University of Azuay

Faculty of Law

School of International Studies

"The use of the new induction cookers in the new productive matrix of Ecuador "

Research done in order to achieve the Bachelor's Degree in International Studies, Bilingual mention in Foreign Trade

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Dedication

To those people who have not doubted my work throughout my life...

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Resumen

El estudio realizado en este trabajo de graduación consiste en determinar cuál es la mejor alternativa para que el país disponga de un adecuado abastecimiento de cocinas de inducción. En este sentido, su desarrollo se enfoca a determinar las características de cada una de estas opciones a fin de determinar la mejor, basada en la capacidad de atender la demanda al menor precio, la capacidad de incentivar el crecimiento de la economía nacional y la capacidad de impulsar el cambio en la matriz productiva. Basados en varios ejes de evaluación relacionados a la rentabilidad, productividad y satisfacción de la demanda.

Abstract

The study in this graduation work is to determine the best alternative for the country to have an adequate supply of induction cookers. In this sense, development is focused on determining the characteristics of each of these options to determine the best one. This option must be based on the ability to meet demand at the lowest price, the ability to encourage the growth of the national economy and the ability to push the change in the productive matrix. This option is analyzed based on several axes of evaluation related to profitability, productivity and satisfaction of demand.

Introduction

Ecuador's economy has been dependent on the exploitation of petroleum resources since 1970. It has created a dependency effect and allowed us to become a primary exporting country. The dependence on oil is not only linked to the revenue of the country, but the productive sector.

This is why the government of Ecuador, led by President Rafael Correa, introduced the project for the change of the Productive and Energy Matrix of the country. A project that goes together with the principles of good living promoted by the government.

As an incentive for the change of the Productive and Energy Matrix, the Ecuadorian Government proposes replacing liquefied petroleum gas (LPG) with renewable electricity for domestic use in cooking. To make this possible it is necessary to use stoves that are not operated by GLP, but electricity. The best option is induction stoves.

This change creates a strong demand in the Ecuadorian market, which may be substituted by the import or domestic production of induction stoves.

Taking these two options, the study will define which is the best choice to induce the change of the Productive and Energy Matrix of the country.

CHAPTER I

CONCEPTUAL FOUNDATIONS OF THE CHANGE OF THE PRODUCTIVE MATRIX

1.1. Study of the change of the Productive and Energy Matrix

The national economy since dollarization, has shown significant changes in its management, which are positive and are oriented to achieve good living as the main objective. Data from the World Bank, in its global economic prospects, indicate that by the year 2014, Ecuador will have a Gross Domestic Product (GDP) growth of 4.6 %, showing highly favorable results (World Bank, 2015).

By comparing this result with the main economic indicators such as inflation, interest rates, unemployment and other, is evidence that the country is in a phase of development which gives rise to a recovery of the national industry and promotes major alternatives for growth.

In this regard, the present chapter is a study of the conceptual basis of the change of the productive and energy matrix in Ecuador.

1.1.1. Brief historical review of the Ecuadorian Productive and Energy Matrix

The productive matrix in Ecuador has not been effectively consolidated from the recovery of democracy in the year 1979. The dependence on oil has brought positive and negative aspects. At first, the focus was on a sustainable economy where oil and derivatives have become the basis for the development of the country. In the past 40 years, it is precisely this resource that sustains the national economy, being an indispensable activity for the promotion of economic development.

Ramos, Hernan (2013) notes the following:

> Oil is the main export item of Ecuador since 1979. Hernán Ramos, consultant and economic analyst, outlined in the article "Ecuador: the dictators of the 70s have shaped the oil economy", published last May in his blog. In 1971 oil accounted for less than 1% of all exports. But in 1972 it rose to 18.4%; in

> 1973, to 53.3%, and in 1974, to 62%. "In general, that productive matrix based on oil revenues, basically, has been extended until now when a strategic change on the part of the current Government was announced," (Ramos, 2013, p. 17).

Oil dependency has greatly affected the development of the industry, where there have not been adequate processes to promote it. In this case, the lack of support and momentum in its development has marked a limited industrial growth, which is affected by globalization. The entry of multinational corporations and the opening of markets, has affected the production, where the costs, such as: raw materials, labor, variable costs and fixed costs are higher than the price of sale of many imported products. Products such as those related to the textile area, footwear, among others.

With regard to energy development, Ecuador has submitted several limitations that have an impact on the industry and in society in general. This situation has even caused basic services such as electrical light to be subjected to restriction policies affecting the quality of life of the population. The most critical moments were presented during the presidencies of Rodrigo Borja (1988) and Sixto Durán Ballén (1996), when the energy deficit led to the restriction in the provision of the service. These factors have an impact on the national economy, resulting in the country importing electrical energy mainly from Colombia, understanding that demand far exceeds supply.

It is important to note that oil represented the sustainability of the energy matrix, during the decade of the 80, 90 and today.

Thus, the productive and energy matrix has been concentrated in oil exploitation, since there are no better development alternatives. Another aspect to consider is that this alternative has affected several aspects such as the environmental balance. Because of this statement the need for changes are going to be discussed below:

1.1.2 The productive matrix, energy matrix and good living.

The stability of dollarization depends on some situations, such as the ability to promote the inflow of capital and prevent the output of the same. Allowing that these will result in the generation of wealth that increases the living conditions of the population.

In this aspect, as indicated above, the macroeconomic indicators, point out a state of development where the activity of inflation, interest rates and GDP describes mainly the

highly effective processes that indicate a radical change with regard to what happened from 1980 until the end of the year 1990.

By comparing these indicators we can show the following:

Box No. 1- Comparison of economic indicators

Indicator	1980 TO 1999	Currently
Inflation	**12.57 % To 54.30 %**	**3.12 To 5.67 %**
Referential Active Rate	**21.90 % To 38.90 %**	**4.50 % To 5.20 %**
GDP Annual Average	**13 Billion USD**	**90.02 Billion USD**

Source: (Central Bank of Ecuador, 2014)

It is evident that there is a clear economic recovery and that is related to a growth of industry. However, it is essential to establish multiple axes of evaluation to take a complete view. In this case, if we take as reference the balance of trade, there are completely different results that must be taken into consideration:

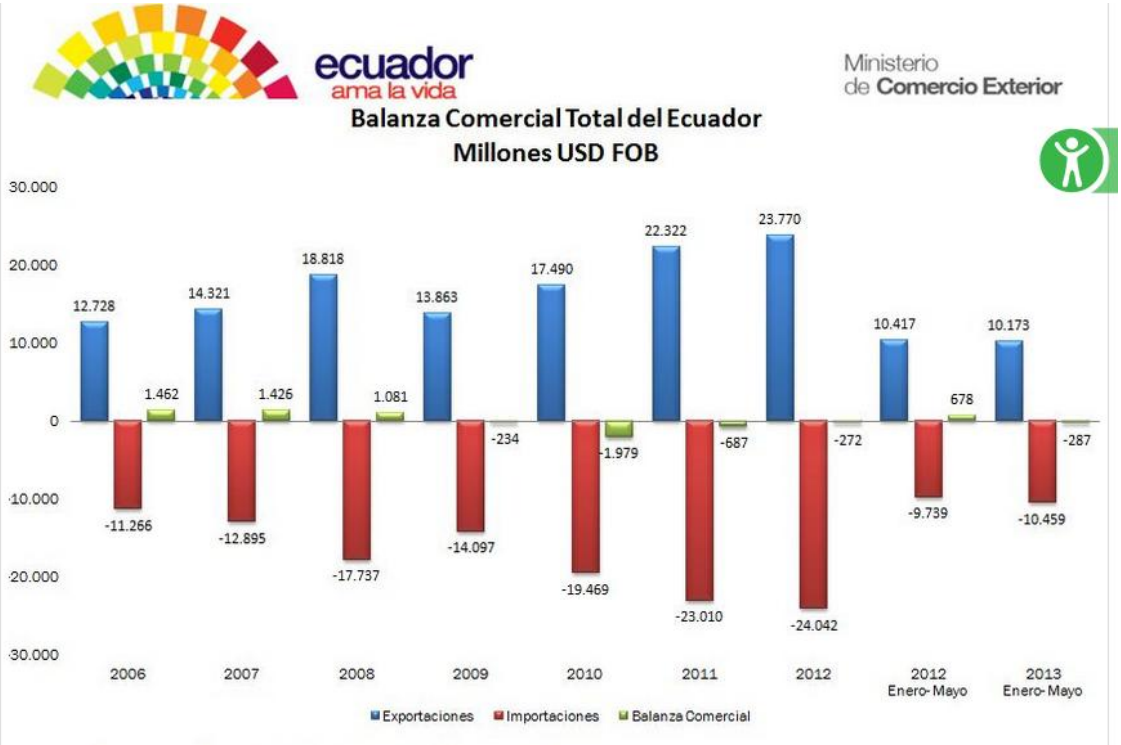

Figure No. 1- Trade Balance Ecuador

Source: (Ministry of Foreign Trade, the trade balance, 2013)

The results presented show another reality to the economic indicators, where there is evidence that even though there has been an economic recovery, this is insufficient. Comparing the business relationship of Ecuador with the rest of the world maintained since 2008, shows unfavorable balances.

The resulting deficit, generated at the domestic level, raises serious consequences, where the stability of the dollarization is at risk, to the extent that the largest foreign exchange outflow tends to destabilize the economy.

The shown results are signs of weaknesses in the internal productivity, which does not allow open new markets and demand for the import of products to meet national needs. This situation is proved by the analysis of the non-oil balance of trade, which shows deficit, that it is precisely oil, that is the economic mainstay of the country.

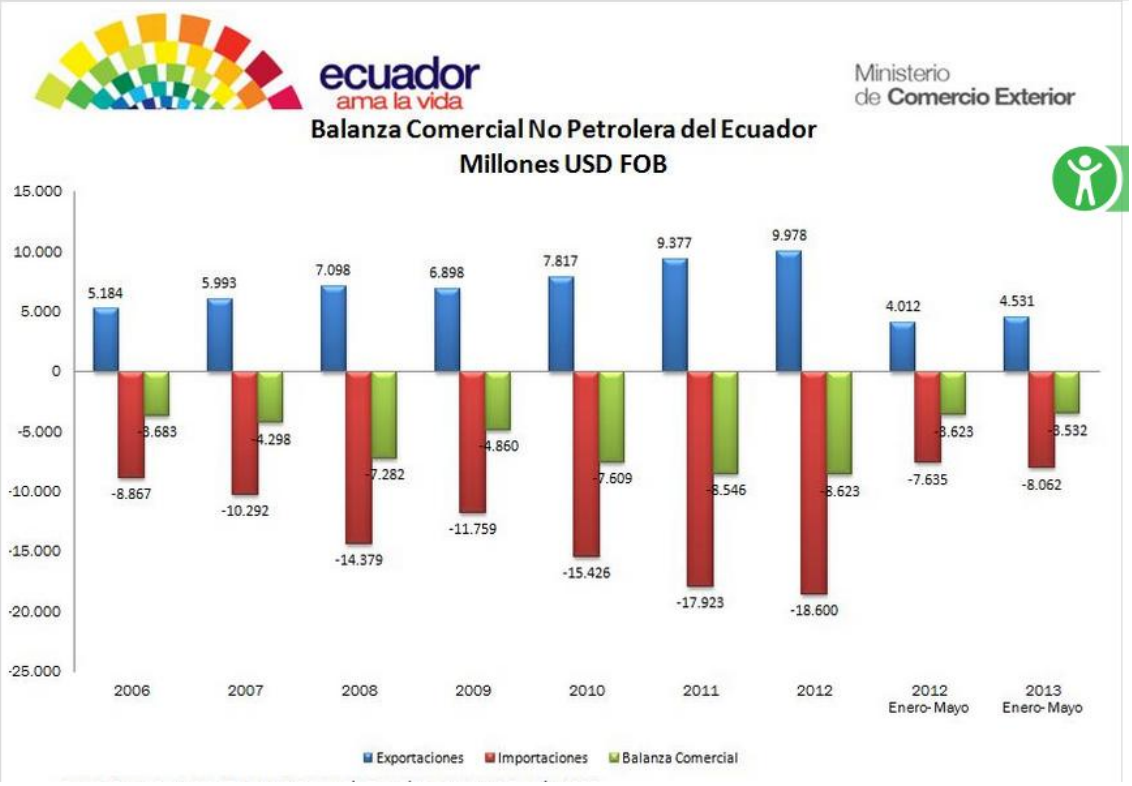

Figure No. 2- Trade Balance Ecuador

Source: (Ministry of Foreign Trade, the trade balance, 2013)

The results describe serious problems in the national industry, which has not been able in the period shown to reduce the dependence on oil, consolidating its exports of primary

products, which are highly volatile in the market and generally lower ranges of profitability of the processed products.

On the other hand, the import figure is based on processed products that for various reasons have not been produced at the national level due to a lack of knowledge, technology, and resources making the country a consumer rather than producer.

The continuity of this situation represents a high-risk situation in the country, leading to the formulation of changes. In this case, the change in the productive matrix is based on the following aspects:

- Need to meet the needs of the population with domestic products.
- Need to open international markets that promote the entry of foreign currency based on foreign trade.
- Need to generate employment through increased labor demand by strengthening the industry.

According to the concept of, the economic analyst, Carlos Peralta, the wealth of nations has different factors to achieve it. As he said "the wealth of modern nations is not given only by the amount of manufacturing plants" but he details the following points as the main factors: "versatility of their entrepreneurs, to generate value-added in its economy, its foreign currency generation capacity, and the consistency of their governments to promote and realize it"

Their concepts open up new fields of understanding of the industry where they combine several factors that must be taken into consideration, such as the knowledge and accessibility of the technology. Both factors are essential to promote change in the productive matrix, understanding that this is based on elements of effectiveness and efficiency.

Based on the foregoing, the change of the productive matrix takes place on the basis of several factors that have been submitted, which become obstacles to the development of the country. In this case, these can be cited on the basis of the following aspects:

- Dependence on oil and its derivatives. At present, 40% of the GDP consists of activities related to the exploration, exploitation and marketing of petroleum and its derivatives being a mechanism of high risk to the extent that the country is totally dependent on the price of a barrel of oil.

- The domestic industry has not been able to meet the internal needs, requiring the importation of goods and services that establish a constant outflow of capital.

