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**Master's Thesis**

**A Richer Central America, an Improved Society?**

**The Effect of Economic Growth in Central America**

**Social Development**

**December 2014**

**Graduate School of Seoul National University**

**Program of International Studies(International Area Studies)**

**Graduate School of International Studies**

**Cindy Elizabeth Gradiz Diaz**

# **A Richer Central America, an Improved Society?**

## **The Effect of Economic Growth in Central America**

### **Social Development**

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**Submitting a master's thesis**  
**International Studies(International Area Studies)**

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## **Abstract**

### **A Richer Central America, an improved society? The Effect of Economic Growth in Central America Social Development**

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This research examines the relationship between Economic Growth and Social Development in Central America, over the period 1992-2012. Using a Granger Causality Model and a Panel-data Methodology, to measure the relation of economic growth and social development in the areas of population, health, labor force, poverty and education. With the purposes of identifying which areas have a significant change with GDP growth and which areas do not have a significant relation. The results of the conducted research show that in Central America economic growth and social development have a strong relation, but when evaluating economic growth and each of the social development areas, this research found that as expected

economic growth has a strong relation with population, poverty and labor force, at the same time there is no relation between economic growth and some of the most important areas that drive countries through economic development, such as health and education.

**Key words:** Social Development, Economic Growth, Labor Force, Health, Education, Poverty, Central America.

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## **Chapter 1**

### **1.1.Introduction**

The Governments of the Central America Countries during the last twenty years have been focusing in Economic Growth implementing policies to encourage Free Trade Agreements (FTAs) and increasing dynamism in promoting micro, small and medium sized enterprises (MSMEs).

Central America Countries has made significant progress in integrating their economies among each other, since 1990 Central America has been working in establishing a common market. Among these efforts, the most significant free trade agreement (FTA) is the agreement with the United States of America and Dominican Republic, called CAFTA-DR.

Economic growth measure by the Gross Domestic Product, in Central America shows a growth of approximately 4% per year, given the region stability during recent years. Even though the economy of the region is still volatile, and constantly dependable of the United States of America economy.

All this efforts in economic growth, with the purpose of increasing their standard of living and quality of life, however in the region has been little improvement on this issue, contrary to the economic achievements. They are

many social development areas, in which the countries need to focus, to achieve a better standard of living and quality life to their society.

This research studies the effect of economic growth in Central America countries (Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama) in a Social Development index that includes areas and indicators that affect the wellbeing of the society living in the region. And study the impact of economic growth in Central Americans living conditions, access to health institutions, education enrollment, population growth, labor force and the creation of job opportunities.

## **1.2. Background**

Central American countries since 1990s have made substantial progress in social and economic areas. Especially they have stabilized their economies after years of civil war and the economic instability.

Therefore, before the 2008 financial crisis, in Central America the GDP per capita grew at an average rate of 3 percent per year from 2003 to 2008, which end up been the most vigorous and steady period of growth the region had experience since the early 1990s<sup>1</sup>. (Guash, 2003) .

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<sup>1</sup> 3% GDP growth, did not took in account Panama

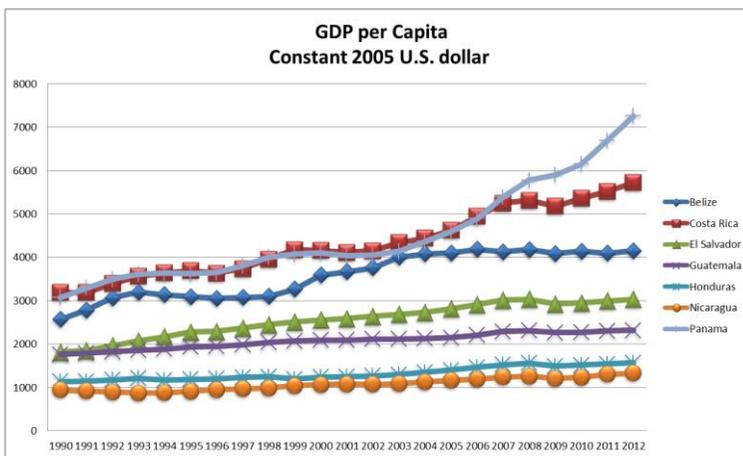
The Long Term GDP Growth show in the following table demonstrates a significant difference in the region before 1990s due to political and civil crisis that the region was suffering, during that time.

Table 1. Central America: Long Term GDP Growth (percent per year)									
Country	1970	1975	1980	1985	1990	1995	2000	2005	2010
Belize	4.81	3.59	15.17	1.07	10.63	0.64	13.04	2.97	3.85
Costa Rica	7.50	2.10	0.75	1.04	3.90	3.92	1.80	5.89	4.95
El Salvador	2.98	2.92	-11.77	0.62	4.83	6.40	2.15	3.56	1.36
Guatemala	5.71	1.95	3.76	-0.61	3.10	4.95	3.61	3.26	2.87
Honduras	3.63	2.13	0.67	4.19	0.10	4.06	5.75	6.05	3.73
Nicaragua	1.35	-0.15	4.61	-4.08	-0.09	5.91	4.10	4.28	3.30
Panama	6.39	1.59	1.10	4.94	8.10	1.75	2.72	7.19	5.85

Source: World Bank, World Development Indicators (2014)

In table 1 we can acknowledge the constant growing of GDP per capita for each of the Central America Countries, and we can appreciate the different between the growth of Panama and Costa Rica and the other countries. Overall there has been a constant growth in the region.

