \text{CM}+\text{CNT}) + ((\text{MC}+\text{f})*1)]}{(\text{PR}+\text{quality adjustment} + \text{CM}+\text{CNT})}\right] * 100 \quad (6)$$

Then

$$IEPS = \left[\frac{(\text{PVP}*\text{factor}) - (\text{PP}+\text{MC}+\text{f})}{\text{PP}}\right] * 100 \quad (7)$$

Where PVP is the retail price, the producer price PP, PR the international reference price. Monthly average spot price of regular unleaded gasoline in force in the Gulf Coast of the United States of America, PRAC the reference price adjusted for quality, cost management CM, CNT net cost of transporting international benchmark a national sales agency, MC is the trading margin fixed Pemex authorized outlets, f is the cost of transporting freight or agency sales of Pemex service station factor: equal to 0.9091 if the VAT is 11% of the geographical area in which the product is disposed of, and equal to 0.8696 if the VAT is 16% and PVP * factor is the retail price before VAT.

Taking into account all elements of the formula for calculating the IEPS are fixed, except for the reference price which is calculated monthly, this tax is practically based on the variation of the reference price and its magnitude varies the difference between the retail price and the producer price plus the costs indicated in (7). If the reference price - including in the producer price is higher than the retail price (excluding VAT), the IEPS rate is negative, otherwise, the rate is positive. Therefore, the collection of this tax is inversely related to the price of gasoline in the relevant markets, and these in turn with the price of crude oil on international markets.

When the IEPS rate is negative, it stops being a tax which resources are raised and becomes a transfer to consumers, which is considered to become a subsidy. The magnitude of this benefit is determined by the difference between the retail price managed public (whose magnitude does not necessarily correspond to the sum of the elements of the actual price, and that the magnitude of administered price is lower, when it generates subsidy) and the actual price (which is the sum of each of the above components of the retail price) multiplied by the total sales in the country.

If IEPS rate is positive it will be paid by the end consumer of gasoline. However, when the rate is negative, according to Article 7, Section II of the Revenue Act of the Federation (2012), Pemex may credit the amount of IEPS in their favor with other taxes such as VAT or ordinary rights, receiving and the amount of gasoline sales as if they had sold the real price.

Considering the gasoline market in Mexico, production has to Magna and Premium gasoline has maintained a steady trend since 1995; however, as shown in Figure I, sales of such fuels have increased, mainly from Magna. From 2000 to 2011, the Magna demand increased 70%. Of the total demand for oil in Mexico, the transport sector is the increased participation occupies approximately 70%. The increase in demand in the period is explained by the increase in the number of cars given expansions and credit facilities. From 2002 to 2009 the average annual growth rate of the vehicle fleet nationwide was 7.4%. This increase mainly of private-vehicle fleet use has consumed an average of 86% gasoline Magna and Premium gasoline (Ministry of Economy, 2010) rest. Other factors have also affected the demand for gasoline is Magna performance car engines, replacement alternative private transportation by public transport, infrastructure and travel times.

According to the Organization of Petroleum Exporting Countries (OPEC), oil demand in the transport sector only represents 50% of total demand, with a potential increase by developing countries; 2030 is estimated to increase in Latin America to 162 cars per 1,000 inhabitants.

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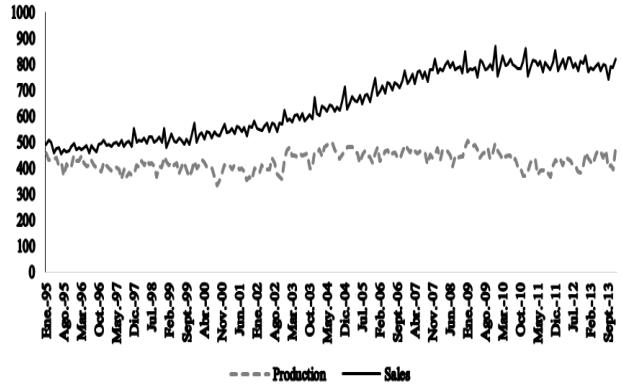
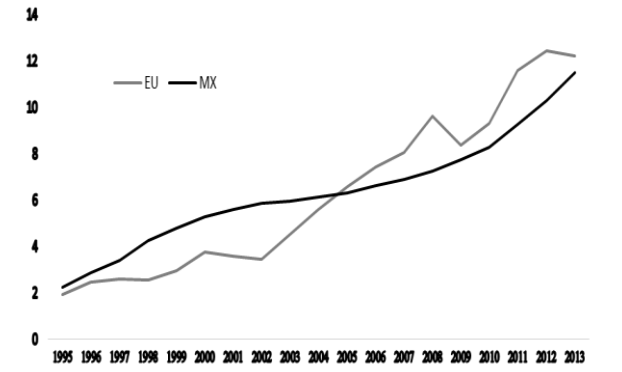


Source: Prepared with data from the Ministry of Finance, Bank of Mexico and Pemex.