- The domestic industry has not achieved position their production in the international market, concentrating its exports of primary products related to agriculture and livestock. According to data from the Ministry of Foreign Trade, the ratio of exports responds to the following percentages:

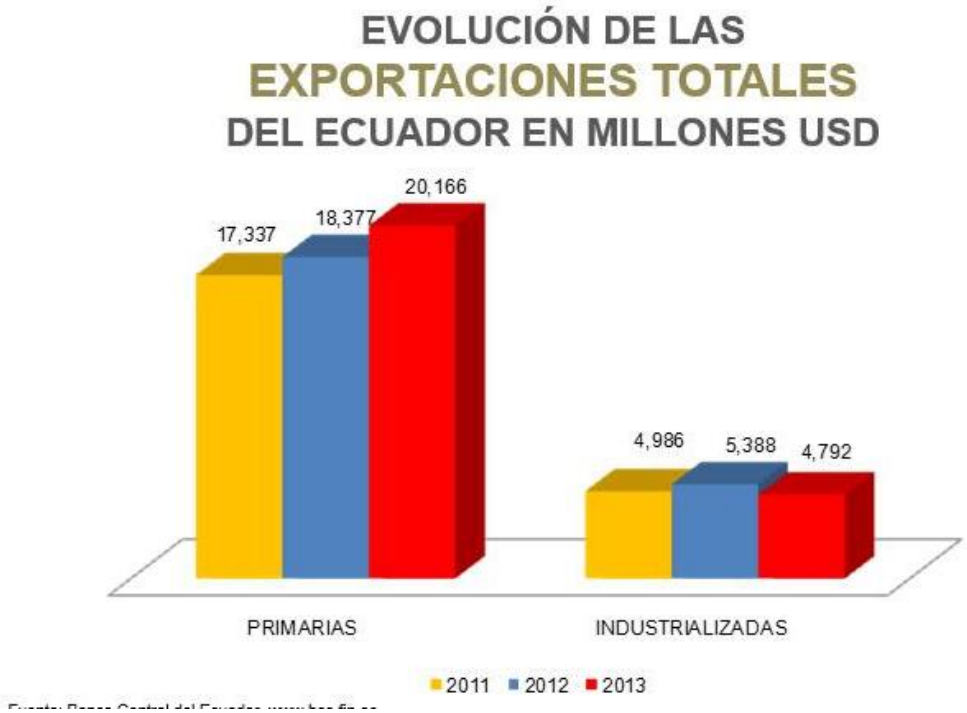

Figure No. 3- Exports of Ecuador to the world

Source: (Central Bank of Ecuador, exports, 2014)

Under these elements, a change of the productive matrix in the country is indispensable and necessary and it is directed precisely to change the current reality, a reality that is not related to the objectives of good living.

One of the essential inputs to promote a change in the productive matrix is the energy sector, which in the majority of industry is an essential input for the compliance of the various processes required for the collection of products. This sector consists of the main

sources of energy that in the country, are distributed according to the Regulation and Supervision Agency Hydrocarbon.

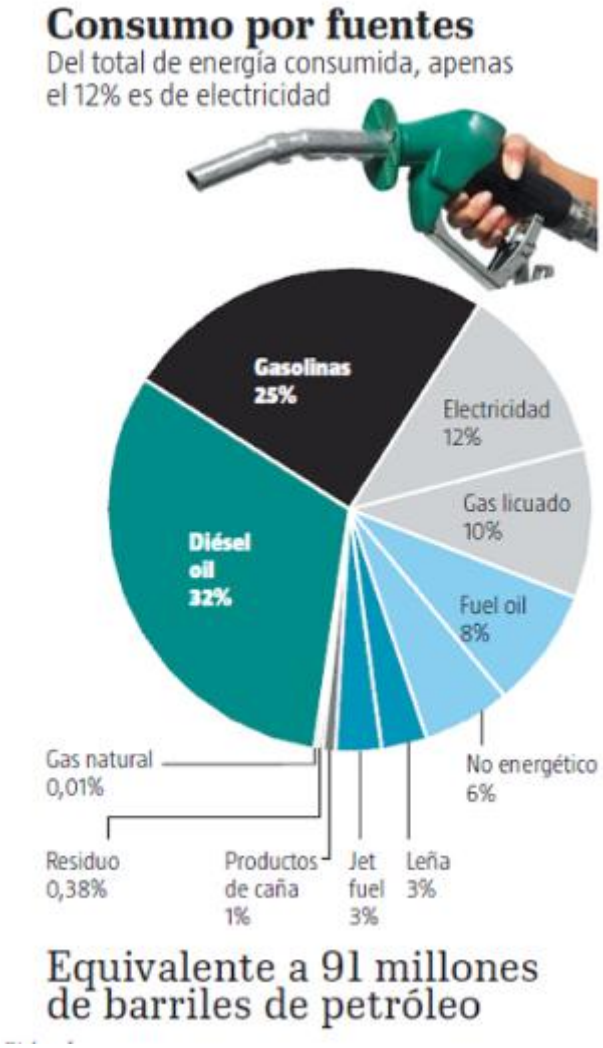

Figure No. 4-Energy Consumption by source

Source. (Agency for regulating and controlling hydrocarbon, 2014)

As you can see petrol and diesel produce out of oil, form the basis of the national energy matrix that makes the country dependent on the existing oil reserves. To be such a finite resource, the risk for sustenance is high, with the understanding that this can be exhausted. This factor, coupled with the increased pressure on the part of the environmental agencies and institutions, which are based on the damage that the activities of exploration, exploitation, refining and marketing have caused to the

environment, even more so when many operations have not met the minimum standards of quality required. As in the case of Chevron in the country, is evidence of situations arising precisely that merit changes.

1.1.3 Changing the productive and energy

In accordance with the data shown above, oil has become the basis for management of the productive matrix and energy in the country, an aspect, which represents one of the main weaknesses, and barriers that limits its development. There are several issues that reinforce this approach:

- Oil is a non-renewable resource, therefore its existence is not defined by controllable factors. Its use as a base to support the energy matrix tends to accelerate its scarcity, running the country the risk of being without this resource.

- The depletion of oil wells increases the costs for the removal of the oil, a situation that directly affects their use, raising the services and processes that require this resource for its sustainability.

- Levels of contamination in the oil are high. The needs for exploitation of the resources impacts the environment, in addition to affecting the flora and fauna the very stability of human being. "President Correa acknowledged that we have a source of highly polluting and energy, but on the other hand nearly 50% of this oil is for the transport sector" (The Telegraph, 2013)

- The unit in this resource requires the country to develop or find new oil reserves. The decision of the exploitation of the Yasuni ITT, is just a requirement that the Ecuador feels the pressure of performing despite the existing efforts of failure to do so. In this case, despite the fact that it has been indicated by part of the National Government that its exploitation will affect less than 1 per 1000 in the region, voices of environmental agencies brought incalculable consequences to the stability of the entire planet that demand this region to oxygenate and purify

the environment. Similarly, the existing biodiversity is seriously threatened, an aspect that is one of the serious consequences given precisely by this activity.

- With regard to the productive matrix, the dependence on oil has minimized the development capacity, a situation that is evident in the results of the trade balance, set forth above. This situation is critical in the sense that makes it dependent or the country will be expose to uncontrollable factors that set the price of a barrel of oil. The volatility of the same and the amount of elements that can alter the price on the international market subjects the Ecuadorian economy to changes which may affect its stability.

- The current industry has not been able to develop effectively, an aspect noted in the non-oil trade balance. Its productivity, does not caters to the demand in several domestic sectors, causing an increase in imports. On the other hand, exports were limited to primary products, which by the variation in prices compared to the industrialized deficit generated results that affect the dollarization and hence the national economy.

On the basis of the foregoing, the change in the productive matrix and energy focuses on eliminating the dependence on oil by promoting increased opportunities for growth that will enable improved the quality of life.

1.1.4 Study of axes of development

The change to the productive and energy matrix maintains several lines of development that deserve to be identified to analyze the effects that the possible changes can generate. For this reason, the following graphic organizer has been developed:

Figure No. 5-Axes of development of the productive matrix

- **Legal Framework:**

Strategic planning is based on the current legal framework, which establishes the guidelines for its development. Therefore, any change in the productive matrix must be related in a direct way with respect to the existing laws, since these determine the guidelines to be met.

In this regard it is important to note that the constitutional reforms presented in the year 2008 through the establishment of the National Constituent Assembly, established the rights to nature, which are permanent and inalienable, they may not be affected in any form or activity.

> Art. 71.- The nature or Pacha Mama, where life plays and performs the life, has the right to be fully respected, in its existence and the maintenance and regeneration of life cycles, structure, functions and evolutionary processes.
>
> Any person, community, town, or nationality may require the public authority the fulfillment of the rights of nature. To apply and interpret these

> rights will observe the principles set forth in the Constitution, as appropriate.
>
> The State shall encourage natural and legal persons, and to the collective, to protect the nature, and promote respect for all the elements that make up an ecosystem. (Constitution of the Republic of Ecuador, 2008)

Another determining factor, is the right of people to live in a healthy environment, understanding that no activity can harm or affect the environment:

> "Art. 14- Recognizes the right of people to live in a healthy and ecologically balanced environment, to ensure the sustainability and the good life, Sumak Kawsay." (Constitution of the Republic of Ecuador, 2008)

In this way, it is understood that the change of the energy matrix should be established in compliance with laws, a process in which must be based on the respect for the fundamental rights of the person and the environment. In this regard, it is important to note the provisions of the National Plan for good living, which establishes the following:

> The energy matrix of Ecuador not only reinforce the characteristic of our country as an exporter of primary goods but, low value-added and importer of industrial goods (National Plan of good living, 2013).

In this sense, the need for change and alternatives of new energy sources is visible, those related to the reduction of environmental impact that the current sources requires, this being a fundamental axis that underpins the change.

- **Development Projects**

The need for change and improvement in the energy sector has managed the implementation of several management projects. They focus primarily on two areas that can be described in the following points:

- Improve the production of energy in order to meet the needs of the population and industrialization.
- Generate the necessary reservations to avoid lack of means of production of energy.

With regard to these points, the projects currently in progress to satisfy these requirements are:

Box No. 2-Projects in the electric field

Project	MW expected
Coca Codo Sinclair	1500
SBM	487
Minas San Francisco	270
Toachi Pilatón	253
Delsitanisagua	116
Quijos	50
Mazar Dudas	21

Source: (Ministry of Electricity and Renewable Energy, 2014)

In total, these projects are expected to generate 2,697 MW of power satisfying in this respect the needs of the population. Is expected to change the country from importer to exporter of energy. This is an aspect that underpins the shift in the productive matrix.

- **Institutional Policies**

The change in the energy and productive matrix should be aligned to institutional policies that permit an appropriate approach toward the objectives proposed in the good living plan, mainly related to the improvement of the quality of life of the population.

These policies, according to the provisions of the Ministry of Electricity and Renewable Energy focus in the following areas of development:

- Establish mechanisms of self-sufficiency through the development of local energy resources, and proceeded to promote the national energy integration.

- Promote the development of projects, generators of energy augmenting and optimizing the available national resources.

- Encourage the development of power generation sources depending on the development of human knowledge.

- Develop and implement programs that allow for the adequate use of energy, eliminating the waste of the different resources.

The above policies determine the essential guidelines for the change in the energy and productive matrix. In this case, these should be encouraged through the development of a comprehensive plan that takes advantage of the absolute advantages existing in the country and enable the generation of a clean energy, with the least impact on the environment. This process represents a momentum in the national economy, its management being necessary in order to strengthen the industry and establish new alternatives for trade that will enable us to overcome the deficits mentioned above.

- **Resource Management**

The change in the productive and energy matrix, needs the control of energy resources of the country, promoting the proper use of available resources to maximize their development.

In this sense, it promotes the development of solar energy, geothermal energy and wind power. This is a change in generating sources, which enables more energy at lower cost. The administration of the resources also promotes the initiative to create new programs that demand effective monitoring systems that allow the generation of energy. According to the Ministry of Electricity and Renewable Energy, the energy production expects to meet the following numbers:

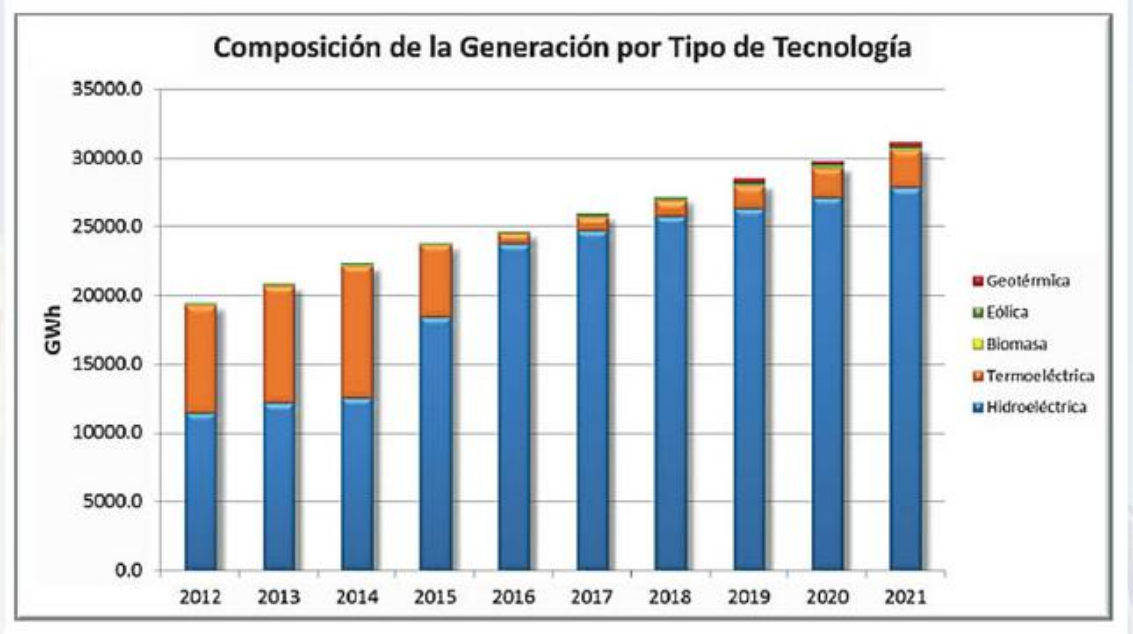

Figure No. 6- Power Generation

Source: (Ministry of Electricity and Renewable Energy, 2014)

1.1.5 Analysis of the progress made in the change of the productive and energy matrix

The changes made in relation to the productive and energy matrix in the country, beginning with the constitutional reforms mentioned above, encourage the promotion of clean resources, those generated with the least possible environmental impact.

In regard to the planning of energy generation, the plan will be to develop through the period 2012-2021, which sets a target to increase 3800MW, promoting the construction of hydroelectric generators, thermal and non-conventional renewable energy. The budget for this development is $600 million, which focuses on the following areas of management:

- Residential Sector:
    - Replacement of incandescent lamps by pockets savers
    - Replacement Project for 330,000 inefficient refrigerators

    - Project of electricity tariffs with signals of energy efficiency
    - Replacement Project for stoves that use LPG by induction cookers.
- Public Sector
    - Project of immediate action for the efficient use of energy of pubic sector
    - Public Lighting Project at the national level
- Industrial Sector
    - Draft energy efficiency for industry in Ecuador and fee time differentiated
- Transport Sector
    - Introduction of electric vehicles for the mass transport.