Figure 1



Given its small domestic markets, Central America has put Economic Growth at the center of its development agenda.

In 1960 Guatemala, Honduras, El Salvador, and Nicaragua created the Central American Common Market (CACM) in an effort to stimulate economic development (Costa Rica joined in 1963). The CACM, however, has suffered from political disagreements between El Salvador and Honduras. In recent years, efforts have been made to increase economic integration among the countries.<sup>2</sup>

The region has witnessed the successful conclusion of negotiations for a significant number of free trade agreements (FTAs). In between the most important the region has:

- The Dominican Republic–Central America Free Trade Agreement (DR-CAFTA) with the United States
- The Association Agreement (AA) with the European Union.

Nevertheless, the extent to which Central American countries can take full advantage of their effort to increase economic growth is to understand the effect of Economic Growth in Social Development.

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<sup>2</sup> Taken from the economics of Central America by the Wheeling Jesuit University/Center for Educational, 1999-2002

### **1.2.1. What is happening in Central America?**

Since 1990 Central America countries began to undertake a series of structural reforms to address regional issues. One of the reforms was the strategy of “Washington Consensus” a more open market-oriented economy.

Within this growth context the region has seek to enhance their standard of living and quality of life, but there has been little improvement on this, contrary to the economic achievements.

Over half of the populations of Central America live in poor conditions, lack of Health institutions, deficiency in education, continual growth in population, which in consequence increase disorder in urban areas and a rise labor force with no job vacant. These are some of the problems that this region is still facing.

### **Why is Population Growth important in Central America?**

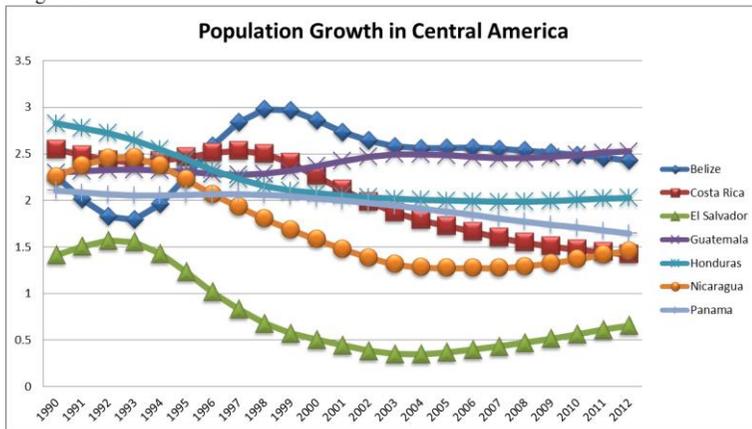
Rapid population growth demands Central America countries to raise standards of living because the more people there are, the greater the need for food, health care, education, houses, land, jobs, and energy.

Table 2. Population Growth				
	1990	1995	2000	2005
Belize	2.26	2.25	2.86	2.56
Costa Rica	2.54	2.46	2.26	1.72
El Salvador	1.41	1.23	0.50	0.37
Guatemala	2.30	2.30	2.37	2.48
Honduras	2.83	2.44	2.08	2.00
Nicaragua	2.25	2.22	1.58	1.27
Panama	2.11	2.06	2.02	1.88

Source: World Bank, 2014

Parents tend to have larger families when they fear that many of their babies may die, when they need laborers to work on the family farm or business, when they want to ensure that they themselves will be cared for in their old age, and when they lack access to education and to family planning if they want it. (World Bank, Development).

Figure 2



Source: World Bank, 2014

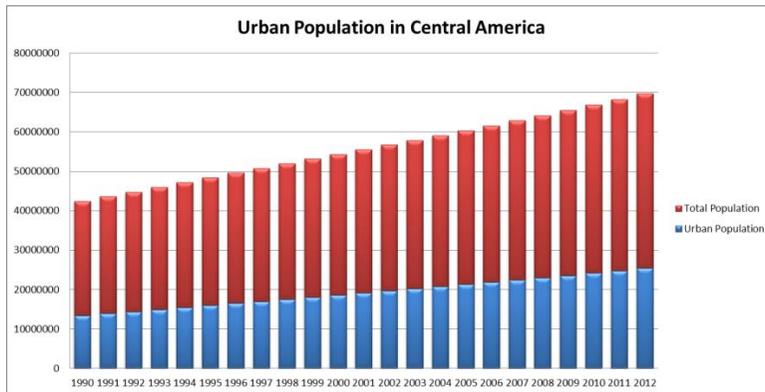
Population in Central America has been growing during the years; several factors have contributed to the rapid population rise. Central America has consistently maintained high birth rates during the twentieth century. The crude birth rate (the annual number of births per 1,000 inhabitants) from the beginning to the midpoint of the century varied between 41.7 and 44.5 births per 1,000 inhabitants.