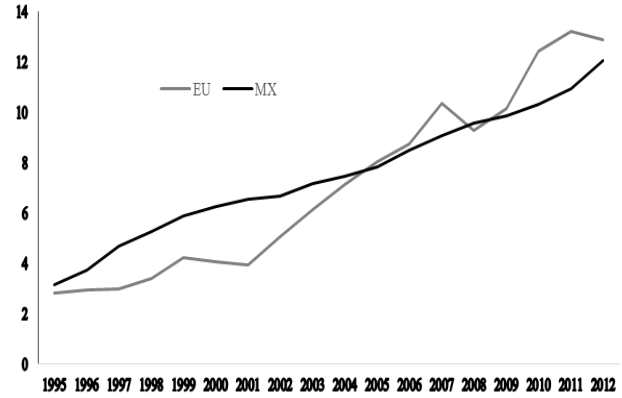
Graph 1 Production and sales of gasoline, Mexico 1995-2013)

As for prices of Magna and Premium gasoline, national and international, who have seen a shortfall in recent years; however, it has not happened since early mechanism IEPS as a tax variable rate. From 1995 to 1996 is the relatively long period in which the Magna gasoline prices in Mexico and the United States were very similar (Figure II); the balance indicates that Mexican prices were very little- - for higher prices in the US. Condolences to the Premium gasoline, since 1996 the differential was positive to a considerable extent (1.96 pesos / liter on average in 1996), which implies that domestic prices were higher than prices in the US.



Source: Prepared with data from the Ministry of Finance, Bank of Mexico and Pemex.

Graphic 2 Magna gasoline prices in Mexico and the United States



Source: Prepared with data from the Ministry of Finance, Bank of Mexico and Pemex.

Graphic 3 Premium gasoline prices in Mexico and the United States

From 1997 to 2004, prices in the US continue to rise, but at a slower pace than in Mexico. In this period, the average monthly growth rate of prices of Magna and Premium gasoline in the US was 0.4% respectively, while in Mexico the average growth rate was 0.8% for Magna gasoline and 0.9% for Premium . Relatively low gasoline prices in the US reflected the behavior of the price of crude oil West Texas Intermediate which remained relatively low and stable in this period (Energy Information Administration, 2012). While US prices were increasing, the levels were lower than in Mexico, where pricing policy responding to updates for inflation, which was reflected in a positive differential higher than in the previous period between domestic and international prices . On average, from 1997 to 2004 national Magna gasoline prices were higher than prices in the US at 1.11 pesos per liter; while domestic prices of premium gasoline were higher in 3.70 pesos per liter. This resulted in a positive revenue IEPS throughout this period and until 2005 (Figure IV).

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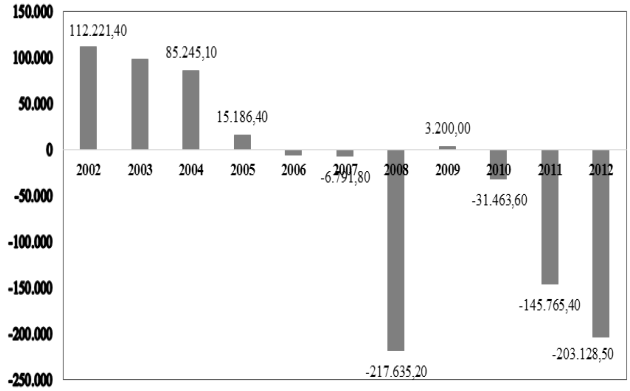

Source: Prepared with data from the Ministry of Finance.

Graphic 4 IEPS Collection

From 2005 to 2006, gasoline prices in the US show volatility, and from January 2007 to October 2008 international prices increased in greater magnitude than that observed. This period marked a different trend that was observed in the price of gasoline in the US was relatively low. In July 2008 the price of Magna gasoline in that country reached a record high of four dollars per gallon, equivalent to 10.8 pesos per liter and the value implied a negative differential from the national price of 3.63 pesos per liter. In the case of Premium gasoline prices in the US it will hit $ 4.41 per gallon (12.58 pesos per liter). This increase in the international price responded to increases in the price of crude oil increased 146% from 2007 to June 2008.

After reaching the maximum in US gasoline prices, this trend changed and entered a period of decline that lasted from August to December 2008. At this stage there was a period -January 2008 to April 2009- in which the Magna gasoline price in the US was less than the national rate. In the case of premium gasoline, the period lasted from October 2008 to February 2011. However, the step of lowering the price in the US was short and since January 2009 US gasoline prices started another upward step. Magna prices from that date to December 2011 increased by 82% gasoline, while premium gasoline by 76%.

That is, since 2007 there have been important stages of increases and decreases in US prices that respond to the volatility of crude oil WTI. Meanwhile, prices in Mexico since 2007, have shown a different behavior. Until 2007, gasoline prices in Mexico were restated for inflation and levels generally remained above the EU price. However, from that same year, while prices of both WTI crude oil and gasoline in the United States increased considerably; in Mexico the price of Magna gasoline and diesel froze. From 2008 they began to implement landslides prices, replacing the monthly updates in line with inflation, in order to reduce the difference between the administered price and real, and the consequent change in the collection of the IEPS positive to negative, ie, a change in which they were allowed to receive resources and began to disburse steadily in 2007 on account of this tax.