Another determining factor is the construction of the projects mentioned above which will provide more indispensable energy to promote the national economic development.

As you can see, the progress achieved primarily has focused on strengthening the legal framework necessary for the momentum of an energy transformation and productive and in the implementation of generators of energy projects essential to supply and meet the existing demand.

1.1.6 Process of the transformation of the productive and energy matrix

The transformation in the productive and energy matrix must be aligned to several process in order to be sustainable through time. Long-term actions that encourage the productivity of the industry and meet the needs of energy must be promoted.

These aspects are described in the following factors:

- **Economic Sovereignty:**

The processes of transformation of the productive matrix seeks to increase the oil reserves through the discovery of new deposits and investment in new technologies that allow generation based on the lowest possible environmental impact.

Its management also determines to exploit the resources based on studies that prevent environmental pollution by allowing the satisfaction of domestic needs by promoting a transformation that reduces energy losses, driving alternative sources.

- **Economic Sustainability**

It is essential that the transformation of the energy matrix will promote the development of the national economy, promoting the change of the current trade deficit balances. This in turn will strengthen dollarization creating conditions for development.

- **Efficiency in consumption**

By transforming the energy matrix of Ecuador, users will have a streamlined consumption of the energy produced, since it would be of vital importance not frittering it away and preventing the misuse of the same. It is necessary to include the management undertaken of awareness programs by optimizing the use of the different media available for the generation of energy.

- **Reduction in energy demand**

The transformation of the energy matrix of Ecuador, not only is based on production, but also on the proper use. In this sense, its development promotes the use of computers that allows them to save energy reaching a better result. The efficiency of the industrial sector promotes the momentum of a proper utilization and expenditure to promote economic development.

1.2 The induction cookers as a contribution in the change of productive and energy matrix

In this project, we are focused on the change of gas and electric cookers for new induction cookers. The move is in response to the optimization and proper use of energy, allowing for efficiency to avoid energy wastage.

1.2.1 Induction cookers description

The induction cooker is an artifact that allows the cooking of food by a magnetic field that is generated between the coils of the kitchen and the ferromagnetic container that contains the food. The magnetic field is filed by an element known as ceramic glass, which is very similar to a glass, but has better conductivity of energy.

According to Bastian, Peter (2010), the operation of this type of cooker has the advantage that heats up the container directly being able to select the desired temperature. Unlike gas and electric cookers, the induction only transmits the energy when it has contact with the container, allowing an effective conduction of energy and therefor avoiding energy waste.

> "The coils in the cooker, according to the need of heat can be switch from1 to 10 power levels. The power consumed in the various stages of switching unit is adapted to domestic needs, in example, the preparation of food" (Bastian, 2010, p. 451)

In addition, its use provides a higher degree of security for users in the sense that the induction cooker when it has no relation to the container does not transmit heat. In this way, in the case of accidentally bumping into some part of the human body, the heat will not be transmitted, a situation that does not happen with the gas and electric cooker.

One of the major disadvantages of this type of cooking is its cost, which is almost double of a gas or electrical cooker, that fact is a limitation for people with limited economic resources.

1.2.2 Induction cooker structure

The structure of the induction cooker can be described in five elements:

- Coils
    - The coils are the part that replaces the burners in the cooker that work with gas. A coil is a copper wire rolled with a thickness of 0.8mm approximately, where energy flows and generates the magnetic field.
- Ceramic Glass
    - The ceramic glass is the element that protects the coils and is in contact with the containers that carries the food. Physically it has similar characteristics to a tempered glass, but its mechanical characteristics can be much better.
- Electronic PCB
    - Usually induction cookers have two electronic PCBs. The first is known as the main board, this controls the functionality of the cooker. The second is known as touch control. This PCB replaces the classic knobs from the gas cookers. This PCB handles the power in each coil of the induction cooker.

- Plastic Frames
    - Plastic frames, are elements that are use to unite all elements of the induction cookers. These are specially designed by the suppliers of induction cookers to fulfill different functions such as: proper ventilation of the elements, most ergonomic as possible, and to resist high temperatures.

- Accessories
    - Finally, we can speak of accessories, these are all the elements that enable the assembly and operation of the induction cooker. For example: fixing screws, power cables, mounting brackets, sealing silicon, etc.

1.2.3 Advantages and disadvantages home use

Advantages

The benefits of induction cookers can be described in the following aspects:

- Has a higher efficiency in heat transfer which allows you to cook the food faster.

- Your system allows a permanent savings of energy because the heat is transmitted only when you are in contact with the container. This process prevents the use of the energy when it is not needed. In this case, to leave the cooker on does not generate energy consumption.

- The transmission of heat is produced with the contact of the container, which prevents the burning of other elements. As indicated above, the user of the artifact can take the lids of the pots off at any time without burning. This process makes this type of cooker safer. Threats such as explosions produced by the gas tank, are totally eradicated. Because the operating system of induction cookers does not require these resources to operate, thereby avoiding possible non-accounting leaks that can lead to accidents.

- Induction cookers detect the level of transfer of energy, powering off automatically. This also contributes to the safety avoiding risks of forgetfulness of the user on its use.

- Given these features, the cookers are easier to maintain and clean, as they do not adhere to any residue or food.

The options described above, allow us to see that the benefits of using this type of cooker focuses primarily on:

Benefits to the user:

- Reduce the cost of energy consumption
- Provide security in the home
- Cook faster

Profit for the state:

- Reduction in energy demand
- Optimization of energy use
- Promotion of energy reserve
- Ability to export the energy produced, and improving the results of the trade balance.

Disadvantages

- The main disadvantage is the cost. It is almost the double that a gas or electric cooker.

- Not only the costs should be considered depending on the cooker but also the facilities required for its proper functioning. This demand for economic resources that in most cases are not consider in the family budget.

- There is a widespread lack of knowledge about the characteristics of this type of cooker, which has generated resistance in various sectors of the population that can affect this change.

1.2.4 Capacity of production, assembly or import

An essential factor in the change of gas cookers to induction cookers is the ability of meet the national demand. In this sense, the process cannot be based on the import of induction cooks, but on domestic production. Considering facts that are being pursued in parallel with the objectives of changing the productive and energy matrix it is therefore illogical to promote the change by increasing imports. Increasing imports will increase the deficit of the balance of trade.

This situation determines the need to consider the capacity of production. In this sense, the production of this type of cooker motivates the strengthening of the national industry, giving rise to a growth business responsible for the different inputs required for assembly.

As you can see, the change to the induction cookers provides an incentive to the industry, being a momentum in the generation of direct and indirect employment required for the incentive the national market.

Now at days we see the capacity of national production as a favorable aspect for the country. According to the newspaper "El Mercurio", the city of Cuenca has begun production of main PCBs for induction cookers and in addition to several products such as mobile phones, cars among others. (Mercury, 2013)

The company established in Cuenca, Tarpuq, has provided for the production of electronic cards, both cards as main control boards, including for export to Latin America being an element that describes an important change, primarily in the technology sector where the country has always been a consumer.

For this project just 12 companies have been qualified for the production of induction cookers, which have complied with all requirements to ensure quality products and meet the needs of the population with regard to their types, varieties and sizes. The qualified firms are:

- Consorcio Ener-Inteco .
- DME
- Ecasa
- Electroco S.A.

- Ferromedica
- Fibroacero
- Goldenage
- Haceb
- Induglob S.A.
- Kangle
- Mabe
- Motsury

Companies must start the delivery of induction cookers from August 2014. Induction cookers are available in 27 different models from 2 to 5 coils.

According to the MIPRO, it is estimated that the average costs of these cookers will oscillate between 160 to 600 USD, which is expected will be delivered with payment terms up to 36 months which will facilitate the transfer process. (The Gazette, 2014)

It is important to remark that the strengthening of the industry of induction also generates the development of other industries responsible for production of pots and pans. These utensils must be provided with a layer that activates the heat system, a situation that will give rise to an important demand that drives the domestic trade.

It is clear that the provisions of change, generated in addition to the aforementioned benefits the momentum of industry will enhance the ability of the national economy to generate employment. This may be increased to the extent that their products can open international markets.

CHAPTER II

ECONOMIC, SOCIAL AND ENVIRONMENTAL CAPABILITY OF USE OF INDUCTION COOKERS

2.1 Economic Viability

The change from gas and electric cookers to induction cookers establishes a series of situations that it is important to analyze. From the population point of view, this change will incur an extra cost in the family budget in order to get a new induction cooker. Also, to install this cooker in order to operate at home will affect the family budget.

2.1.1 Economic Impact in the population

The change in the productive and energy matrix, establishes changes in population behaviors, and will have to conform with a series of processes that must be aligned to government regulations. In this case, the insertion of the induction cookers generates multiple effects that must be handled from various angles to carry out an integral vision.

This vision, in the first instance focuses on the general population, which requires the change of cookers, so doing, it must make an investment that enables its availability and deployment. In this case, it is understandable that within the family budget must necessarily opt for an expense, not planned, which will enable it to comply with the new trends in energy use.

It is understood that the process of change will be parallel, i.e. Iran is implementing induction cookers progressively, the supply of gas and electrical cookers will no longer as attractive as before due to the high cost of liquefied petroleum gas (LPG) in the market for these cookers.

So it is clear that the measure is unidirectional, where precisely the National Government through its powers is directed to fulfilling the objectives set out in its plan of change of the productive and energy matrix. It sets out the processes of change.

Under this element, the first impact that must be taken into consideration is that the changes are subject to delay. In other words, to be a one-way measure that generates an economic impact on the population that is forced to purchase a product that is not necessarily based on satisfying its need, can be regarded as a violation of fundamental

rights. This affects people's free choice in buying a particular product and it also affects their economic interests, so it can be considered unconstitutional.

> Art. 52.- The people have the right to dispose of goods and services of optimal quality and to choose freely among them, as well as to a accurate information and not misleading on its content and characteristics" (Constitution of the Republic of Ecuador, 2008)

Taking into consideration the principle of equality, which directs the creation of laws, the extent of change related to the induction cooker is a benefit to the producer and an injury to the consumer to be incurring unbudgeted expenditures.

> "Article 11- the exercise of the rights shall be governed by the following principles:

2. All people are equal and shall enjoy the same rights, duties and opportunities." (Constitution of the Republic of Ecuador, 2008).

Legally viewing this change is a result of the economic impact that affects the population. In order to acquire and deploy the induction cooker at home produces expenses that are not necessarily related to a need but a decision.

In this case, there are two conflicting aspects. In one hand the need to establish mechanisms for energy optimization with reduced environmental impact and on the other hand, the inability to affect the fundamental rights of the people in their free decision.

So it is necessary to determine the potential economic impact caused by this change. Also it is necessary to quantify the process so we can see the resistance that the population can generate.

2.1.2 Inclusion of the induction cookers in Ecuadorian houses

The quantification of the economic impact is set based on the evaluation of the minimum wage with the referential average costs of the cooker and its installation. To do this, it has been necessary to perform mathematical calculations that provide useful information that lead to effective conclusions.

Taking as reference, MIPRO data cited above, the cost of the induction cookers ranges between $160 to $600. In addition, it is important to establish the costs of installation necessary in order to use the induction cooker. For this reason, we proceeded to research and obtain the following results:

Graphic No. 3- Average cost of Installation of Induction Cookers

Process	Cost
Energy Facilities	$ 60.00
Electrician cost	$ 30.00
Installation of cooker	$ 12.00
Total	$ 102.00

Source: (Observation Made, 2014)

Considering the cost of induction cookers, the total cost of installation, the total cost will reach $260 to $700 dollars.

By analyzing the value with the basic wage, which, as of the date of the research is $340.00 dollars per month, the cost represents 76.47% of it.

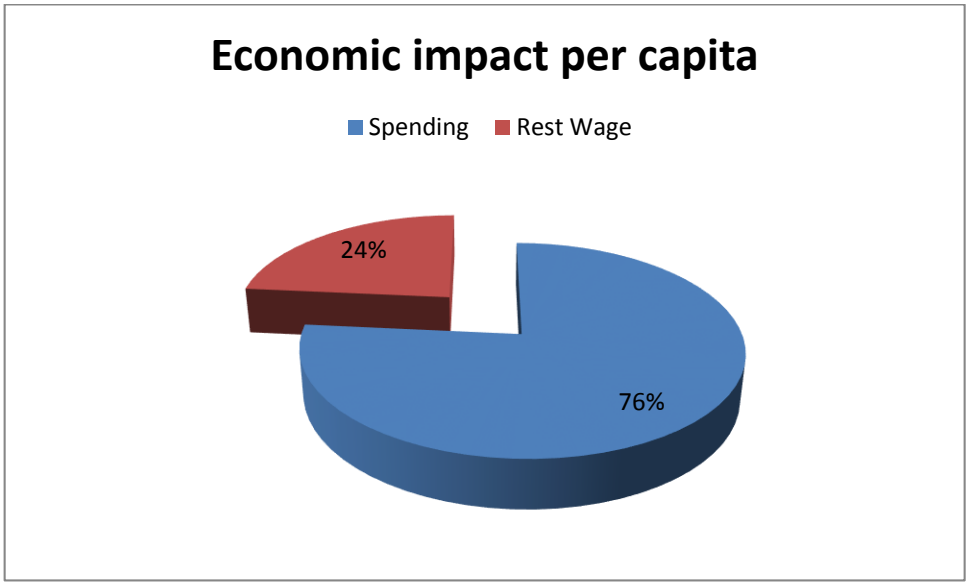

Figure No. 7-Impact of the cost in the population

It is clear that the minimum cost compared with the basic wage, establishes a high impact primarily focused on the social class with less purchasing power in the country. According to data from the 2010 Census, 49.3 % of the households belong to the lower-middle class. (INEC, 2010)

We can see that this change impacts the majority of population, an aspect that will make the process of change harder.

According to the publication of the journal "El Tiempo" of the city of Cuenca, it is considered that the sale will be supported with credits up to 36 months, which will facilitate access to purchase (Time, 2015). What is not entirely clear, is the mechanisms which will be used to manage the credit and how these are to be accessible to the population.

It would be understood, that it would be subject to preferential interest rates, an aspect that will generate an increase in the costs. To analyze the potential impact that this mechanism will generate in the population, we will use an amortization table, taking as reference the lowest interest rate to the current date.

According to data from the Central Bank of Ecuador in June 2014, the annual interest rate is 8.21 %. (Central Bank of Ecuador, 2014)

Box No. 4- Calculation of possible amortization table for credit toward the purchase.