Table 3. Population in Central America	
	2012
Belize	324060
Costa Rica	4805295
El Salvador	6297394
Guatemala	15082831
Honduras	7935846
Nicaragua	5991733
Panama	3802281
Total	44239440

Source: World Bank, 2014

Central America is slowly become a more urban region, thanks to all the movements to modernity and globalization. There is still much concern, due

to the preparation of the cities to receive these new waves of population in the



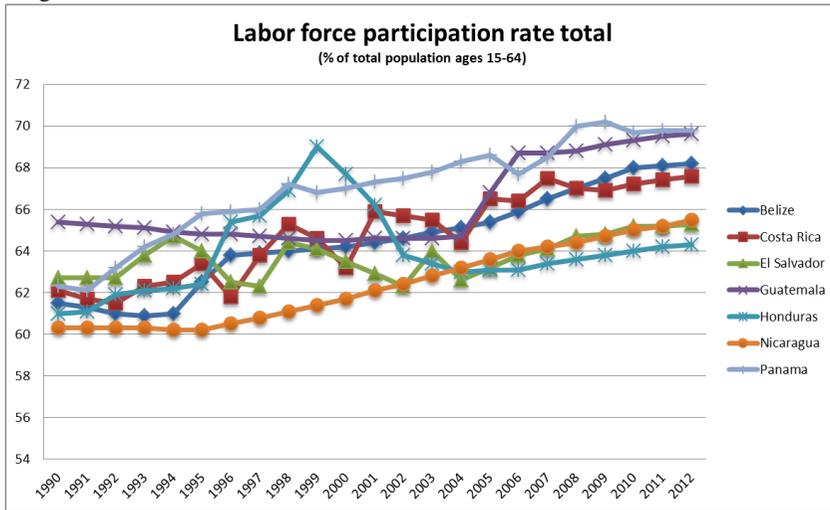
Source: World Bank, 2014

cities.

### **Why is Labor Force important in Central America?**

The major challenge in Central America is to create better conditions to stimulate the creation of more productive employment in the context of a fast unemployment rates among youth remain high, a worrisome trend given that the labor force will continue to grow in the coming decades. The creation of more jobs, particularly of jobs that can break the poverty cycle and contribute to sustained economic growth is high on the region's policy agenda. (Better Jobs in Central America, 2012)

Figure 3



Source: World Bank, 2014

The labor force participation is all the people who supply labor for the production of goods and services during a specified period, in Central America this percentage has been growing with the population, giving the opportunity to the region to invest human capital into different industries that contribute to the economic development of the region. (Better Jobs in Central America, 2012)

Table 4. Labor Participation Rate Total (% of total population ages 15-64)			
	2000	2005	2010
Belize	64.20	65.40	68.00
Costa Rica	63.20	66.50	67.20
El Salvador	63.50	63.20	65.20
Guatemala	64.50	66.80	69.30
Honduras	67.70	63.10	64.00
Nicaragua	61.70	63.60	65.00
Panama	67.00	68.60	69.70

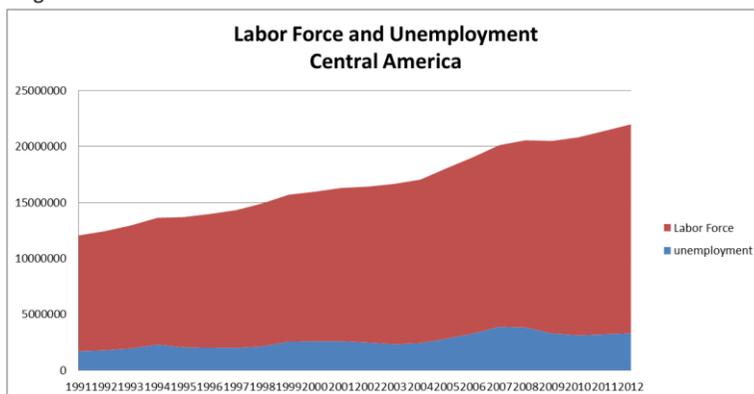
Source: World Bank, 2014

Several issues had been raise in this area, as the need to push for a major improvement to access to quality secondary and higher education currently of very low quality will need to be improved. And develop a labor force with minimum levels of scientific and technical skills to facilitate the adoption and adaptation of new technologies. Most Central American countries have populations with low levels of educational attainment compared with other countries at similar levels of development.<sup>3</sup>

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<sup>3</sup> See (Better Jobs in Central America, 2012)

Figure 4



Source: World Bank, 2014

The challenges present in Central American labor markets, people working in largely unskilled, informal and low-paying jobs, few opportunities for educated people outside of the public sector and few job opportunities for young people in general.

### Why is health important in Central America?

Central American countries have invested in improving public health measures (safe drinking water, sanitation, and mass immunizations), training medical personnel, and building clinics and hospitals. But much remains to be done largely preventable diseases still claim lives.