The aggressive increase in gas prices in the US caused the landslide of fuel prices, implemented in 2008, are insufficient to reduce the gap. However, while this year in Mexico was continued with the policy of increases, the international price began a period of decline, which helped to reduce the difference in prices in Mexico and the US, as even domestic prices were higher that international. In 2008, the negative IEPS collection was the largest with an expenditure of 223.716 million pesos.

In the context of low international prices and economic crisis in Mexico again they froze gasoline prices in most of 2009. In the same year, international prices and increased again in May 2009 reversed the difference between prices Magna gasoline in Mexico and the US. Landslides prices in Mexico resumed from December 2009 to this situation. Since 2010 the reduction in the spread of international and domestic prices declined compared to 2008 not only by landslides, but by the relative stability of the exchange rate in that year.

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However, in 2011 the differential increased compared to 2009 and 2010, which was reflected in a greater transfer of resources IEPS concept.

Also, the total final energy consumption is divided in final energy consumption and not final energy consumption. The first is the energy consumption of the residential, commercial and public transportation, agricultural and industrial satisfied fuels sector. While the final non-energy consumption, according to the Energy Department, "records the consumption of primary and secondary energy feedstock. This consumption occurs in processes using raw materials for the production of non-energy goods, for example. Pemex Petrochemical uses dry gas and petroleum to produce plastics, solvents, polymers, rubbers, among others "(Ministry of Energy, 2011).

Considering the final energy consumption, demand for oil can be distinguished by these sectors (residential, commercial and public; the transportation sector, the industrial sector and finally agriculture). With information from 2010, the transportation sector is the largest energy consuming (48%), measured in petajoules. Demand for oil in the transport sector is mainly gasoline (66.4%). This high level of consumption is because, of all existing means of transport, 92% represents the trucking and this need by 72% the use of gasoline, diesel and 26% LPG 2%. Diesel is the second most important in the transport sector (26.3% of total consumption), and the most important fuel in the agricultural sector.

The industrial sector is the second largest energy consumption sector, with a share of 29% in total of sectors. In this sector the dry gas, LPG, diesel and fuel oil are some of the main fuels used in this sector to meet its energy demand.

Finally, agriculture is the sector that has lower energy consumption, but to a greater extent using diesel; 74% of its energy demand for this fuel. In the residential sector, the energy consumption is 20% of the total between sectors, LPG is mainly used, which has a stake of 38.4% in total energy.

66.4% of the consumption of gasoline is intended for consumption in transportation. While 29.1% of the total final consumption of gasoline is not directed to the final energy consumption, that is, the fuel is used as raw material in production processes to manufacture goods.

Residential, commercial and public		Transport		Industrial		Agricultural	
Liquid gas	38,40%	petrol	66,40%	dry gas	37,70%	Diesel	74,10%
Firewood	28,50%	Diesel	26,30%	Electricity	28,50%	Electricity	21,50%
Electricity	27,80%	kerosene	5%	Coke	10,10%	Liquid gas	4,40%
dry gas	4,10%	Liquid gas	1,80%	chaff	6,80%	Kerosene	0,05%
Solar	0,70%	Fuel	0,20%	Fuel	6,50%		
Diesel	0,40%	Electricity	0,20%	Diesel	4%		
Kerosene	0,10%	dry gas	0,05%	Carb coke.	3,20%		
				Liquid gas	3,10%		
				Carbon	0,50%		
				Solar	0,05%		

Source: Ministry of Energy, National Energy Balance, 2010

Table 2 Final energy consumption by sector, 2010

On the other hand, inflation in Mexico has stabilized in relation to the levels of the 80s is currently 4%. Inflation has been influenced by various measures of economic and monetary policy, so that, when trying to relate the evolution of Magna gasoline prices, the apparent relationship between the two variables appears (Figure V) void. However, consider that gasoline is not the only well-regarded for building the basic basket in measuring inflation, although this has a relatively significant weight in the total household spending. In addition, gasoline is not only an input used in production processes, but also input to the transport sector, giving it the potential to significantly influence inflation.

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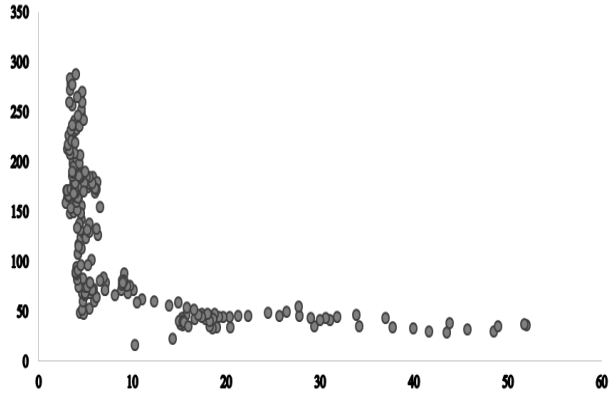

Source: Prepared with data from the Ministry of Finance.