Value of the loan	$ 160.00
Term (Months)	36
Annual rate	8.21 %
Monthly Rate	0.68 %

Period	Initial Balance	Amortization	Share	Interest	Final Balance
1	$ 160.00	$ 3.93	$ 5.03	$ 1.09	$ 156.07
2	$ 156.07	$ 3.96	$ 5.03	$ 1.07	$ 152.10
3	$ 152.10	$ 3.99	$ 5.03	$ 1.04	$ 148.12

4	$ 148.12	$ 4.02	$ 5.03	$ 1.01	$ 144.10
5	$ 144.10	$ 4.04	$ 5.03	$ 0.99	$ 140.06
6	$ 140.06	$ 4.07	$ 5.03	$ 0.96	$ 135.98
7	$ 135.98	$ 4.10	$ 5.03	$ 0.93	$ 131.89
8	$ 131.89	$ 4.13	$ 5.03	$ 0.90	$ 127.76
9	$ 127.76	$ 4.16	$ 5.03	$ 0.87	$ 123.60
10	$ 123.60	$ 4.18	$ 5.03	$ 0.85	$ 119.42
11	$ 119.42	$ 4.21	$ 5.03	$ 0.82	$ 115.21
12	$ 115.21	$ 4.24	$ 5.03	$ 0.79	$ 110.97
13	$ 110.97	$ 4.27	$ 5.03	$ 0.76	$ 106.70
14	$ 106.70	$ 4.30	$ 5.03	$ 0.73	$ 102.40
15	$ 102.40	$ 4.33	$ 5.03	$ 0.70	$ 98.07
16	$ 98.07	$ 4.36	$ 5.03	$ 0.67	$ 93.71
17	$ 93.71	$ 4.39	$ 5.03	$ 0.64	$ 89.32
18	$ 89.32	$ 4.42	$ 5.03	$ 0.61	$ 84.90
19	$ 84.90	$ 4.45	$ 5.03	$ 0.58	$ 80.45
20	$ 80.45	$ 4.48	$ 5.03	$ 0.55	$ 75.98
21	$ 75.98	$ 4.51	$ 5.03	$ 0.52	$ 71.47
22	$ 71.47	$ 4.54	$ 5.03	$ 0.49	$ 66.93
23	$ 66.93	$ 4.57	$ 5.03	$ 0.46	$ 62.35
24	$ 62.35	$ 4.60	$ 5.03	$ 0.43	$ 57.75
25	$ 57.75	$ 4.63	$ 5.03	$ 0.40	$ 53.12
26	$ 53.12	$ 4.67	$ 5.03	$ 0.36	$ 48.45
27	$ 48.45	$ 4.70	$ 5.03	$ 0.33	$ 43.75
28	$ 43.75	$ 4.73	$ 5.03	$ 0.30	$ 39.02
29	$ 39.02	$ 4.76	$ 5.03	$ 0.27	$ 34.26
30	$ 34.26	$ 4.79	$ 5.03	$ 0.23	$ 29.47
31	$ 29.47	$ 4.83	$ 5.03	$ 0.20	$ 24.64
32	$ 24.64	$ 4.86	$ 5.03	$ 0.17	$ 19.78
33	$ 19.78	$ 4.89	$ 5.03	$ 0.14	$ 14.88

34	$ 14.88	$ 4.93	$ 5.03	$ 0.10	$ 9.96
35	$ 9.96	$ 4.96	$ 5.03	$ 0.07	$ 5.00
36	$ 5.00	$ 5.00	$ 5.03	$ 0.03	$ 0.00

The total amount generated by the interest rate over the government loan, is $21.06, total of 13.16 % of the total value of the cooker. In this case, we should consider the following observations:

- The value of the monthly fee with respect to the value of the minimum wage is 1.48 %, which implies that the population will opt for this measure for the purchase of the induction cooker.

- The costs related to the installation of the induction cook are not considered in this loan. This cost must be pay immediately. According to the data in this research, this cost represent 30% of the minimum wage, which represents a high impact on the family budget.

It is important to note, that the loan payments can be included in the light service bill, with a term up to 3 years in accordance with what was quoted in the calculation of the amortization table.

This analysis is focused on the rise of the cost of expenses that a family of low-class medium-low incurs in order to buy a new induction cooker. However, in order to establish a comprehensive analysis, it is important to analyze the benefits of the reduction of the payment in light service bills because the efficiency and optimization of energy that the induction cookers will have compared to gas and electric cookers. This factor must necessarily be considered as a reduction of the family budget.

According to data obtained from MIPRO, the induction cookers allow you an optimization of 48% of the regular electricity consumption. This is due to unnecessary use of electricity and a quicker cooking of food. (Ministry of Electricity and Energy, 2013).

However, according to the 2010 census, 82.30 % of users at home used as main source of energy, LPG. This energy source will be affect by a subsidy to electricity

consumption, as a compensatory measure. In this sense, there will be a free delivery of 100 kilowatts per month in the case of purchase of the induction cooker.

> "Those who replace their equipment shall be recorded in the respective electrical companies, after which they receive the visit of technicians to confirm the change of equipment. In this way, according to the first agent, the people will be entitled to discounts on their electric rates. In the event that will only replace the kitchen, for example, will not be paid by the 80-kilowatt (KW) additional to the normal average of monthly consumption of the home. If what was changed was the home system of water heating, the 20 KW extras that are generated will not be charged. In any case, it will recognize the free maximum of 100 KW. The Head of State announced that this part of the plan will be implemented until the year 2018. After that year, additional consumption attributable to the change of home energy up to 100 KW will cost $ 4 a month, which is equivalent to the value you spend, in general, an average family in the subsidized purchase of gas. (The Telegraph, 2013)

Calculations allow us to see that the impact on the purchase and installation of induction cookers, in comparison to the minimum wage is high, however, the National Government has established two measures that make the process viable.

The first consists in a credit scheme that even when this has been calculated with the referential credit rate (may be less on the basis of the policies that are generated), the monthly fee makes the cookers a viable acquisition.

On the other hand, the value of the fee for the purchase of the cooker, is estimated will be deducted in function of a special grant to the payment of the electrical energy, which compensates for the value of both the cooker as well as the allowance of the gas. These mechanisms are considered adequate and minimize the impact of payment calculated above, a situation that allows definition that from the point of view of the population, the measure may be assumed economically.

For the country, the implemented measures would generate an annual savings of $800 million.

2.1.3 National Economy benefit by improving the productivity and selling

The saving in electrical expenses is not the only benefit that is generated by this change. The change focuses directly on promoting the change in the productive matrix. The domestic industry will be push in order to supply factories that produce induction cookers in order to supply the demand. According to data from the National Government, the commercialization of 3 million induction cookers is estimated. (The Telegraph, energy matrix depends on the 90% of the oil, 2013)

The incentive to the domestic industry, gives rise to positive effects that represent benefits to the national economy, which are described in the following point:

- The promotion of the industry relies on the existence of a demand in the market, an aspect that reduces the risk of production. This situation encourages domestic and foreign investment in order to raise the economies of scale necessary to meet the demand.
- The production of induction cookers provides for the opening of complementary industries of parts and pieces. As cited above, currently the production of electrical parts has been initiated, an aspect that sets a higher industrial development.
- The production of induction cookers can generate new international markets creating an opportunity to export to other countries helping the deficit in the balance of trade. As potential markets, we found the Peruvian and Colombian market.
- Exports encourage the entry of foreign currency that allows sustaining the dollarization, still a vital economic process for Ecuador.
- The growth of the industry provides greater offer of employment, which is necessary to boost the national economy and promoting the quality of life of the population.
- The growth of the demand stimulates the movement of cash, an aspect that promotes an integral growth of the economy.

The development and promotion of the industry, represents for the national economy a viable alternative to achieve good living. The generation of direct and indirect employment, and a large chance to grow the productive sector and opening international markets, sets new alternatives that promote a sustainable change in the economy.

2.1.4 Reduction of subsidies and use of resources in the sustainable development of the population

The subsidy of LPG will be removed in the country in 2016. This currently reaches the value of $700 million dollars, which represents the 15.24 % of total subsidies for fuels (El Tiempo, 2013). This concentration determines the importance of the measure, this being a benefit to the country, that you can recalculate the percentages of spending on the different items of the General Budget of the State, to better serve the needs of the population.

When the subsidy of gas is over, the value of a gas tank shall be governed by the international prices. By reference to their value in the neighboring countries and comparing them with the price in Ecuador are obtained the following results:

Box No. 5- Comparison of the price of gas 15 kg

Gas tank.	Ecuador	Peru	Colombia
15 Kg	1.6	19.68	25.87
Difference		-18,08	-24,27

Source: (El Mercurio, 2013)

The results show clear differences in terms of prices, an aspect that increases other problems like smuggling, where the wide price difference encourages illegal practices.

The extent of elimination of the subsidy establishes a pressure for the consumer who is unable to continue using this source for cooking food at home, motivating a change to the induction cooker, an aspect that has generated concern in society as a whole that in most cases not widely known the processes and benefits of this type of cookers.

> "A four member family consumes a tank of gas each month, you must pay US$1.60; without the grant should pay USD 24. But if you are using an

> electric stove, its consumption of electricity per month will rise on average 100 KW/h; i.e. USD 8.90 " (Mi Casa, 2014)

The figures clearly indicate the impact on the cost of maintaining gas as main source of energy for cooking, which can lead to several negative economic effects for the population.

The increase in the cost of gas directly affects inflation, which can be replicated in other products, affecting the economy in general. In this case, for example, processed food will increase costs, this may affect food-processing sectors, restaurants, among others.

By analyzing the above measures, it is not clear if indeed it will be a replacement in the allowance of the gas with the electrical subsidy. In this regard, it is known that the first shall be suspended in the year 2016 and the second to be established 100 kilowatt free monthly, an aspect that has not been clarified if it only will be until the payment for the cooker or indefinitely.

At present, up to the time of development of the present investigation, there is no official pronunciation in this regard, a factor that does not contribute to provide the peace of mind that the population demands in a subject as transcendent.

An important factor of reference are the hydroelectric projects in execution, which will produce more energy, understanding that the cost per kilowatt/hour can be reduced, a factor that benefits the population.

The above allows setting the change of the energy matrix as a reality of the situation, which has begun with the rating of companies producing induction cookers, whose process represents significant opportunities for growth. To reduce the impact on consumption and installation of induction cookers, the government has proposed alternatives of allowance, which are not entirely clear.

2.2 Social Viability

One of the main lines that allow the use of induction cookers are properly deployed is definitely the level of acceptance of the action on the part of the population.

As indicated, the layout can even be described as unconstitutional insofar as it can prove that it generates the obligation to purchase a product that people do not want to. For this

reason, it is essential to establish necessary steps to better integrate the population, enabling you to reduce possible resistance to be applied.

Following, we will present a social vision that analyzes several factors.

2.2.1 Culture change of the population in the use of energy at home

The use of LPG as a primary source in cooking in the majority of households in the country, determines that the change will generate an impact on the customs and culture. At the present, as cited in the analysis of economic impact, there have been few precise pronouncements by the National Government, which have not been supplemented with reliable statistical data.

This has given rise to distortions in the information that has generated questions about the process, which can affect their acceptance. However, according to the review of the impact economic developed, it was noted that the measure is viable and focuses primarily on reducing the energy expenditure and allowing a sustainable savings in the middle to better meet the needs of the population.

According to this statement, the energy-saving measures are not fully efficient if the population does not grow awareness in regard to the proper consumption. Therefore it must be programs that will enable knowledge of the topic and a collaboration for which in the culture of the population the processes of proper use of energy sources are noted, which in addition to reducing household expenditure will contribute to the country to focus on areas of greatest need.

Like all changes, it is important for people know about the usage, installation, and benefits of the induction cookers, allowing its appropriate use. In this regard, there was no budget allocated by the National Government information processes that run information campaigns, training processes, emission of brochures, among others.

According to data provided by the newspaper La Hora, the National Government, annually spends $72 million dollars on news programs, national broadcasting, and other static advertising, aspect that indicates that there is a budget required to be able to assign to information campaigns, taking into account that the change of energy source in the home is part of the objectives of good living.

2.2.2 Population knowledge to encourage change

As indicated previously, inability to identify information and training programs conducted by the State aimed to general population allows you to assume that the level of knowledge about the change to induction cookers is low.
Ignorance, brings with it several difficulties that can be defined in the following points:

- **Resistance to change**

The understanding of this measure as a measure that affects the family economy will create fear against the measure. This process can lead to resistance, including a destabilization of the current National Government. Regarding this, we can compare the situation of other presidents like Abdala Bucaram, who announced the governmental measures to eliminate the gas subsidy. Subsequently, despite repealing the measure, popular resistance led to his downfall.
Events such as this cannot be entirely excluded, being possible to the extent that the population considers that the measure violates their quality of life.

- **Delay in the change**

Ignorance does not encourage people to take advantage of the measures that the Government has planted for the acquisition of the induction cockers. This can lead to delay the purchase of induction cookers. This aspect affects the industries that need to sell their products in order to recapitalize their investment. The State cannot reach the reduction of consumption of energy as a principal source for cooking at home.

- **Energy uses and costs**

The energy savings expected would be effective just if the population set the change of energy source in the home. As we explained, ignorance, is a factor that may delay this change, making it very hard to reach the goals established. This determines the interest on the part of the State in promoting change, which should be operational by 2016, the date on which the gas subsidy will be suspended.

- **Affection to the State credibility**

Ignorance gives rise to resistance and it being the government pursuing this change, it could cause a destabilization of the current government.

As we present, this change can be considered a violations of fundamental rights. This condition can affect the Government, and political rivals can use it as a flaw of this government in the following elections.

The study shows that in the case that gas subsidies are eliminated, the change to induction cookers would be easier, but this change about subsidies could be use by other political parties in order to misinform the population.

In this way, this process can be even used to destabilize the government, an aspect that derives mainly due to the lack of information that exists in front of it.

- **Unbalanced supply and demand**

While the measure seems viable from facts like credit for purchasing the induction cookers and new subsidies for electricity use, there are other costs under consideration before buying a new cooker. Spending more than what your budget is, is not the option. This means that people will not buy induction cookers as soon as we thought. This tends to generate consequences that can affect the national economy. In the first instance, the lack of demand affects the suppliers, suppliers that cannot recapitalize and pay out their investments. Investments made in order to guarantee the production of induction cookers. If companies do not have a balanced cash flow, all the industry sector will be affect, therefore the market.

The economic impact produced by the lack of incentive in demand may lead to profound risk situations for the country affecting industry, whose investment may not comply with the budgets of sale expected, even though at present it is estimated that the total demand of induction cookers will be around 3 million units.

2.2.3 Changes in behavior patterns of population

The induction cookers have a system that operates more efficiently than gas and electrical cookers. They only operate when they are in contact with the container. This generates the highest concentration of heat and it maintains also a security system.

These processes require actual awareness with regard to the use of induction cookers changing the behavior patterns in users.

In this sense, two processes that determine new behaviors in the population that are evidenced, the first based on the effective operation of the induction cooker. This one warrants an understanding on the part of the user. The second measure is related to energy optimization which will generate a direct benefit to the population.