Table 5. Life Expectancy in Central America				
1990	1995	2000	2005	2010
68.415554	70.14	71.55	72.86	74.11

Source: World Bank, 2014

Government Expenditure in Central America has been increasing over the years, while at the global level there seems to be a positive correlation between the income per capita and the share of health expenditures as percentage of GDP, data from Central America region shows a weak association between these two variables. (Health Care Expenditure and Financing in Latin America and the Caribbean, 2001)

Table 6. Health expenditure, total (% of GDP)				
	1995	2000	2005	2010
Belize	4.25	3.98	4.45	5.84
Costa Rica	6.51	7.08	7.74	9.65
El Salvador	6.38	8.11	7.19	6.91
Guatemala	3.67	5.59	6.45	6.85
Honduras	5.34	6.63	7.69	8.69
Nicaragua	6.48	5.39	6.11	7.62
Panama	7.72	7.76	7.48	8.53

Source: World Bank, 2014

Compared to sub-Saharan Africa, Central America's HIV epidemic is relatively localized and continues to be concentrated in high-risk groups such as men who have sex with men, sex workers, and intravenous drug users. However, a lack of knowledge about HIV, widespread stigma of the disease, limited access to health care, poverty, and migration all contribute to the region's vulnerability to a growing HIV epidemic<sup>4</sup>. (Bliss, 2009)

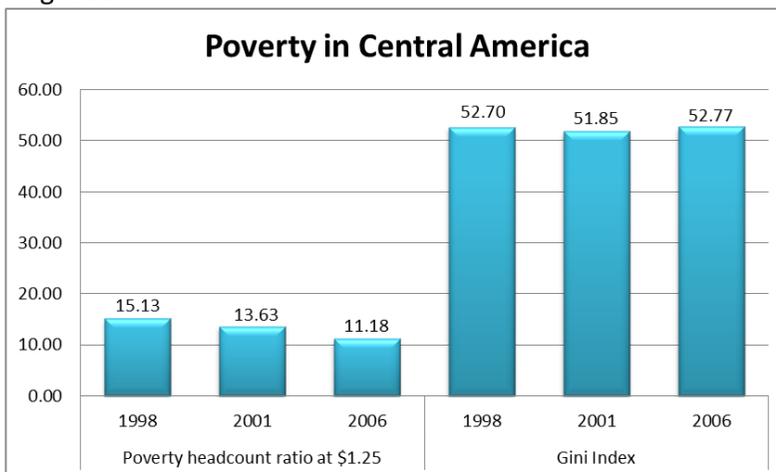
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<sup>4</sup> See Bliss.2009. Health in Latin America and the Caribbean

## Why is poverty important in Central America?

Those living in absolute poverty are unable to satisfy their basic needs for survival; water, clothing, food, shelter and basic medicine. In Central America 52.7% lived in poverty during 2004, Nicaragua and Honduras have national poverty rates above 50% since 1990, while Guatemala had half of its population living in poverty between 1990 and 2000. El Salvador has over 47% of its population living in poverty. However the situation in Panama is similar to the one in Costa Rica, in Panama nearly 32% of the population are living in poverty. (Hammill, 2007)

Figure 5



Source: World Bank, 2014

Despite the region effort in reducing poverty levels, they are still lower than the Latin American Average. In Guatemala Poverty Rate 18.6 % and in Guatemala, Honduras and Nicaragua more than half of the population lives in

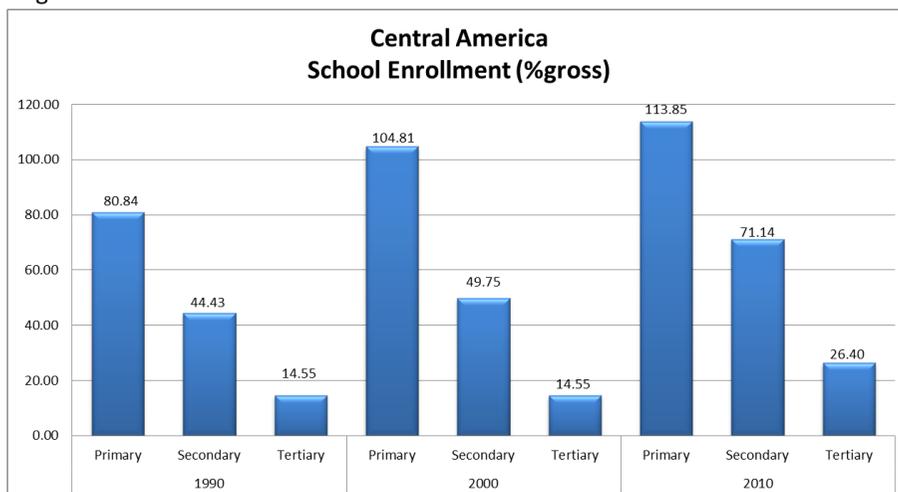
poverty. (Beteta, 2012, pg 12). That's why economic growth in developing countries is a critical tool for reducing poverty and improving most people's standard of living. But economic growth alone is not enough. In some countries poverty aggravated in spite of overall economic growth, due to increased income inequality (Beyond Economic Growth, Second Edition). Additionally, an important source of concern is Central American performance on various social indicators. Despite some improvements in the 2000s, inequality and poverty in Central America still remain high. (Guash, 2003)

### **Why is Education important in Central America?**

There are many schoolchildren who still don't go to school and many teens that already left it. The data show that more than 700,000 children and adolescents in primary school or secondary school age who are outside of school. Besides, there are 200,000 preschool-age children who are not attending this level. (Finishing school in Central America: The pending challenges, 2013)

Figure 6 shows the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.