Graphic 5 Gasoline Prices Magna-Inflation, 1995-2012

It is noteworthy that both the fact that the price of gasoline is given as the formula of IEPS influence so that when the international reference price rise significantly, this tax goes from being positive to a negative tax or transfer of resources. The price policy is supported by the above described law, and while newspapers and gradual increases in gas prices contribute to decrease transfer of resources, it is possible to eliminate the subsidy reaching the price to actual government of gasoline and leaving This fluctuate according to the components described in equation (5). However, this carries the risk of an inflationary impact, which aims to measure this work.

Inflationary impact of the liberalization of gasoline prices

In the input-output matrix that performs financial transactions with another industry, that is, cross sales and purchases are recorded in a period, which gives you an advantage that is reflected in its various practical applications. One is that, through this matrix information, you can calculate the production sector needed to address certain level of final demand.

It is also useful to measure the effect on the general price level, caused by changes in the price of a particular input used in the production of goods that are contemplated within the matrix; application that is useful for the purpose of this paper (United Nations, 1993).

To measure the effect of the elimination of subsidies for fuels in Mexico in the general price level, an expanded version suggested by Valadkhani and Mitchel (2002), the pricing model of input-output matrix of Leontief was used in this work, which will be discussed below.

The input-output matrix has n economic transactions of economic sectors. In each row sales ia n each industry sectors appear; while in each column are registered purchases sector i made the rest of the economic sectors. It also records information of value added by economic sector. Thus, the pattern recorded on the one hand, industrial production each conducted for a period of time; on the other, records purchases made by each sector in each of the sectors covered in the same period. The latter can be denoted comoz_ij, purchases made by the sector j to sector i (ie, requirements or inputs by industry j). In the model input-output is assumed that this demand of sector j to sector i, depends on the extent of production of sector j, that is, sales of sector i to sector j depend on the production sector j (Miller and Blair , 1985). With flow information industry sector i to j can calculate the technical coefficients, a_ij:

$$a_{ij} = z_{ij}/X_j \quad (8)$$

Where Xj is the total output of sector j. aij represents the proportion of the required i sector to the total production of sector j inputs.

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When the flows recorded in the input-output matrix are monetary values, the interpretation of these serious coefficients "ij" monetary units (eg, weights) of inputs required in the sector i by a monetary unit of the total production of sector j. The calculation of all the technical coefficients results in the matrix of these coefficients:

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{bmatrix}$$

These technical factors are considered fixed or constant, which means that by varying the production sector j, sales of sector i to sector j (ie, those required by the sector j inputs) will also vary in the same proportion.

This is one of the most important assumptions of the input-output model. This because it certain implications are derived. One is that by assuming that sales of sector i to sector j depend entirely on the production sector j is assumed that the production of sector i is coded to other factors such as technological changes or input substitution. Also, he alleged lack of economies of scale and presence of constant returns to scale (Miller and Blair, 1985) are released.

As mentioned, the technical coefficients are interpreted as "so many dollars needed for a dollar of production," which means that "the price of a unit of production (for each sector) is a dollar" (Miller and Blair, 1985). We have the following equation:

$$P_j = \sum_{i=1}^{n} P_i a_{ij} + v_j \quad (9)$$

Where Pj is the price per unit of production for each sector, are the technical coefficients aij, and vj is the ratio of value added per production level.

Considering the case of existence of n sectors, disaggregating and representing the above equation in matrix, it is obtained:

$$\begin{bmatrix} P_1 \\ P_2 \\ \vdots \\ P_n \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{bmatrix} \begin{bmatrix} P_1 \\ P_2 \\ \vdots \\ P_n \end{bmatrix} + \begin{bmatrix} V_1 \\ V_2 \\ \vdots \\ V_n \end{bmatrix}$$

That is to say

$$P = A'P + V \quad (10)$$

Solving for P:

$$P = (I - A')^{-1} V \quad (11)$$

Where P is the vector of prices per unit of production for each sector, the matrix of technical coefficients, V the vector ratio of value added per unit of production for each sector, and I the identity matrix.

Equation (11) is the Leontief price model in which prices depend on the technical coefficients and value added. The price vector is set to 1. Considering a given exogenous level of value added, you can get the higher prices in the period of one year (the period in which the cash flows are made to the input matrix product). The price change is reflected in the vector P as percentage changes for each sector.

On the other hand, an important feature of this version of the model is that prices are considered as endogenous and fluctuate to a change either value added or wages, or gross operating surplus. In this sense this version is limited to the case under which the price of one of the inputs is considered exogenous; such as the price of petroleum products, whose value (as in the case of gasoline) is supposed fluctuates according to international market (Valadkhani and Mitchel, 2002).