These elements show the need for promoting and developing training programs by the National Government. This will allow and support appropriate behavior that encourages an appropriate transition.

2.3 Environmental Sustainability

One of the main objectives for changing the productive and energy matrix is to ensure the right of nature aimed to eliminate any type of negative impact that puts at risk the stability of ecosystems and the flora and fauna that exists.

It is the State responsibility to establish mechanisms to generate clean energy, understanding this, as energy that is generated without affecting the environment. In this case, the transition from traditional oil and oil derivatives sources of energy to a more eco friendly source of energy like hydroelectric wind power or solar power represents a priority objective.

It can be understood in this way that the change to the induction cookers is a necessary requirement, which is aligned to the existing environmental policies in the country, protecting the right of nature.

The measure allows you to observe that the construction of wind, solar and hydro plants is an essential part of the Ecuadorian government general budget. This is a need, in order to support such measures as the use of induction cookers.

In addition, there are other viable alternatives that can be used for the generation of energy, which can become accessible mechanisms for the country. Within these is the use of garbage as a source of energy.

There are several possible sources for the energy growth, which are viable to be implemented in the country, making it possible to increase the generation of electrical energy, better protecting the environment.

2.3.1 Optimization of energy use at home

Any measure developed in order to generate sustainable energy related to take care of the environment will not be efficient if the population does not change their behavior in the appropriate use of energy.

It is essential that the population apply norms at home that allow a proper use of energy, avoiding waste that not just damages the individual economy but affects the country in general.

The optimization of the energy at home will be possible only by identifying processes that allow saving energy and using it properly according to needs.

The implementation of induction cookers is a measure aimed at the optimization of energy, but it must be supplemented with other actions that make it possible.

Again, the importance in information and training, which must be oriented to the optimization of the energy at home is noted and must be part of the culture and behavior of the population.

2.3.2 Environmental impact reduction

The Ministry of Environment has as a main objective to exercise effectively and efficiently the management of the environment in the country. Within their competence is ensuring a healthy environment that involves the practice of actions to reduce the environmental impact.

Its functions shall be based on respect for the rights of nature, implementing sustainable models that allow us to reach a balanced environmental development.

Energy production must promote environmental protection, being the alternatives that have less impact the most important. In this case, the energy source of oil and oil derived generates the greatest risks, either in its process of exploitation or consumption. This situation determines that a change in the energy matrix it is necessary and indispensable.
The reduction of environmental impact will demand comprehensive actions to ensure the environmental conservation. It is also necessary to have mechanisms to encourage the natural regeneration of an ecosystem. So the change of gas and electric cookers to induction cookers is a process that is aligned for the optimization of energy, being a mechanism for conserving the environment.

2.4 Field research

To complement the information obtained, we use two tools to obtain more data. First a survey aimed at entrepreneurs who know the approach of this change.
The second tool, an interview applied to an economic expert.

Population for field research

The survey was conducted in the city of Cuenca, focused on entrepreneurs from various economic sectors, seeking to identify their points of view on the transition to use induction cookers. According to data from the Directory of Companies and Economic Establishments, there are 179,839 companies of which 8,438 are found in Azuay.
The 25.41 % belong to the commercial sector. The study population comprised of 2,144 companies.

Study Sample

Taking into consideration, time and costs, the study can be seen in the need to calculate a representative sample, for which it has established the following process:

Equation No. 1-Sample Size Calculation

$$m = \frac{n\sigma^2 z^2}{(n-1)e^2 + \sigma^2 z^2}$$

Source: (Suarez, 2012, p. 15)

Where,

N = Population

σ = Standard Deviation

N - 1 = Correction for the size of the population

E = Acceptable error limit

Z = Trust level

The values applied:

N = 2144

σ = 0.5

N - 1 = 2,143

E = 8%

Z = 1.96 taken with regard to the 90 %.

Calculation:

$$m = \frac{(2144)(0,25)^2 (1,96)^2}{(2144-1)(0,08)^2 + (0,25)^2 (1,96)^2}$$

$$m = \frac{2059,09}{14,67}$$

M = 140.30

The sample is set to 140 companies

Development of the survey

1. Is it viable to change induction cookers in Ecuador?

Box No. 6-Question No. 1

OPTION	FREQUENCY	RATE
Yes	85	60.71 %
No	55	39.29 %
Total	**140**	**100.00 %**

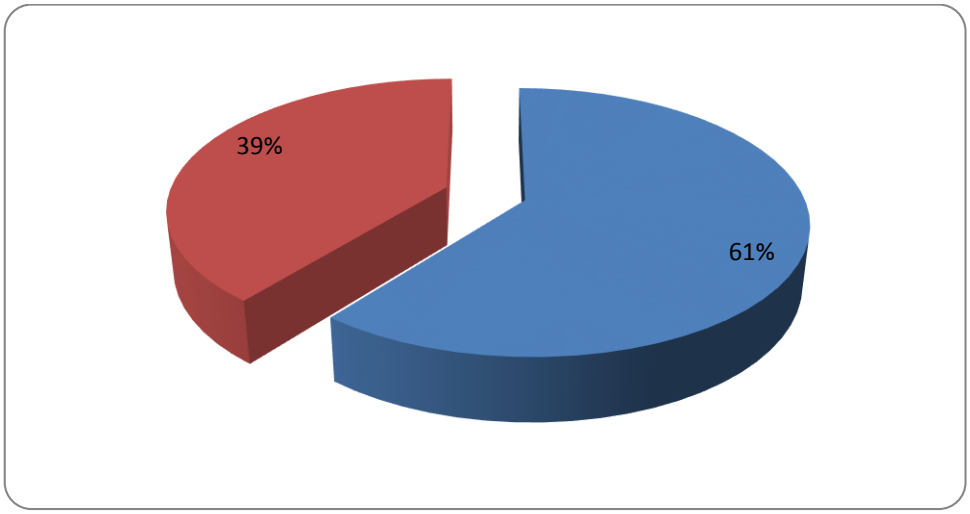

Figure No. 8-Question No. 1

Analysis and interpretation

The data obtained show that employers 61% consider it a viable process, while 39% believed that there are no suitable conditions to start the transition.

The above demonstrates that there are several positions compared to the viability of the change of cookers.

2. What would you consider as the main advantages of the change?

Box No. 7-Question No. 2

OPTION	FREQUENCY	RATE
Energy Saving	**112**	20.82 %
Greater efficiency	**42**	7.81 %
Incentive to the economy	**88**	16.36 %
Environmental Sustainability	**43**	7.99 %
Sustainability of the dollarization	**109**	20.26 %
Quality of life	**132**	24.54 %
Other	**12**	2.23 %
Total	**538**	**100.00 %**

Source: Author

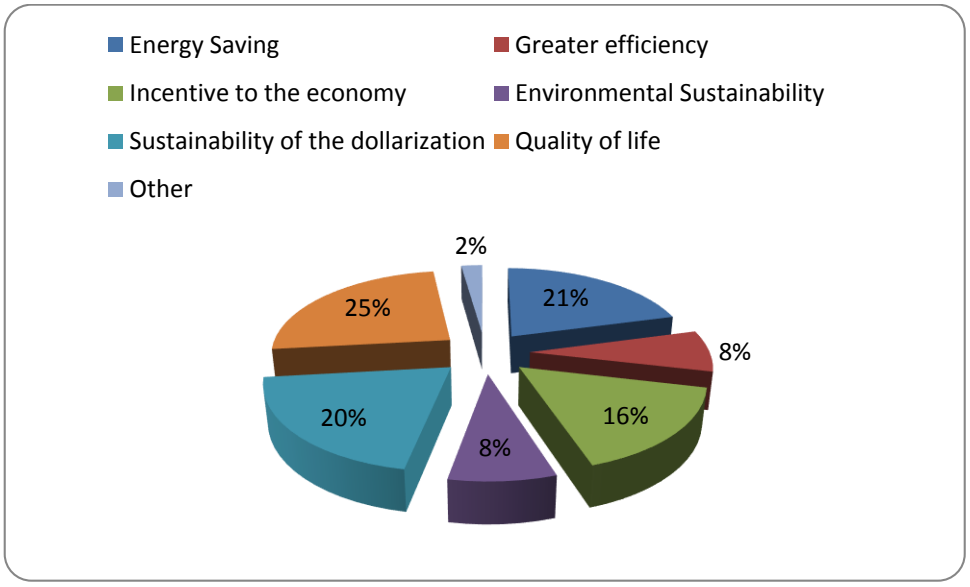

Figure No. 9-Question No. 2

Analysis and interpretation

The advantage of this change sets out the elements that will encourage people to use the induction cookers. For the entrepreneurs, the main advantages of this process are the

improvement in the quality of life at 25%, energy saving at 21%, sustainability of the dollarization at 20% and the incentive to the economy at 16%.

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3. What would you regard as the main disadvantages of the change?

Box No. 8-Question No. 3

OPTION	FREQUENCY	RATE
Increased expenses	132	38.26 %
Inflation	73	21.16 %
Contraction of the economy	54	15.65 %
Human rights	10	2.90 %
Political Destabilization	67	19.42 %
Other	9	2.61 %
Total	**345**	**100.00 %**

Source: Author

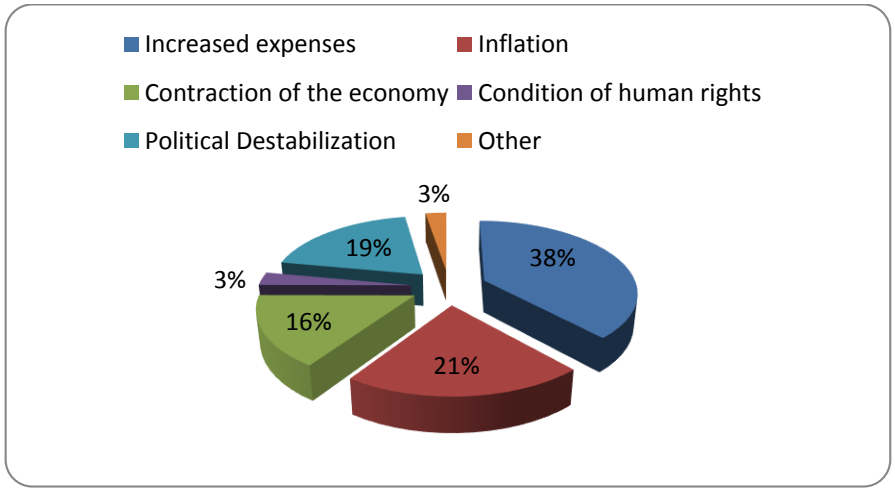


Figure No. 10-Question No. 3

Analysis and interpretation

The perceived disadvantages by entrepreneurs are transformed into risks for the implementation of the measure, being a factor that must be taken into consideration to evaluate the different alternatives of market supply.

38% said that the increase in expenditures is the most relevant option that may discourage demand, 21% said that the inflation will affect the market in general, affected other goods and services, and 19% indicate that political destabilization can be a result generated from the measure.

4. Which is the best option to supply the demand for induction cookers in the domestic market?

Box No. 9-Question No. 4

OPTION	FREQUENCY	RATE
Import	91	65.00 %
National Production	41	29.29 %
Other	8	5.71 %
Total	**140**	**100.00 %**

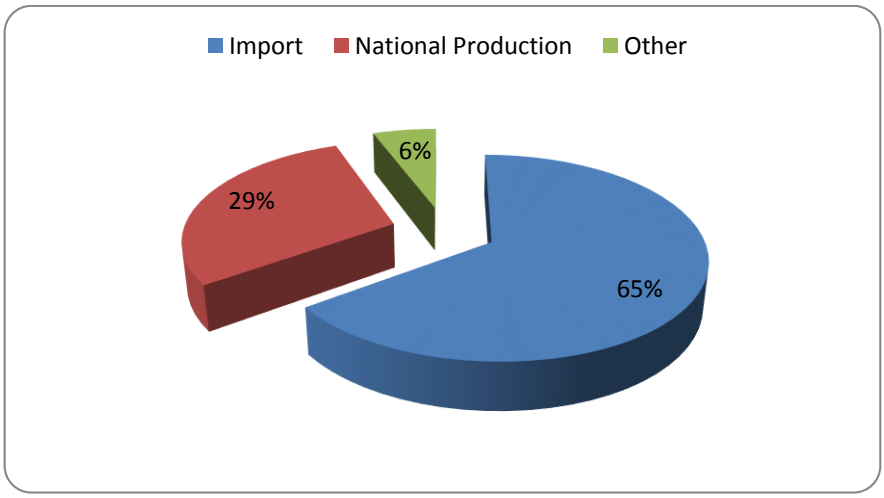


Figure No. 11-Question No. 4

Analysis and interpretation

Importing to supply the market is the highest option at 65%. Followed by domestic production at 29% and other options 6 %, evidence that the employer does not have the complete safety of the current production capacity of the induction stoves in mind.

5. Which are the main barriers to supply the market by importing induction cookers?

Box No. 10-Question No. 5

OPTION	FREQUENCY	RATE
Tariffs	12	8.57 %
Lack of international agreements	91	65.00 %
High costs	32	22.86 %
Logistical difficulties	4	2.86 %
Other	1	0.71 %
Total	**140**	**100.00 %**

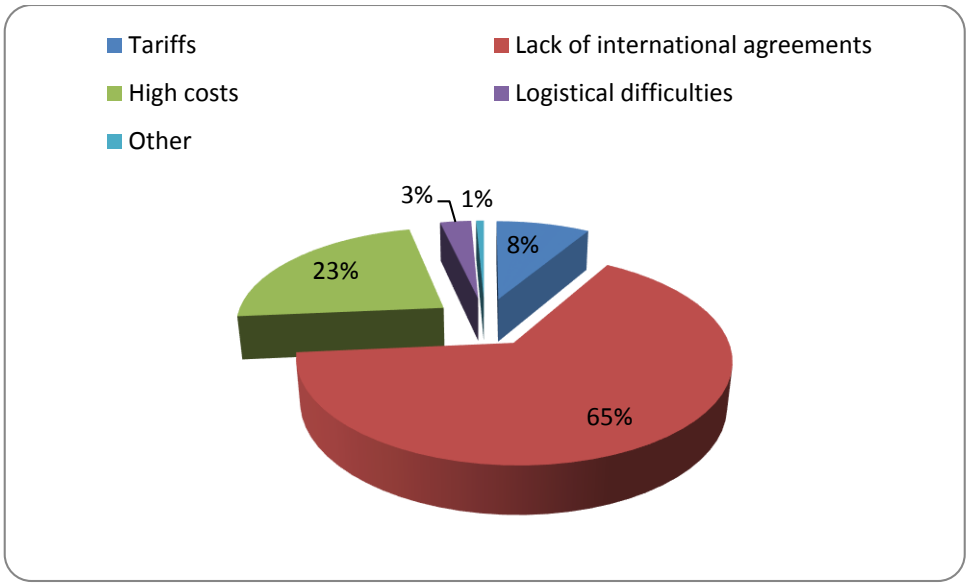


Figure No. 12-Question No. 5

Analysis and interpretation

Imports may have some barriers that are important to note. In accordance with the responses, the main barrier is the lack of international agreements at 65%. This will affect the import costs and therefore the ability of the market in access to the induction cookers.