Figure 6



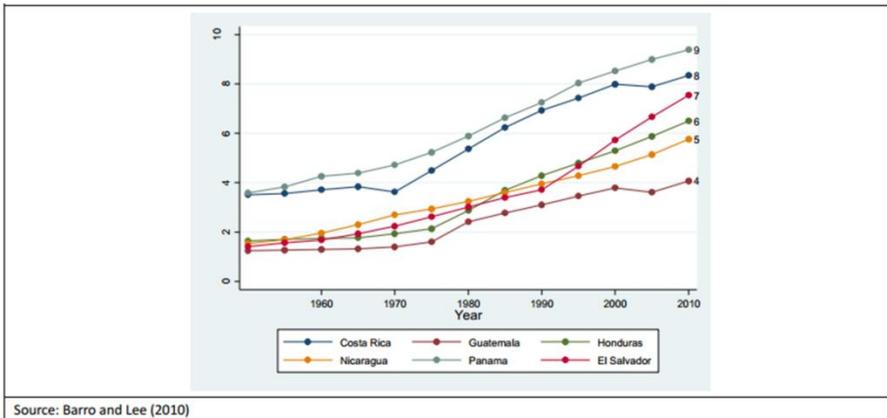
Source: World Bank, 2014

“Countries in the region will not achieve the full realization of the right to education for all children and adolescents if they don’t take consistent, coherent and sustained measures to improve the quality of education, reduce repetition and dropout”, (Bernt Aasen, UNICEF Regional Director for Latin America and the Caribbean).

The average education attainment in Central America varies from 4.1 years in Guatemala to 9.4 years in Panama. Central American countries have been largely successful in improving primary enrollment rates, although completion is significantly lower than 100 percent in Guatemala, Honduras and Nicaragua. Except in Guatemala, most students today in Central America begin secondary school. Low secondary school, due to high dropout rates within the secondary cycle, is a common problem in Central American

countries, including Costa Rica, where in 2009 less than 50 percent of those who started secondary school completed it. (Better Jobs in Central America, 2012)

Figure 7. Average educational attainment, population 25+



### 1.3. Research Objectives and Questions (Aim of Study)

Having economic growth at the center of its development agenda Central American countries can only take full advantage of their effort if it improves their standard of living and quality of life and for this we need to understand the effect of Economic Growth in Social Development. To realize this, it is imperative to recognize the measure in which economic growth affect social development and simultaneously, identify which social development areas improve and which won't with economic growth.

Governments will be able to focus in the areas, which their effort in economic growth does not affect in a positive way, if they realize which areas are being neglected they act on them, in a more positive approach.

For the purpose to understand the relation between economic growth and Social Development in Central America this investigation raise important questions, the first one is to recognize if social development is a product of economic growth? The second is if economic growth and social development are unrelated events? And finally, which social development areas least affected by economic growth?

This research analyzes the Central America countries with the hypothesis that economic growth affects positively and significantly the social development index. And having as a purpose to comprehend, which Social Development areas are the least affected by economic growth.

## **Chapter 2. Conceptual Framework**

### **2.1. Concepts and Conceptualization**

This research is supported in a larger context of economic growth and Social Development. This section explains these two concepts and its areas and reviews the existing theory and literature.

### **2.1.1. Economic Growth**

This research embraced as a definition of Economic Growth, “the process of increasing the sizes of national economies, the macro-economic indications, especially the GDP per capita, in an ascendant but not necessarily linear direction, with positive effects on the economic-social sector”. (HALLER, 2012) Before Haller, Leszek Balcerowicz defined economic growth as “the process of quantitative, qualitative and structural changes, with a positive impact on economy and on the population’s standard of life, whose tendency follows a continuously ascendant trajectory”. (Balcerowicz, 2001) And identified four dimensions: The initial level of development or the level existing when the measure of development starts being determined, the human capital or the people’s level of education and professional training, the internal economic condition or the economy’s structures and the external economic circumstance.

In the paper called “Concepts of Economic Growth and Development Challenges of Crisis and of Knowledge” the author Alina-Petronela Haller mentioned that economic growth can be positive, zero, negative and that economic growth is a complex, long-run phenomenon, subjected to constraints like: excessive rise of population, limited resources, inadequate infrastructure, inefficient utilization of resources, excessive governmental

intervention, institutional and cultural models that make the increase difficult, etc.<sup>5</sup>

Other definitions of Economic Growth includes the increase in a country's real level of national output which can be caused by an increase in the quality of resource's and improvements in technology or in another way an increase in the value of goods and services produced by every sector of the economy. Economic Growth can be measured by an increase in a country's GDP (gross domestic product). (World Bank, 2014)

### **2.1.2. Social Development**

For this research Social development is define as the improvement of the well-being of every individual in a society so they can reach their full capacity. The success of society is linked to the well-being of each and every citizen<sup>6</sup>. (Government of New Brunswick, 2008)

The World Bank defines Social development as investing in people. It requires the subtraction of difficulties so that all citizens can move toward their dreams with confidence and pride. In other words it is about refusing to accept that people who live in poverty will always be poor.

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<sup>5</sup> See the Alina-Petronela Haller. 2012. Concepts of Economic Growth and Development. Challenges of Crisis of Knowledge.

<sup>6</sup> This definition has been taken from the New Brunswick, Canada and their definition of Social Development

The World Bank describes Social Development as the focuses on the need to 'put people first' in development processes. (World Bank, 2014). They are many other definitions to understand Social Development as for (*Homfeldt and Reutlinger 2008*) is conceived as development of the individual human being. It stands for making specific individuals capable of acting, that later, with the help of involvement, to drive forward the economic and social well-being of the community as a whole. And that it is an alternative approach focusing on the empowerment and autonomy of Society. If we go back in literature, Adams and Farrell defined social development essentially as societal development or "that kind of social change which is marked by emphasis on planning mechanisms to achieve desired types of complexity."(Adams and Farrell, 1966) Social development, however, has also been viewed by (Aron and Hoselitz, 1965) as the "increasing moralization of human behavior and thought".