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Therefore, the previous model modifications are made following the methodology of Valadkhani and Mitchel (2002), in order to distinguish between two types of prices: exogenous (corresponding to that of refined petroleum products sector) and endogenous (corresponding to other sectors); in order to calculate the imp The price distinction between exogenous and endogenous prices can be seen in the followingmatrix representation (Valadkhani and Mitchel, 2002):act on the general level of prices in response to changes in the price of fuels. It was part of the original price model (equation 10) to make the distinction between endogenous and exogenous prices:

$$P_E = A'_{EX}P_X + A'_{EE}P_E + V_E \quad (12)$$

The price distinction between exogenous and endogenous prices can be seen in the following matrix representation (Valadkhani and Mitchel, 2002):

$$\begin{bmatrix} P_X \\ P_E \end{bmatrix} = \begin{bmatrix} a_{XX} & A'_{XE} \\ A'_{EX} & A'_{EE} \end{bmatrix} \begin{bmatrix} P_X \\ P_E \end{bmatrix} + \begin{bmatrix} V_X \\ V_E \end{bmatrix}$$

Where PX is the price of petroleum products (determined exogenously), PE is the vector of endogenous prices of economic sectors of the input-output matrix (except that which represents PX), A'XE is the transposed vector (1 xn -1) requirements by the industry exogenous prices[74], exogenous tough, of their own production, VX is the ratio of value added

$$P_E = A'_{EX}P_X + A'_{EE}P_E + V_E$$
$$P_E - A'_{EE}P_E = A'_{EX}P_X + V_E$$
$$P_E(I - A'_{EE}) = A'_{EX}P_X + V_E$$

Is obtained:

$$P_E = (I - A'_{EE})^{-1}A'_{EX}P_X + (I - A'_{EE})^{-1}V_E \quad (13)$$

[74] Manufacture of petroleum and coal.

Equation (13) can calculate the impact on PE, that is, the variaciónporcentual price for each sector (n-1), under varying PX. The baseline scenario is one in which there is no increase in ΔPX (PX = 0) and, therefore, the price of each sector in the EP vector, is one. The resulting effect in PE of a percentage increase of PX, is the sum of the direct and indirect effects for each sector. "The direct effect shows the immediate response in the price of a sector, while the total effect determines the price changes after considering sectoral interdependencies" (Valadkhani and Mitchel, 2002). To calculate the direct effect of each sector (.alpha..sub.i), the ratio of the price change of sector i (ΔPi) with respect to the change in fuel prices (ΔPX) is estimated:

$$\alpha_i = {}^{\Delta P_i}/_{\Delta P_X} \quad (14)$$

To measure the effect of a change of PX in the consumer price index (π), it follows:

$$\pi = \sum_{i=1}^{n} P_E({}^{c_i}/_{C_i}) \quad (15)$$

Where it measures the total effect or change in the price of sector i, ci is private consumption in the sector i Ci the total private consumption. Using the latest available information from the input-output matrix of 2003 Mexico obtained from INEGI, the direct and indirect effects of a crash in the price of gasoline was calculated by obtaining the results in Table 3. The results reflect the percentage increases price of each of the 78 industries as a result of a price increase of 27.56%[75] Manufacturing of petroleum products and coal sector.

[75] This magnitude fulfills one of the scenarios described in section 3.2 to calculate the impact on inflation, and the justification is that with this increase, the IEPS would be zero.

Considering the total effect of rising prices, the most affected sectors (in descending order) are the tourist transport (whose answer is a price increase of 5.9%); air transport; generation, transmission and supply of electricity; land passenger transport, except by rail; and the area of fishing, hunting and trapping. That is, the sectors whose response to the price shock is more vulnerable and prone to raise their prices, are the sectors related to transportation. Also, the sectors that have a lower response to price increases (in ascending order) are the rental service trademarks, patents and franchises (the answer is a price increase of 0.003%); creation and dissemination of content exclusively through Internet; and real estate services; that is, the impact is less in those areas less directly related to the use of petroleum fuels.

Calculating the total effect in each of the economic sectors, in response to a crash of prices provides an overview of the responses of these sectors.

For the impact on inflation will be resorted to the use of different scenarios representing different magnitudes of price shock, which are presented in the following section.

Besides, to measure the inflationary effect of the liberalization of gasoline prices, the input-output matrix of total economy of Mexico 2003, in which 79 economic sectors are recorded and imports include was used.

Manufacturing sector oil products and coal as one that will trigger the price shock because it houses the Magna and Premium gasoline was chosen.