6. How can you overcome the imports barriers?

Box No. 11-Question No. 6

OPTION	FREQUENCY	RATE
Trade Agreements	82	58.57 %
Reduction in tariffs	10	7.14 %
The promotion of investments	14	10.00 %
Improve import processes	32	22.86 %
Other	2	1.43 %
Total	**140**	**100.00 %**

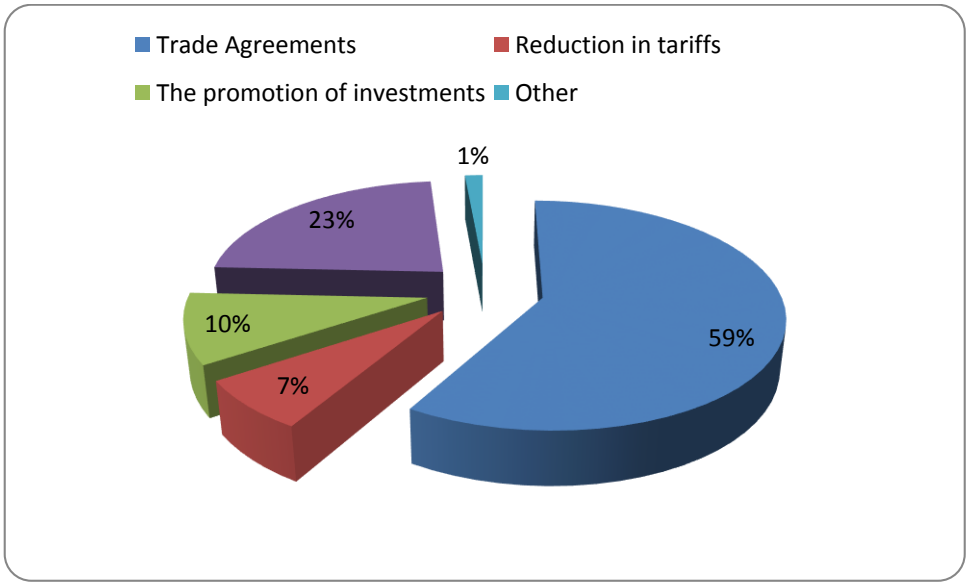


Figure No. 13-Question No. 6

Analysis and interpretation

Barriers cited might be minimized on the basis of the implementation of trade agreements that establish advantages that would reduce the costs. 59% noted the importance of the country's integration into the national market, agreeing that the last obtained agreements with the European Union are a mechanism that should be replicated with other markets.

7. Which are the main barriers to supply the market by domestic production?

Box No. 12-Question No. 7

OPTION	FREQUENCY	RATE
Lack of inputs	30	21.43 %
Lack of knowledge	16	11.43 %
Lack of technology	13	9.29 %
Lack of qualified personnel	45	32.14 %
Lack of investment	36	25.71 %
Other	0	0.00 %
Total	**140**	**100.00 %**

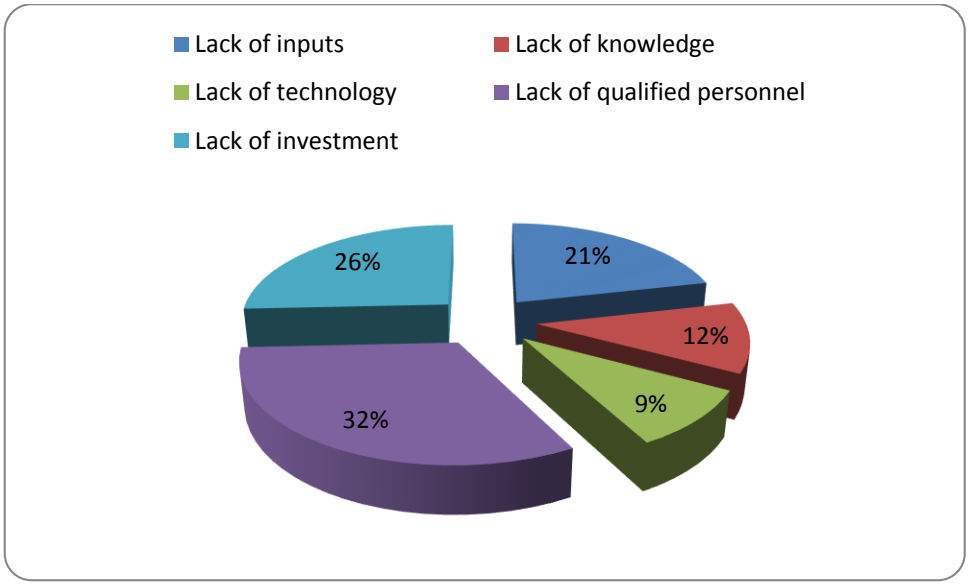


Figure No. 14-Question No. 7

Analysis and interpretation

The domestic production of the induction cookers is an important alternative that relates to the need for change in the productive matrix. The business owners think that there are several barriers, the major ones being the lack of trained personnel at 32%, the lack of inputs at 21% and the lack of investment at 26%.

8. How can you overcome the barriers cited in the national production?

Box No. 13-Question No. 8

OPTION	FREQUENCY	RATE
The promotion of investments	32	22.86 %
Training Programs	30	21.43 %
Directed credits	45	32.14 %
Import Substitution	12	8.57 %
Tax exemptions	21	15.00 %
Total	**140**	**100.00 %**

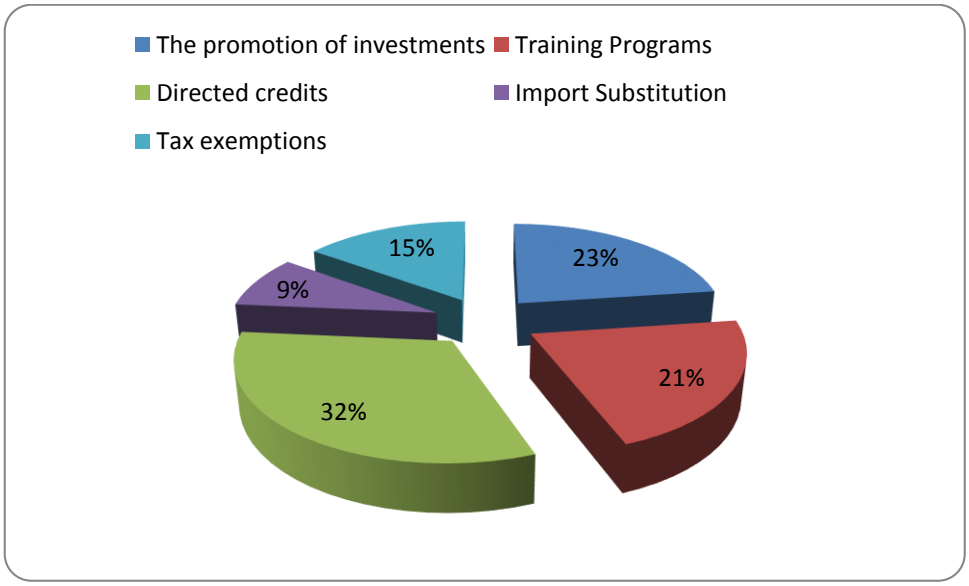


Figure No. 15-Question No. 8

Analysis and interpretation

To reduce the barriers mentioned above, the business owners think that it is essential to incentivize the producer with directed credits to allow the improvement of the industry. In addition, they believe it is vital to promote investment in order to count on funds to improve the productive capacity and respond to the market. Finally, 21% said that there is a need to train staff so that you can be sure to obtain from quality products.

9. What else will support or encourage the population change to induction cookers?

Box No. 14-Question No. 9

OPTION	FREQUENCY	RATE
Information campaigns	56	40.00 %
Advice to the consumer	32	22.86 %
Subsidies	10	7.14 %
Directed credits	38	27.14 %
Other	4	2.86 %
Total	**140**	**100.00 %**

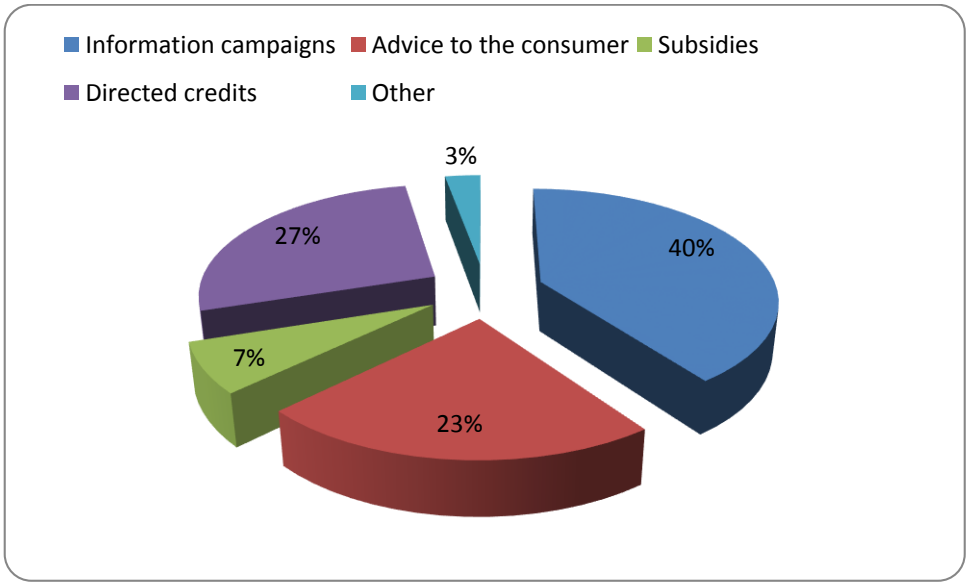


Figure No. 16-Question No. 9

Analysis and interpretation

40% said that the campaigns are essential, 27% directed credits, 25% advising the consumer, these are the main alternatives.

10. In your experience, what will be the reaction of the people about this measure?

Box No. 15-Question No. 10

OPTION	FREQUENCY	RATE
Acceptance	32	22.86 %
Non-acceptance	94	67.14 %
Indifferent	4	2.86 %
Motivated	4	2.86 %
Another	6	4.29 %
Total	**140**	**100.00 %**

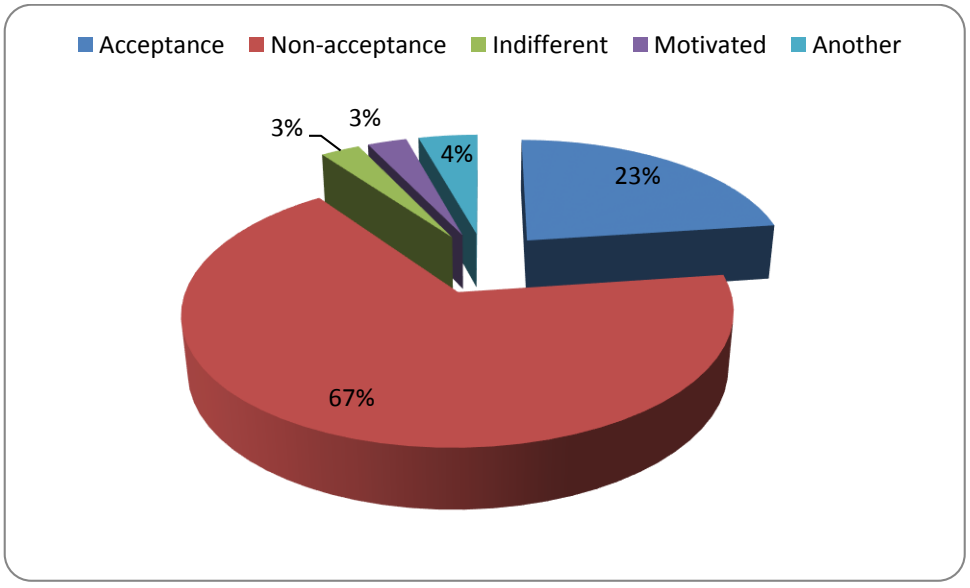


Figure No. 17-Question No. 10

Analysis and interpretation

67% did not accept the measure immediately, despite the fact that this is considered viable. 23% on the other hand consider that there will be acceptance.

The reasons for the refusal were based on the fact that employers believe that the domestic industry is not ready for production, imports being a more viable alternative. However, this does not contribute to the development of the productive matrix aspect that really does not help to improve the conditions of life.

CHAPTER III

IDENTIFICATION OF THE BEST ALTERNATIVE

Import or domestic production of the induction cookers

On one hand, the domestic production of the induction cookers is that new or specialized manufacturers already in this industrial sector achieve supply of its production lines with raw materials both domestic and imported to meet the demand of induction cookers in the market thus generating sources of work and encouraging the development of industry in the country.

On the other hand, the importation of induction cookers, is focused on achieving a international supplier, for those companies or manufacturers that are not in the capacity to do it, because they do not have the technology to produce them. They can sell and distribute in order to support the supply of induction cookers for the change of the productive and energy matrix.

While the selling of imported goods stimulates the economy of a country, it is not the best choice as it directly affects the balance of trade.

In accordance with the quoted variables each feature is analyzed.

3.1 Economic and technical characteristics of each alternative

For the evaluation of the different alternatives that support the change of the productive and electric matrix, it demands an individual and collective analysis to identify aspects that impact the national economy and to achieve the good living.