### **Social Development: Population**

Society is composed of population for the purpose of this research; we need to understand population growth and urban population growth.

The term of population easily goes beyond the five meanings<sup>7</sup> given in the Concise Oxford English Dictionary, which generally refer to the collective inhabitants of a particular place. For demographers and experts on the links between population and development, the term “population” refers to the number, growth, structure and spatial distribution of persons and the demographic variables determining those factors (fertility, mortality and migration).

For the purpose of this research the definition adopted is the one given by the World Bank, which counts “all residents regardless of legal status or citizenship, except for refugees not permanently settled in the country of asylum, which are generally considered part of the population of their country of origin”. (World Bank 2014)

The importance of the increases in human population, “whether it is a result of immigration or more births than deaths, can place pressures on the country's sustainability through impacts on many natural resources and social infrastructure.” (World Bank Data Definition, 2014) A significant increase in population will negatively impact accessibility of land for agricultural production, and will increased demands on food, energy, water, social

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<sup>7</sup> The tenth edition of the Concise Oxford English Dictionary defines population as follows: (i) all the inhabitants of a particular place; (ii) a particular group within this; (iii) the action of populating an area; (iv) a community of interbreeding organisms; and (v) a finite or infinite collection of items under consideration.

services, and infrastructure. At the same time can impact in the government's commitment to maintain services and infrastructure.

The world situation according to the World Health Organization is that they are 54% of global population living in urban area, as difference from 1960 that was 34%, and continues to grow. The urban population growth is concentrated in the less developed regions of the world. It is projected that by 2017, even in developing countries, a majority of people will be living in urban areas. (WHO, 2014)

The important of Urban Population is the rapidly growth of cities indicates the demographic transition from rural to urban, and is associated with shifts from an agriculture economy to mass industry, technology, and service. The majority of the world's population lives in a city, and this proportion continues to grow. Immigration (legal and illegal) will account for more than two-thirds of urban growth. Cities generate jobs and income, and deliver education, health care, social mobilization and women's empowerment. (World Bank, 2014)

### **Social Development: Health**

This research adopted the definition of Health used by The World Health Organization (WHO) in which is "a state of complete physical, mental, and

social well-being and not merely the absence of disease or infirmity." (Grad, 1946).

In which is calculated by many indicators, for the purpose of this research will use: Life expectancy at birth, total (years), Mortality rate, infant (per 1,000 live births), Prevalence of HIV, total (% of population ages 15-49), Adolescent Fertility Rate (births per 1,000 women ages 15-19).

### **Social Development: Poverty**

A state or condition in which a person or community lacks the financial resources and essentials to enjoy a minimum standard of life and well-being that's considered acceptable in society. Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money<sup>8</sup> and for the purpose if this research we implemented, the previous definition. Likewise absolute poverty or destitution refers to the deprivation of basic human needs, which commonly includes food, water, sanitation, clothing, shelter, health care and education. Relative poverty is defined contextually as economic inequality in the location or society in which people live<sup>9</sup>. (World Bank, 2011)

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<sup>8</sup> Poverty. merriam-webster. Retrieved 18 November 2013.

<sup>9</sup> see "Measuring Inequality". The World Bank. 2011. For further information

Another social perspective on development requires addressing poverty in all its dimensions. It promotes to poverty eradication promoting the empowerment of people living in poverty through their full participation in all aspects of political, economic and social life, especially in the design and implementation of policies that affect the poorest and most vulnerable groups of society. (UNSPDD, 2014)

### **Social Development: Labor Force**

“The labor force is the supply of labor available for producing goods and services in an economy. It includes people who are currently employed and people who are unemployed but seeking work as well as first-time job-seekers.” (World Bank, 2014) this is the definition used for the purpose of this research

Even though not everyone who works is included, as labor force like for example unpaid workers, family workers, and students are often omitted the labor force of a country. Labor Force is the human capital that a country has to invest human capital in economic development.

### **Social Development: Education**

Education is defined as the “general sense is a form of learning in which the knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, or research. Education

frequently takes place under the guidance of others, but may also be autodidactic.”<sup>10</sup> (Dewey, 1944)

## **2.2. Literature Review**

The following section makes reference to previous research of Economic Growth and Social Development and the relation between Economic growth and each of the areas identified to measure Social Development.