ΔPx = 27.56%			
Sector	Total efect	Direct efect	Indirect efect
Farming	1,226	0,044	1,181
Cattle raising	0,794	0,029	0,765
Forestry	0,707	0,026	0,682
Fishing, hunting and trapping	4,368	0,158	4,209
Related to farming and forestry services	1,429	0,052	1,377
Oil and gas	0,308	0,011	0,297
Mining of metal and non-metallic minerals except oil and gas	1,895	0,069	1,826
Services related to mining	1,717	0,062	1,655
Generation, transmission and supply of electricity	4,598	0,167	4,431
Water and gas supply pipeline to the final consumer	1,151	0,042	1,109
Edification	1,036	0,038	0,999
Construction of civil engineering or heavy work	1,601	0,058	1,543
Specialty Trade Contractors	1,304	0,047	1,257
Food Industry	1,014	0,037	0,977
Beverage industry and snuff	0,850	0,031	0,819
Textile manufacturing inputs	1,368	0,05	1,318
Production of textiles, except apparel	0,946	0,034	0,912
Manufacture of clothing	0,842	0,031	0,812
Manufacture of leather, fur and substitute materials	0,642	0,023	0,619
Timber industry	1,014	0,037	0,977
Paper Industry	1,373	0,050	1,324
Printing and related industries	0,879	0,032	0,847
CHEMESTRY INDUTSTRY	1,173	0,043	1,130
Industry Plastic and rubber	1,008	0,037	0,971
Product Manufacturing Nonmetallic minerals	1,841	0,067	1,774
Basic metal industries	2,640	0,096	2,544
Fabricated metal products	1,471	0,053	1,417
Manufacture of machinery and equipment	1,034	0,038	0,996
Manufacture of computer, communication, measurement and other equipment	0,926	0,034	0,892
Manufacture of electricity generation and electrical appliances and accessories	1,266	0,046	1,220
Manufacture of transport equipment	0,837	0,03	0,806
Manufacture of furniture and related products	0,870	0,032	0,839
Other manufacturing	1,251	0,045	1,206
Trade	0,261	0,009	0,252
Air transport	5,598	0,203	5,395
Rail transport	3,348	0,121	3,226
Water Transport	1,853	0,067	1,786
Trucking	3,832	0,139	3,693
Land passenger transport, except by rail	4,477	0,162	4,315
Pipeline	0,968	0,035	0,933
Tourist transport	5,936	0,215	5,720
Services related to transport	0,502	0,018	0,483
Postal services	0,671	0,024	0,647
Package delivery services	2,013	0,073	1,940
Storage Services	0,784	0,028	0,756
Editing publications and software, except through Internet	0,342	0,012	0,329
Film and video industry, and sound industry	0,492	0,018	0,474
Radio and television, except through Internet	0,334	0,012	0,322
Creation and dissemination of content exclusively through Internet	0,041	0,001	0,039
Other Telecommunications	1,288	0,047	1,242
Internet access providers, search services on the network and information processing services	0,398	0,014	0,384
Other information services	0,523	0,019	0,504
Central banking	0,157	0,006	0,152
Institutions of credit and financial intermediation-exchange	0,204	0,007	0,197
Currency and equity financial investment activities	0,244	0,009	0,235
Surety companies, insurance and pensions	0,222	0,008	0,214
Real Estate Services	0,147	0,005	0,142
Rental services of movable property	0,490	0,018	0,472
Rental services of trademarks, patents and franchises	0,003	0,000	0,003
Professional, scientific and technical services	0,486	0,018	0,468
Management of companies and enterprises	0,586	0,021	0,564
Support services to business	0,311	0,011	0,300
Waste management and remediation services	1,517	0,055	1,462
Educational Services	0,129	0,005	0,124
Outpatient medical services and related services	0,373	0,014	0,359
Hospitals	0,440	0,016	0,424
Residences of social assistance and health care	0,653	0,024	0,629
Other social services	0,641	0,023	0,617
Artistic and sports services and other related services	0,167	0,006	0,161
Museums, historical sites, botanical gardens and similar	0,313	0,011	0,302
Entertainment services in recreational facilities and other recreational services	0,697	0,025	0,672
Temporary accommodation services	0,802	0,029	0,773
Preparation Services Food and Beverage	0,623	0,023	0,600
Repair and maintenance	0,770	0,028	0,742
Personal services	0,375	0,014	0,362
Associations and organizations	0,635	0,023	0,612
Households	0,000	0,000	0,000
Government activities	0,760	0,028	0,733

Source: Authors

Table 3 Percentage increase in prices by economic sector

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Using this matrix and the methodology set is possible to measure the impact of increased fuel prices on inflation mentioned. The magnitude of this increase in price is equivalent to that required to cover the amount of IEPS negative I disbursed, with which it is possible to approach the price, unlike the administered price, provides the actual value of each of its components, within which is the international reference price. Considering the price as the base price of Magna gasoline to February 2013 (11.03 pesos per liter), three scenarios to consider the magnitude of price increases once settled: the first considers the amount of IEPS (negative) was disbursed in 2012; in this case the amount disbursed was 203,000 million pesos, so to cover this amount, the price should increase 2.9 pesos.

The second scenario considers the amount of negative IEPS which is due in the Revenue Act of the Federation of 2013, of 48.895 million pesos; in this case the price would have to increase 0.7 pesos. Finally, the third scenario is an amount equal to the average IEPS this tax disbursed from 2006 to 2012, equal to 101.433 million pesos, and to cover the amount of IEPS that amount, the price would have to rise by 1.45 pesos . To simulate the increase in domestic gas prices with the above scenarios, it can eliminate the negative IEPS and this tax is zero; that given the negative price difference and really I -administrado resulting in a value of negative IEPS.

The results of the application of the methodology and the three scenarios are shown in Table 4. The percentage increases in domestic gasoline prices are based on the price February 2013, ie 11.03 pesos. An increase of 2.90 pesos in gasoline prices (representing a price shock equal to 27.56%), could have covered the negative IEPS amount of 203,000 million pesos disbursed in 2012. The first scenario is the one that reports a higher total impact on inflation, an increase of 2.03%.