Subject to the alternative assessment it should be analyzed on the basis of several characteristics, which have been defined in the following graph:

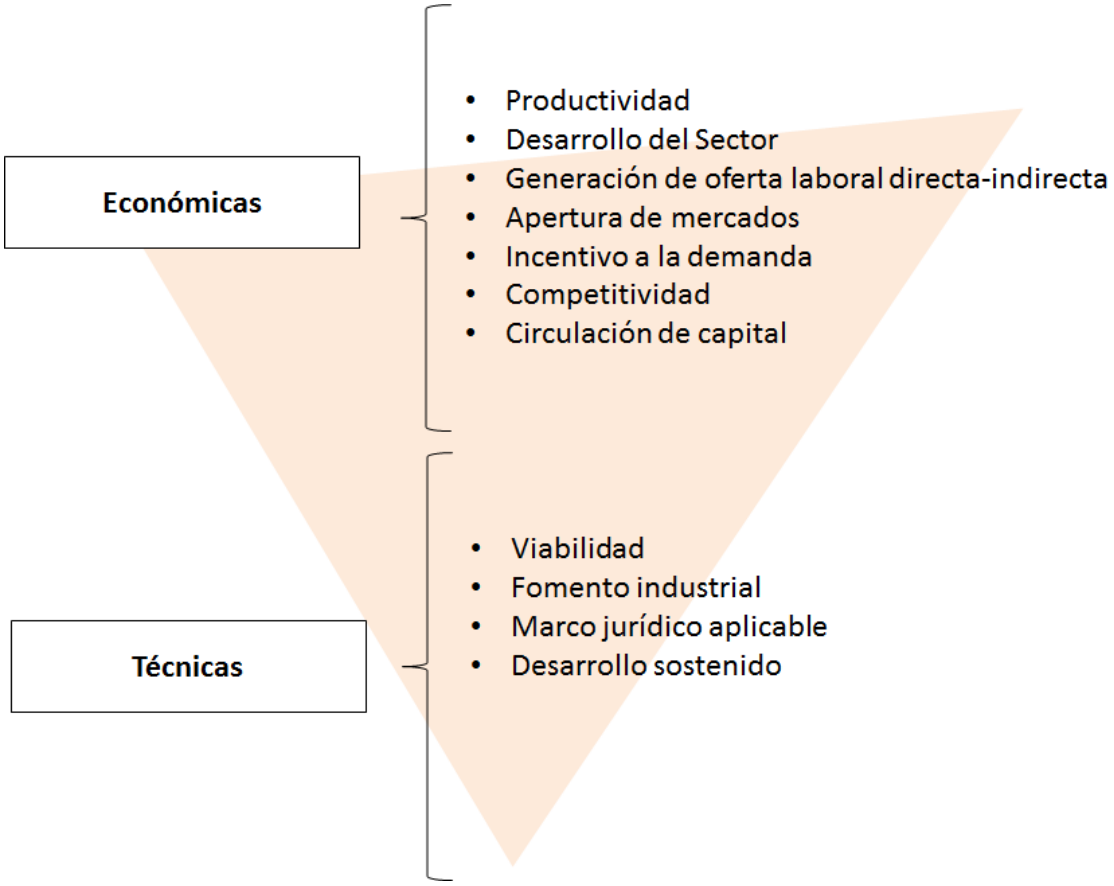


Figure No. 18-Economic and technical characteristics of assessment

3.1.1 Economic Characteristics

The economic characteristics are based on the ability to use the available resources to meet the needs of human beings. Its study explores how each of the alternatives generated better economic conditions that sustain the change of the productive matrix and to achieve the good living. In this case, we analyze the following:

Productivity: Ability to achieve better results, using the same resources through the optimization of these.

Industry Development: discusses how the alternative allows a growth of the sector understood by increases in the supply and demand which boosts the economy in general.

Direct and indirect labor offer: is one of the more relevant factors in the study, to the extent that the alternative would be to reduce the rates of poverty, allowing people to obtain income to improve their ability to meet existing needs.

Open markets: analyzes the ability to explore new markets to a national and international level, expanding the coverage of the business.

Incentive of demand: analyzes the processes related to promote to the demand for the procurement of goods and services, which allows boosting the economy.

Competitiveness: analyzes the attraction caused by the activity that drives to a tender for new alternatives for product.

Circulation of capital: Discusses the dynamism caused by supply and demand in terms of the movement of capital.

3.1.2 Technical Characteristics

This feature analyzes factors that come from the industrial sector and that promote or constrain their development, factors that are measure by a quantitative processes that identify their current behavior and future behavior.

Discusses the following factors:

Viability: analyzes the conditions for the development of the activity driven by existing scenarios and trends of the market.

Industrial Promotion: analyzes the conditions of the industry that are driving the economic activity.

Legal Framework: analyzes the existing regulations that impact on economic activity.

Sustainable development: Analyzing the sustainability of the activity in the time to establish how this affects the national economy.

All the factors mentioned above will have a broad vision of the economic sector, checking each alternative and its impact.

3.1.3 Analysis of the economic and technical characteristics of the production of induction cookers

Production:

The production of induction cookers is an alternative that is aligned to the policies to change the productive and energy matrix developed by the National Government. Its development presents a favorable scenario that seeks to replace 3.5 million gas and electric cookers representing a highly attractive market.

For the correct development, this change is supported with various incentives based on policies relating to taxes reductions. In December 2014, the increase of the Special Consumption Tax ICE to 100% in gas stoves was approved seeking to demotivate purchase. (SRI, 2014)

Under the above, the production of induction cookers, sits in an environment fostered by the State itself, a situation that creates highly effective situations. Taking as reference the National Plan of the good living, goal No. 10 seeks "to promote the transformation of the productive matrix", meaning that its compliance is achieved as a function of the following items:

- Diversify and create greater value added to the national production.
- Promote technological intensity in the primary production of goods.
- Enhance business processes diversified and sustainable in the context of the transformation of production. (National Plan of good living, 2013)

The conditions established above, show how these policies change the panorama. This condition promotes a domestic production of induction cookers. Since this generates factors, an induction cooker has more advantage on price compare to a gas or electric cooker.

The main objective is to change the gas and electrical cooker for domestic use. The national production is a viable alternative to supply the market and in parallel encourages the change of the productive and electrical matrix. In other words, you can support the process of industrialization of the country and at the same time change the source of energy to fulfill activities developed in at home.

Economic Characteristics of the production of induction cookers:

Productivity

As indicated, the advantage in this alternative is that its development brings the process of industrialization of the country.

Its development promotes the national industry, which allows you to have the following benefits:

- Domestic production gives rise to the opening of markets that promote exports and therefore allow sustain the dollarization.
- Domestic production promotes a reduction of the gap that exists in the balance of trade balance to the extent that decreases the import and export increases.
- The production of induction cookers reduces the cost of energy use, which represents the Government elimination of the subsidy of the gas which according to the Ministry of Energy reach $700 million. (Ministry of Electricity and Renewable Energy, 2013)

Elimination of gas subsidy was always in the plans and policies of the neo-liberal governments, right-wing social democrats, populist, all of them responded to the recommendations made by the International Monetary Fund and the World Bank, marked in the odious "letters of intent", all of them have tried to apply this measure, but they were pushed back by the rejection of the majority of the citizens that perceived a serious deterioration in their living conditions. (Ministry of Electricity and Renewable Energy, 2013)

In accordance with the foregoing, the incentive for the production of induction cookers is based on the following aspects:

- Wide target market that promotes the production, promoting the national and international investment.
- Protection of the national product promotes greater interest in the productive sector.
- Government programs encourage preference of the national product compared to imported product.

Industry Development

The incentives proposed by the National Government, not only focus on the production, but primarily on the marketing. That is to say, it is intended that the demand will react favorably to the purchase of the induction cookers in replacement of the gas cookers.

To do this, as we explain, it has initiated the Plan of incentives for the purchase of induction cookers that includes various ways of financing for the population, among which is the payment through the light service bill.

In this way the development of the production sector is based on the following aspects:

- Increase in the price of the gas stoves through the ICE 100%
- Exemption from VAT on the purchase of induction cookers
- Information dissemination programs for the promotion of change to induction cookers.
- Delivery up to 80 KWH hour/month per household by use of the induction cookers until the year 2018. After the 80 KWH will cost 3.20 USD each. (Ecuador Changes, 2014)

Direct and indirect labor offer:

The promotion of industrialization generates important sources of direct and indirect employment that stimulate the national economy. The direct sources are those that are generated by the industries that produce the induction cooker, while the indirect are those that are based on related industries such as induction cookers parts producers, transportation services, logistics, among others.

According to data from the Ecuadorian Institute of Statistics and Censuses INEC, the year 2014 closed at 4.65% unemployment, showing an increasing trend with respect to 2013 that closed at 3.91%. This behavior requires the need of opening sources of employment, the incentive being the production of some essential mechanisms. (INEC, 2014).

The change of the productive matrix has within its objectives to increase the offer of employment, supported by the industrial growth. It should be noted that the industry due to their activities generated the largest sources of employment, mainly labor-intensive, so it has greater impact on the national economy.

Increasing the industry and production sector of a country will generate new sources of employment. The effectiveness of this change could be measure by the unemployment rate.

> With the productive matrix change, the decrease of imports and the prospects for growth in the domestic industry, it was expected that the jobs increase, but according to the figures that are thrown by the National Institute of Statistics and Census, this is not as well, at least initially.
>
> According to the INEC, unemployment in the first quarter of the year it was increased to 5.58 %, compared with the 4.61 % in the same period the previous year. And the two main sectors that generate employment in the country, as trade and manufacturing also decreased. (INEC, 2014)

The production promotes employment, but in accordance with the foregoing demand strategies for establishing a high impact, understanding that this can be evaluated on the basis of the reduction in unemployment rates.

Open markets:

The results of the balance of trade, presented above, show a negative balance for the country, which put them at risk to their own national economies.

Analyzing these results, it is noted that beginning in the year 2009, there is a permanent deficit, an aspect that generates high risks for sustaining dollarization and hence stability of the economy. These results lead to the need to adopt measures focused on the following aspects:

- The promotion of exports
- The reduction of imports

It is of importance to note that the reduction of imports is based not only on the replacement and restriction, but mainly in the promotion of production to reduce the need for imported goods.

Export promotion allows you to open national and international markets, energizing the economy until production allows you to generate sources of employment. Cervantes, Carlos (2009) notes on the foregoing the following;

"Exports allow the entry of foreign currency that invigorates the economy driving the economic growth of all sectors, being a factor in reducing the rates of unemployment" (Cervantes, 2008, p. 118)

The production promotes exports and this is an element that improves the economy by its high capacity for employment.

Incentive of demand

The target market gives rise to an important interest in its coverage, which has led to several incentives promoted by both the public and private sectors.

In the public sector, the financing programs through the electrical service bills, as well as free KWH are seeking to encourage the demand. Another measure is the increase of the ICE above, being these factors that give way to conditions that the customer tends to evaluate.

On the part of the private sector, this encourages the demand generating a production of quality, varied and attractive to the customer opts for the consumption of gas cookers.

Competitiveness

Productivity raises the competitiveness. It encourages producers to invest and generate alternative consumption. Its development, allows you to meet the needs of customers, as this is a factor which stimulates demand and hence produces a growth of the national economy.

Productivity is based on the very quality that allows you to improve customer satisfaction. This generates greater competitiveness what gives rise to only those who have competitive advantages may remain on the market.

Circulation of capital

On one hand we have the manufacturers who require labor and raw materials in order to comply with their productions thus is where the cycle of circulation of capital begins, where the manufacturer pays an amount of money in exchange for these capital goods.

To use the raw materials and labor for its production, they are transforming that money into a product, which will then be marketed. That is to say that the money was handed over to the laborers and from the various suppliers (raw materials) will be used so that in a future they can acquire the induction cookers manufactured starting again the capital cycle.

This stimulates the economy of the country because it is a circle that grows in volume of capital and generates wealth in the country.

Technical characteristics of the production of induction cookers:

Viability

The current conditions mentioned based on the policies that promote the productive matrix, identified significant opportunities for the production of induction cookers, the existence of an attractive market of 3.5 million and coupled with the existing competitive advantages produced by the ICE and information campaigns. Production will be one of the elements of major development in the coming years.

Industrial Promotion

The National Government has promoted the development of industrial parks that are understood as aligned to the processes that promote productivity. Only in the Metropolitan District of Quito, three projects have been consolidated in this regard.

Box No. 16- Investments in industrial parks

Cuadro 2: Montos de inversión en zonas industriales			
	Proyecto	Fecha de finalización	Monto invertido
Parque Industrial de Turubamba	Alcantarillado (50% restante)	diciembre - 2013	$2.000.000
	Acceso al PIT y mejora de calles	2014	$3.000.000
Zona Industrial de Itulcachi	Construcción del PIQ	2015	$18.000.000
	Estudio de pre factibilidad del Parque Industrial Público - Privado	octubre - 2013	$75.000
Zona Industrial de Calacalí	Alcantarillado Vertiente "El Carnero"	diciembre - 2013	$381.000
	Subestación móvil de energía eléctrica	marzo - 2013	$300.000
INVERSIÓN TOTAL			$23.756.000

Source: (Institute of the city, 2014)

Applicable Legal Framework

The Code of Professional Production, Trade and Investment, COPCI, published in 2010, establishes the need for boost exports, which represents a stimulus for the productivity. (COPCI,, 2010).

In this case, the change of the productive matrix is based on a legal framework that will encourage investment and encourage the production, aspects that currently are a fundamental part of the governmental organizations.

Sustainable Development

Production involves the formation of long-term business that are sustainable over time. The high investment requirements give rise to their sustainable activities, that is to say that those who invest in the activity are looking for long-term activities.

For the national economy, industries promote reductions in the existing dependency in activities related to oil and oil derivatives exploitations, which will improve the current deficit in the trade balance.

3.1.4 Analysis of the economic and technical characteristics of the import of induction cookers

Economic Characteristics of the import of Induction cookers

Productivity

The imports of induction cookers do not include implementation of production processes, and do not generate sources for labor. In this case, the process involves the import and marketing exclusively so it generates less incentive for economic development.

Its development has a negative impact on the balance of trade that increases the levels of import, which contributes to the existing deficit. From the point of view of the energy matrix, the import allows you to meet existing demand, helping to change the use of gas for electricity, supporting the process of removing the gas subsidy.

It is important to note that the import of foreign currency produces output which tends to produce deficits in their balances, a situation that affects the dollarization.

Industry Development

Imports allow you to have induction cookers on the market, being a factor that motivates the consumer demand. Its development also raises the competitiveness, thus raising the standards of quality in the market by modifying the patterns of consumption of the customers.

However, the development of the sector is limited and focuses mainly on areas of administration, logistics and marketing and does not intervene in the productive sector that has usually the largest impact on the economy by its ability to generate labor supply. The imports are looking to cover the existing demand and generated by the incentive measures existing in the market, being a lawful activity, which encourages the demand and provides the change of the energy matrix, but not the productive matrix.

In Ecuador, the National Government imported induction cookers as a viable alternative to meet the demand and encourage a change in the energy matrix. This process mainly affected by a lack of interest of the domestic producer to increase productivity.

> In the broadcast of Enlace Sabatino, president Rafael Correa said that manufacturers "behind the scenes" did not succeed in the program. "Do not

wait on the disposition of domestic producers. But if you show us that they want to do it, we will stop the imports but do not rely on them because we have failed in these months" (El Universo, 2014)

The extent of support for the imports expressed, identifies a number of factors that it is important to describe:

- Domestic producers are not fully encouraged by government action, so the import is a necessary way to supply the demand.
- Import supports changing the energy matrix and thus not productive matrix, because that does not impact widely productivity.
- The import of induction cookers tends to increase the existing deficit.

Direct and indirect labor offer

Imports are an economic activity that give rise to sources of employment. In this case, its development generates the need for specialized personnel in foreign trade, logistics, administration and marketing. This situation promotes the opening of shops, businesses and the procurement of services.