### **2.2.1. Economic Growth and Social Development**

The objectives of many countries is to increase the wellbeing of their population without delaying economic growth, in many literatures we can find different positions in which they measure the relation between economic growth and social development. Krishna Mazumdar (1996) in her research the relation between Economic growth and social development, in which she explains the relation between Social development and economic growth, for 118 counties of the world in three main groups (High, Middle and low income), she states that economic growth is necessarily to pass all the stages of development to a fully modern society. The author establish four statements, the first is that “Social Development is a product of economic growth”, with this understanding countries, usually make stronger policies, to promote economic growth, this approached is based in the Rostovian model,

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<sup>10</sup> Definition taken from 1944, democracy and education, by Dewey

where he defended that economic growth is necessarily to pass all the stages of development to a completely modern society. Ram suggests that increase in average per capita income should, increase the level of basic needs satisfaction. (Ram, 1985) Goldstein suggests a causal model based on the supposition that economic factors will strongly affect at least one component of basic needs.<sup>11</sup> (Goldstein, 1985) The second is that “Economic Growth and Social development are two unrelated events in a scenario that Economic growth can occur without social welfare development”. With this the author suggested that economic growth could actually produce a widening gap between wealthy and the poor population inside the society. (Zuvekas, 1979). The third one is that “neither social development nor economic growth is a primarily cause of the other, they are inter dependent.” Policies for economic growth and the policies towards basic needs development are linked (Srinivasa, 1977). The author makes the emphasis that is the countries focus too much on the basic needs it would hurt the economic growth and it will damage future improvements. And the last and fourth states that “social development precedes Economics Growth as a result of Social development”, and the importance of tackling poverty alleviation through increasing social development instead of trying to achieve economic growth first.

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<sup>11</sup> See Krishna Mazumda, An Analysis of Causal Flow between Social Development and Economic Growth: The SocialDevelopment Index

In the paper of Goldstein called “In Basic Human Needs: The Plateau Curve”, he suggests that an increase in average per capita income should improve the level of basic needs. Goldstein posits a causal model based on the assumption that economic factors will strongly affect basic needs. (Goldstein, 1985)

Fedderke grouped Social development indicators that show the interaction between economic performance and broader social characteristics and in that way analyze the impacts of Economic growth in Social Indicators. (Fedderke, 1998)

### **2.3. Economic Growth and the Social Development areas**

This research identified five Social Development areas in which Central American countries must focus to enhance Social Development indicators and to increase social wellbeing. In this section we explain the relationship between Economic Growth and each of the areas.

#### **2.3.1. Economic Growth and Population Growth**

The relation between economic growth and population has been discussed by several authors; Malthus said that “Population growth is supposed to decrease the per capita output, because output growth rate cannot keep the same pace”. (Malthus 1826).

If we look for a negative perspective between population growth and Economic growth is an increase in population reduces output per capita.<sup>12</sup> A growing population requires the increasing resources to existing consumption rather than investment. High rates of population growth tend to imply high dependency burdens and result in lower rates of private saving. (Kapuria-Foreman. 1995).

Adam Smith emphasizes the larger possibilities for specialization and division of labor that result from the expansion of the market as well as the labor force and rapidly growing population also suggests a rapidly growing labor force. A large proportion of youth in the labor force may support technological change and economic growth through their greater adaptability and mobility. Jean-Claude Chesnais in his research calculated the correlation between rates of population growth and of per capita product for 77 developing countries for 1960 to 1970 and 1970 to 1980 and found a positive correlation in the first decade but a significant negative coefficient for second decade.

Kapuriah-Foreman in 1995 tested granger causality in between Economic Growth and population growth for 15 low and middle income countries, and the results, from population growth to economic growth can be rejected for eight countries, and the hypothesis of no causality from economic growth to

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<sup>12</sup> Kapuria-Foreman, Vibha. 1995. "Population and Growth Causality in Developing Countries". *The Journal of Developing Areas*. 29(04): 531-540.

population growth can be rejected for seven countries. And from economic growth to population growth cannot be rejected for eight countries: higher economic growth has no significant effect on population growth rates.<sup>13</sup>

In their research title “Population Growth and Economic and Social Development”, Clausen A. W. and Donald W. Paden, mention that the actual reality is that population growth is growing and most of it lives in absolute poverty. The authors identify three main problems, the first one is that Rapid growth is a central development problem, second is that proposals for reducing population growth raise difficult questions about proper domain of public policy, and the third is that Quick effective measures can be taken to reduce fertility, policy and programs can make a difference.<sup>14</sup> At the same time the authors, write about how population growth puts a break on development and affect Investment, Natural Resources, and Urban Problems.

### **2.3.2. Economic Growth and Health**

The relation between Economic Growth and Health is that Economic Growth and higher incomes stimulate better health through better-quality nutrition, better access to safe water and sanitation, and increased ability to purchase more and better quality health care. (Bloom. 2008) High levels of population

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<sup>13</sup> Kapuria-Foreman, Vibha. 1995. “Population and Growth Causality in Developing Countries”. *The Journal of Developing Areas*. 29(04): 531-540.

<sup>14</sup> See Clausen A. W. and Donald W. Paden. 1985. “Population Growth and Economic and Social Development” Taylor & Francis , Ltd. 16(03) 165-176

health go hand in hand with high levels of national income. Higher incomes promote better health; health may be not only a consequence but also a cause of high income. (Bloom and Canning, 2000).

Several economists have identified channels through which health affects the level of output in a country. One channel, which is the direct effect of health, is that healthier people are better workers. (Weil, 2006)

There are reasons to believe that the relations between Health and Economic development is a both way relationship health improvements can contribute to economic development for various reason, improved productivity, improved learning, reduced family size, health and investment, Increased availability of land for productive use, Reduced Treatment Burden. <sup>15</sup> Same as Mehrara mention in the paper “Granger causality between Health and Economic Growth in oil exporting countries” Growth and health are correlated in both directions. Health is a necessary good, so more income leads to more spending on health.