Stage	IEPS	Price increases pesos	Price increase %	Rising Inflation
1	-203,000	2.9	27.56	2.03
2	-48,895	0.7	7.4	0.54
3	-101,433	1.45	14.28	1.05

Table 4 Impact on inflation of the elimination of the negative IEPS of gasoline prices

On the other hand, the Revenue Act of the Federation of 2013 provides that at the end of 2013 IEPS erogue 48,895,000 pesos for; ie the difference between the administered price and the actual price is such that 48.895 million pesos were incurred for IEPS.

At the end of the year if the amount of IEPS spends, it means that the actual price was 0.70 pesos higher than the administered price, therefore, a measure to prevent that amount of IEPS are incurred is administered price increase by 0.70 pesos, whereby the amount of expected negative IEPS cover and end the IEPS would be zero. In this scenario, the shock magnitude is 7.4% and its total impact on the increase of inflation is 0.54%.

Finally, the goal of a scenario with average amounts of negative IEPS, is to approach a hypothetical amount that could be spent on IEPS 2013 (based on actual amounts disbursed in the past IEPS) and with that amount, calculate the administered price increase required to cover that amount of tax. Under this scenario, the shock of magnitude equal to 14.28% leads to an increase in inflation of 1.05%.

The results are relatively high considering the level of inflation expected for 2013, set in 3% plus a variable interval of + 1%, so that in the given case scenario 1, inflation could settle on 5%.

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While it is relatively low, the risk of inflation inertia present and may come into play also inflationary expectations. Similarly they considered high in relation to the results of other studies, such as Pincheira and Garcia (2007), who estimated the inflationary impact of an oil price shock of 10% and a maximum response is increased price index of 0.17% in the case of Chile, and 0.29% for Canada. In the case of the study by Rincón (2011), the rise in inflation to a price shock 10% of petrol and diesel in Colombia, is 0.85%. Wu et al. (2011) measured the impact on inflation of an oil price shock; their results indicate that doubling the fuel price increase in inflation 1.39%. Finally, the study of Valadkhani and Mitchel (2002), a crash in the price of petroleum products equivalent to 100%, inflation would increase by 1.8% Australia.

Conclusions

Prices of Magna and Premium gasoline prices are administered and their current policy is applying newspapers and gradual increases in such prices, in order to reduce the negative IEPS disbursed from about five years. The mechanism for determining the price of these fuels and the IEPS makes the international reference price is an important consideration in the design of pricing, because if it shows a high volatility factor and increases steadily, then policy gasoline prices have to be readjusted, as happened in 2008 when prices of these fuels went updated in line with inflation, to do with the current policy mentioned above. Thus, due to higher international reference prices registered in recent years, the price to actual government of gasoline began to lag relative to the price that applied public, leaving the door open to the IEPS take negative values and conduct the transfer of resources to consumers is now known as grant price of gasoline.

The elimination of this subsidy represents an improvement of public finances and that the resources allocated for this purpose would be reduced. However, there are other aspects to consider in assessing the elimination of the subsidy, as the inflationary impact; this impact was measured using a variation of the price of the input-output matrix in which they are considered as exogenous the manufacturing sector petroleum products and coal, which represents the fuel gas.

To simulate the elimination of the subsidy (which is the first step to release the price of gasoline, ensuring that the IEPS not take negative values) of this price shock of different magnitudes simulated: 27.56%; 0.7% and 14.28%. These percentages reflect the increases would have to be the price of Magna gasoline in Mexico to make the IEPS is zero.

Considering the methodology of input-output matrix, the shock of greater magnitude (the most aggressive scenario: an increase in price of gasoline at 27.56%), would lead to an increase in inflation of 2.03% per annum.

The results of rising inflation are considered high compared with the inflation target of 3% of the Bank of Mexico, as well as in relation to the results of other authors. However, it can be said that an increase in gasoline prices, equal to the need to eliminate the fuel subsidy and the consequent liberalization of the price of gasoline has the potential to increase inflation beyond the limits set by the Banco de Mexico.

While the elimination of the subsidy implies an improvement in public finances, there is also an impact on inflation of major magnitude reflected in the population with fixed incomes. This can serve as a tool to reflect on the possible uses of the resources currently earmarked to cover the subsidy for petrol.

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That is, a better use of the resources currently earmarked to subsidize gasoline, reflected in the improvement of environmental quality and quality of life of the population, could counteract the adverse effects of rising inflation, as a result of the liberalization of gasoline prices and the elimination of subsidies. An example of a better use of these resources could be the expansion and improvement of public transport system with low polluting means, favoring the use of this, instead of private transport; and the construction of transport infrastructure such as cycling.

References

Amirkhalkhali, S. y Rao, G. (1986). *Prediction in regression with autocorrelated normal and non-normal errors*. Communications in Statistics- Simulation and Computation, Vol. 15-1.

Banco de México. (1983). *Informe anual 1982*. México D.F.

Centeno, R. (2010). *Análisis: Impacto del incremento del precio de las gasolinas en la inflación*. Centro de Investigación para el Desarrollo A. C. Programa de Desarrollo Económico. No. 1.