However, it does not promote productivity, the magnitude of labor supply generated is less than the labor supply generated for the production of induction cookers. This is why there are policies related to the restriction and substitution even when these are not targeted at the induction cookers, where the government itself has said the release of rates to promote its income in the country.

Open Markets

It seeks to open the import only the local market, an aspect that gives rise to less impact on the economic development compared to production. However, its development is necessary to the extent that it is a mechanism in order to meet the domestic demand and support the programs of change of the energy matrix.

The lack of interest and capacity of domestic production has generated that the import is essential, even when this does not encourage mostly economic development.

It is important to note that the import not only focuses on induction cookers but also in parts and accessories, all of these being products needed to boost the change in the productive matrix.

Incentive to demand

As well as the production, imports stimulate the demand to the extent that its products compete against others such as gas or electric cookers. The imported product may also have a favorable perception in the market, to the extent that has the backup from established brands that provide security for the customer.

Competitiveness

As indicated, the import raises internal competitiveness, allowing the client alternatives to become available for purchase, which gives rise to changes in their behavior patterns. The release in the import encourages import and raises the competitiveness. This in turn tends to restrict the productivity, due to several factors that are discussed below:

- Factories of household appliances have international experience and greater productive capacity that the national by what their costs are lower.
- Factories of household appliances international brands are positioned what generates loyalty in the markets.
- International factories of household appliances with high budgets to position their products.

Circulation of capital

Import stimulates the demand generating an increase in circulation of capital. However it is less than the production because it generates no impact on the industry that moves capital in the supply of the raw materials required for the development of the product.

Technical characteristics of the importation of Induction cookers

Viability

The study carried out in previous chapters, on the change of the productive and energy matrix, allows you to identify which domestic producers have not been able to cover the contributions of deliveries scheduled and necessary for this change. So, the National Government has opted for the import, releasing their processes in order to encourage its development.

> President Correa revealed that some companies with which it was agreed the manufacture of the stoves did not comply with the required amount. "If they meet the domestic producers, it decreased imports," he said in his broadcasting. (Ecuavisa, 2014)

Under these circumstances, the import has extensive feasibility for its development and it is hoped that this at least in the following years is maintained until the national industry has a greater participation.

Industrial Promotion

The import of the induction cookers is an exception to the policy of replacing and restriction that leads the national Government. In this case, there is a promotion toward its development to meet the goals of transition proposals.

Applicable Legal Framework

The Official Registration No. 351 created in the year 2010, the Committee of Foreign Trade, Comex, which approves the commercial public policies. Through the technical report No. IT/DDC-SCS-MIPRO/011 issued in April 2104 takes place the "technical report for opening tariff and tariff deduction for Induction cookers". Its creation gave way to the reform of the tariff of the following harmonized code:

Box No. 17- Harmonized code

Código	Designación de la Mercancía	UF	Tarifa Arancelaria	Observaciones
8516.60.20	- - Cocinas:	u		
8516.60.20.10	- - - Eléctricas de resistencia:	u	30	
8516.60.20.20	- - - Eléctricas de inducción:	u		
8516.60.20.21	- - - - En CKD:	u	30	0% hasta el 30 de noviembre de 2014 sólo para ensambladores de cocinas registrados en el MIPRO.
8516.60.20.29	- - - - Las demás:	u	30	
8516.60.20.90	- - - Las demás:	u	30	

Source: (COMEX, 2014)

The release of imports presents a favorable scenario for its development, an aspect that encourages the opening of commercial activities relating to the subject.

Sustainable Development

The domestic industry does not increase their levels of production, the import will continue supplying domestic demand, therefore, it is considered will reach a sustainable development for the next few years.

3.2 Comparing each alternative

During this study, we have shown various characteristics of each option and that deserve to be compared, providing information that contribution to determine the best alternative.

To compare the alternatives, has been defined a table taking as a reference to David Fred, who introduced this method to determine factors with the greatest impact.

Box No. 18- Alternatives weight

Score	**Feature**
3	Most of the impact of one factor over another.
1	Equal impact feature of the
0	Lower impact of one factor over another.

Source: (David, 2008, pp. 61-67)

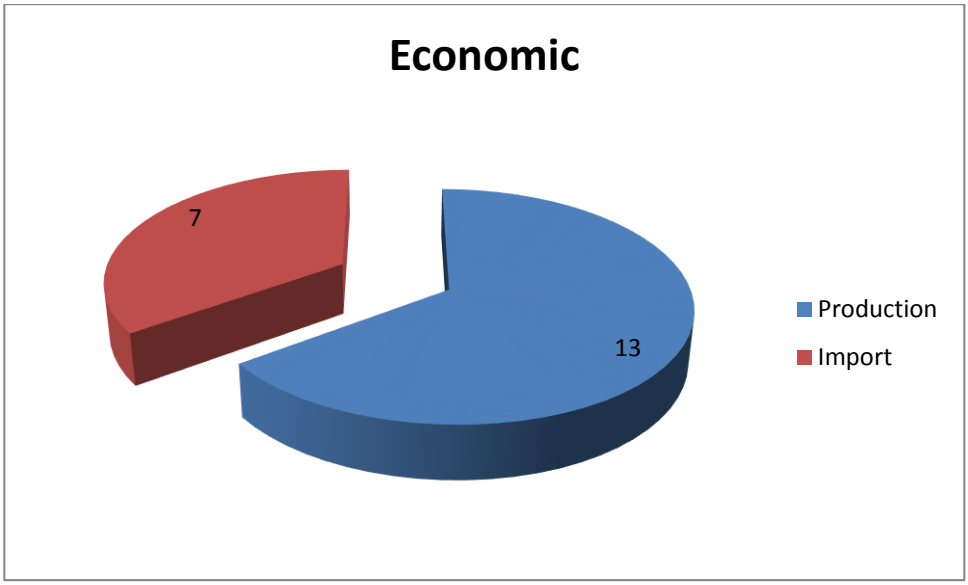
Box No. 19-Comparative of each alternative

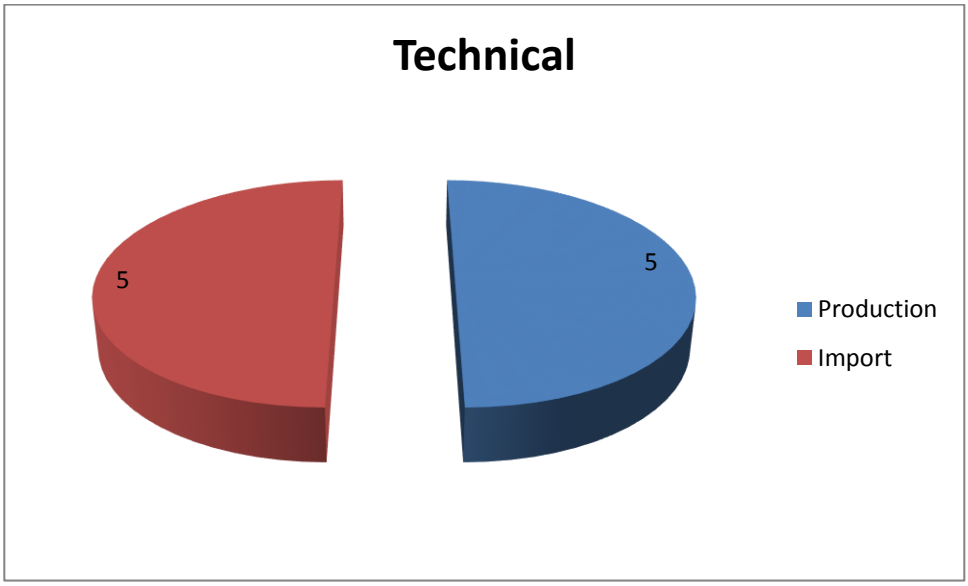
Economic Characteristics		
Feature	**Production**	**Import**
Productivity	**3**	**0**
Development of the sector	**3**	**0**
Generation of offer direct and indirect labor	**3**	**0**
Opening of markets	**3**	**0**
An incentive of demand	**0**	**3**
Competitiveness	**0**	**3**
Movement of capital	**1**	**1**
Technical Characteristics		
Feature	**Production**	**Import**
Feasibility	0	**3**
Industrial Promotion	**3**	**0**
Applicable Legal Framework	**1**	**1**
Sustainable Development	**1**	**1**
Total	**18**	**12**

Box No. 20- Results

Feature	Production	Import
Economic	13	7
Technical	5	2
Total	18	9

Figure No. 19- Weighting resulting





Justification of the results

- **Productivity:** The promotion of industry promotes higher levels of productivity than imports, because it integrates a greater amount of internal areas. In this case, the economy is in the production greater impact due to the generation of employment that it produces.

- **Development of the sector:** Production promotes a greater growth of the sector due to the fact that there are more actors in the internal processes. The transformation of raw materials allows this alternative has greater impact on the economy.

- **Generation of labor supply:** The production generates greater employment opportunities by the productive processes that include its development. Its impact has place in population that most needs demanding labor. Import the generated short labor supply, just focusing in logistic processes.

- **Opening of markets:** Production supplies the domestic market with opportunities of open international markets. The import is concentrated in domestic markets mainly.

- **Incentive to demand:** Because imported induction cookers have a better or more known brand in the market, these products can generate a greater impact on the incentive for the demand.

- **Competitiveness:** Imported products have advantages in terms of prices by the economies of scale they have. This generates greater competitiveness that enables them to achieve positions in the market. This discourages local production, giving rise to increased reliance on imports to meet demand.

- **Capital circulation:** Both the production and import incentivize the market, making it possible to increase the circulation of capital that elevates the economic capacity of the country.

- **Viability:** the failure of the production quotas for domestic manufacturers have promoted the release of tariffs on the import of induction cookers which elevates their feasibility and sustainability.

- **Industrial Promotion:** The production by its coverage in processes encourages the growth of the industry generating a greater impact on the economy.

- **Legal Framework:** Both processes have regulations that encourage their development, which is why it is considered that there is a similar impact on its development and impact on the national economy.
- **Sustainable development:** Both alternatives have development options for what is expected will be maintained in the next years.

3.3 Impact in the national economy

The production and import have impacts on the national economy. Both alternatives have specialized purposes and shared as described below:

Advantages of the production in the impact of the national economy

- Prevents the outflow of capital.
- Encourages the export and the opening of markets, which allows you to improve the balance of trade
- Generates sources of specialized jobs in labor, which decreases the rates of unemployment.

Advantages of import in the impact of the national economy:

- Raises the competitiveness of products with high technology and quality.
- Allow you to have the required products in less time, so it has greater impact on the energy matrix situation that affects the national economy.

- Encourages the creation of importing companies, attracting domestic and international capital.

Common aspects in both alternatives:

- Encourage international trade.
- Generate direct and indirect employment.
- Increase the circulation of capital.

3.4 Detail for the best alternative

The economy of the country, has experienced sustained growth of 4.65% since 2009, this being one of the most important achievements of the National Government. Factors such as the stability of the price of oil ranges between $99 to $110 USD each barrel, which has allowed a sustenance of the economy and a momentum in strategic areas, and socially.

Analyzing macroeconomic indicators, it appears that despite the clear recovery of the country, their trade balances are deficient, and a dependency in activities relating to oil exploitation exists.

The commercialization of induction cookers has been considered by the National Government as a strategic objective to promote the change in the productive and energy matrix. Its development promotes the opening of industries and allows a change in the sources of energy, which will represent significant savings in the General Budget of the State by the removal of subsidies.

In practice, there have been problems in the implementation of the national production, which was motivated to formulate measures to encourage imports, an aspect that allows you to identify behaviors like the following:

- The domestic industry is not fully prepared to supply the demand that encouraged by the measures initiates the change.
- The domestic industry does not have credits with incentives that allow you to increase their industries and have advantages in price with the imported products.
- The national industry does not have extensive experience in the product.

- The elimination of tariffs opens the way for a greater import that allows you to have the products in less time with less investment because the purchase of machinery is omitted, creation of stock, personnel recruitment, among others.
- This situation makes a national production less attractive for investors.
- Studies confirm that production is the best alternative, impacting the national economy. However, this was not fully prepared as has been evident in 2014.

To keep up with the elimination of import tariffs, local production will have limited options to be consolidated, which tends to generate deadlocks in the national economy keeping its dependency on oil.

On the other hand, the imports are attractive, motivated by the decisions undertaken suggesting that will be the main measure to supply the demand. In this case, its development will encourage the change of the energy matrix, but will not have much relevance in the change of the productive matrix.

The development of the import, though not the best alternative, will be consolidated as long as you keep the elimination of tariffs, this being a barrier to the promotion of national productivity.

The study has helped to identify a clear reality, where despite the fact that production is the best alternative from the incentive that gives rise to the economy, its development will be lower than imports. Imports will push the economy rising capital outflows and deficit in the balance of trade. However, the import is necessary in order to satisfy the demand and push the change in the productive and energy matrix, which is a high priority.

The study has shown the need for change in the productive matrix, the importance in this is the production, but has also identified the unfavorable conditions for its development, so that the import has gained ground and is expected to remain so at least the next 2 years.

The study shows weaknesses in the domestic industry in this sector, which is replicated in many other areas that have represented stagnation in economic growth. You can say that the import of induction cookers is an atypical process for this Government, governed by policies of replacement and restriction of imports.

The national industry is facing profound weaknesses that must be overcome in order to realize its full potential and that are expressed in the following aspects:

- Growth in imports to take advantage of the growing market
- Lack of credits that increase greater national industries
- Lack of experience in the sector
- Improve the competitiveness of national induction cookers compare to imported cookers

The factors outlined above, allow you to observe the difficulties existing in this sector for the national production, thus not allowing a greater impact on the economy.

Conclusions and Recommendations

As conclusions of the study we stated that:

- If the imports continue and are supported by the elimination of import tariffs, the local production will have limited options to be consolidated, which will generate struggles in the national economy keeping it dependent on oil.

- The import of induction cookers result is attractive. Motivated by the measures analyzed, it will be the main measure to supply the demand. In this case, its development will encourage the change of the energy matrix, but will not have much relevance in the productive matrix.

- Production is the best alternative that incentivizes the economy, its development will be lower than the imports, which have taken advantage of the lack of experience of the national brands in order to consolidate in the Ecuadorian market.

- The imports will push the economy in certain way that creates capital outflows and deficit in the balance of trade that will have oil exploitation as the main source of income.

- The national industry, is facing profound weaknesses that must be overcome in order to realize its full potential and that are expressed in the following aspects:
    - Growth in import to take advantage of the growing market
    - Overcome the lack of experience in the sector
    - Improve the competitiveness of the induction cookers compare to the imported

- The factors outlined above, allow you to observe the difficulties existing in this sector for the national production, not allowing a greater impact on the economy.

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