Cottarelli, C. y Szapary, G. (1998). *Moderate Inflation: The Experience of Transition Economies*. Wachington D.C.: International Monetary Fund.

CPEUM. (2012). Constitución Política de los Estados Unidos Mexicanos. México.

Curwen, P. (1976). *Inflation*. London: Macmillan.

Dornbusch, R., Fisher, S. y Startz, R. (2004). *Macroeconomía*. Madrid: McGraw-Hill.

Fernández, J. (1982). *Inflación recesiva: una aproximación microeconómica*. Buenos Aires: El Ateneo.

Frisch, H. (1988). *Teorías de la inflación*. Madrid: Alianza Editorial.

Gastélum, R. y S. Wionczek, M. (1983). *Problemas del sector energético en México*. México: El Colegio de México.

Hooker, M. (1999). *Are Oil Shocks Inflationary? Asymmetric and Nonlinear Specifications versus Changes in Regime*. (November 1999). FEDS Working Paper No. 99-65.

Instituto Nacional de Estadística, Geografía e Informática. (2011). *Documento Metodológico del Índice Nacional de Precios al Consumidor*. México.

Internacional Energy Agency. (2004). *Analysis of the Impact of High Oil Prices on the Global Economy*. Obtenido de: http://www.iea.org/textbase/npsum/high_oil04sum.pdf

Iraheta, M., Medina, M. y Blanco, C. (2008). *Impacto del Incremento de los Precios del Petróleo y los Combustibles en la Inflación de Centroamérica y República Dominicana*. Documento de Trabajo SECMCA I–2408.

LPM. (2008). Ley de Petróleos Mexicanos. México.

LP. (2012). Ley de Planeación. México.

LIEPS. (2011). Ley del Impuesto Especial sobre Producción y Servicios. México.

LFCE. (2012). Ley Federal de Competencia Económica. México.

ISSN-On line: 2414-4959

LFEP. (2008). Ley Federal de Entidades Paraestatales. México.
LOAPF. (2011). Ley Orgánica de la Administración Pública Federal. México.

Martínez, L. (1998). *El efecto de la inflación en la distribución del ingreso*. Gaceta de Economía. Instituto Tecnológico Autónomo de México. Tomo I. Año 7.

Miller, R. y Blair, P. (1985). *Input-Output Analisys: Foundations and Extesions*. Englewood Cliffs, NJ: Prentice Hall.

Naciones Unidas (1993). *Sistemas de Cuentas Nacionales 1993*. UN. Washington D.C.

Petróleos Mexicanos. *Preguntas y Respuestas frecuentes de transporte, almacenamiento y distribución de petrolíferos*. 2012. http://www.pemex.com/index.cfm?action=content&sectionID=1&catID=12060.

Pincheira, P. y García, A. (2007). *Impacto Inflacionario de un Shock de Precios del Petróleo: Análisis Comparativo*. Documento de trabajo No. 413, Banco Central de Chile.

Reyes, T. (2007). *El impacto en los hogares del país por la aplicación del impuesto local a las ventas finales de la gasolina y el diesel. México*. Centro de Documentación, Información y Análisis de la Cámara de Diputados.

Rincón, H. (2011). *Precios de los combustibles e inflación*. Banco de la República: Bogotá.

Secretaría de Economía. (2010). *Perspectivas de petrolíferos 2010-2025*. México.

Secretaría de Energía. (2011). *Balance Nacional de Energía 2010*. México.

Secretaría de Hacienda y Crédito Público. (2012). *Informes sobre la situación económica, las finanzas públicas y la deuda pública*. Cuarto trimestre 2012. México.

Slawson, W. (1981). *The New Inflation: The Collapse of Free Markets*. Princeton: Princeton University Press.

Valadkhani, A. y Mitchel, W. (2002). "Assessing the impact of change in petroleum prices on inflation and household expenditures in Australia". *Australian Economic Review* 35(2), 122-132.

Vergara, R. y Díaz, M. (2010). *Inflación, incremento en precios de combustibles y poder adquisitivo del salario en México, 2010*. Análisis de Coyuntura Económica 3(3), 38-56.

Wu, L., Li, J. y Zhang Z. (2011). *Inflationary Effect of Oil-Price Shocks in an Imperfect Market: A Partial Transmission Input-output Analysis*. Sustainable Development Series. Fondazione Eni Enrico Mattei

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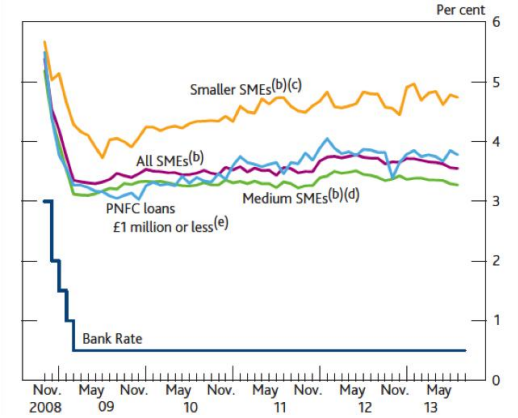

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