### **2.3.3. Economic Growth and Poverty**

Rapid and sustained growth is the single most important way to reduce poverty. (Adams. 2002) A study of 14 countries in the 1990s found that, poverty fell in the 11 countries that experienced significant economic growth

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<sup>15</sup>Analyst, DSAED. 2010. “The Role of Health in Economic Development”. DSAED

and rose in the three countries with low or stagnant growth. On average, a one per cent increase in per capita income reduced poverty by 1.7 per cent.<sup>16</sup>

China alone has lifted over 450 million people out of poverty since 1979. Evidence shows that rapid economic growth between 1985 and 2001 was crucial to this enormous reduction in poverty. (Lin 2003) India has seen significant falls in poverty since the 1980s, rates that accelerated into the 1990s. This has been strongly related to India's impressive growth record over this period. (HBhanumurthy and HMitra 2004) Mozambique illustrates the rapid reduction in poverty associated with growth over a shorter period. Between 1996 and 2002, the economy grew by 62 per cent and the proportion of people living in poverty declined from 69 per cent to 54 per cent. (Arndt, James, Simler 2006).

Some authors said that the degree of poverty depends on the average of income and income inequality. While an increase in average income reduces poverty, an increase in inequality increases poverty. The reaction of poverty to changes can be measure when inequality remains fixed. (Hyun H. Son and Nanak Kakwani, 2004).

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<sup>16</sup> See Operationalising Pro-Poor Growth (OPPG) Programme (2005), 'Pro-Poor Growth in the 1990s: lessons and insights from 14 countries'

“Economic growth is important, but alone it does not necessarily reduce poverty and inequality”. (Combating Poverty and Inequality, 2010) The research made by Roemer and Mary Kay Gugerty<sup>17</sup>, about the relation between economic growth and Poverty alleviation, the authors show that economic growth is positively associated with reductions in poverty. The author mentions that the degree to which a given rate of growth affects poverty depends upon many factors, usually on economic structure and economic policies. Growth is more likely to lead directly to a reduction in poverty when the economic assets of a country are distributed relatively equally or when economic growth is based on the intensive employment of abundant factors of production, which for most countries is labor. (Roemer, 1997)

Other research that compares the experiences of a wide range of developing countries finds strong evidence that rapid and sustained growth is the single most important way to reduce poverty. A typical estimate from these cross-country studies is that a 10 per cent increase in a country’s average income will reduce the poverty rate by between 20 and 30 per cent.<sup>18</sup>(Adam. 2002)

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<sup>17</sup> see Michael Roemer and Mary Kay Gugerty, March 1997, “Does Economic Growth Reduce Poverty?”, Harvard Institute for International Development

<sup>18</sup> See, Adams, R (2002) *Economic Growth, Inequality and Poverty: Findings from a New Data Set*, Policy Research Working Paper 2972, World Bank, February 2002

#### **2.3.4. Economic Growth and Labor Force.**

The Relation between Economic Growth and Labor Force can be understand, that when high rates of economic growth lead to sustained increase in productive capacity, employment opportunities with rising productivity are generated (Islam, 2004).

Like mention before economic growth generates job opportunities and in the future stronger demand for labor. In turn, increasing employment has been crucial in delivering higher growth. Strong growth in the global economy over the past 10 years means that the majority of the world's working-age population is now in employment. Between 1999 and 2003, for every one percentage point of additional GDP growth, total global employment grew by 0.30 percentage points. (OECD 2000)

Growth of employment with rising productivity is seen to take place through a shift in the structure of employment towards occupations and sectors with higher levels of output, and better efficiency within sectors and occupations. (Islam, 2004)

#### **2.3.5. Economic Growth on Education**

It's been recorded that states that are richer, have faster growing, or have better institutions probably find it easier to increase their education spending. (Aghion, 2009) Fernandez and Rogerson state that Human capital and

education are potentially important driving forces in the determination of economic growth. (Fernandez and Rogerson, 1995) Studies show that accumulation of knowledge through education is a major determinant of the growth of per capita income.<sup>19</sup>

The relationship of causality between school enrollment and rates of change of per capita income may be expected to run in both directions. Per capita income and its rate of growth taken together define permanent income, and that education as a consumption activity depends on permanent income. Then schooling would depend also on the rate of growth of per capita income. (Razin, 1977) Education can also affect per capita income growth via its impact on the denominator, i.e., population growth. Many studies have shown a negative correlation between female schooling and fertility. (Ainsworth & Nayamele, 1995)

Education affects the nature and growth of exports, which in turn affects the aggregate growth rate. It has been argued that even unskilled workers in a modern factory normally need the literacy and discipline which are acquired in primary and lower secondary school (Wood, 1994). Studies have shown a significant positive correlation between the growth of manufactured exports

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<sup>19</sup> Theodore W. Schultz, "Education and Economic Growth," in *Social Forces Influencing American Education*, ed. N. B. Henry (Chicago: University of Chicago Press, 1961)

and the growth of GDP.<sup>20</sup> Adams Don and Janet Adams in their research “Education and Social Development” explained the relation between education and development can be address in four categories, community development and national integration, urbanization, and population change. And that to understand the relationship between Education and Social development is important to consider the community development and national integration.<sup>21</sup>(Don, 1986)

### **Chapter 3. Data and Methodology**

#### **3.1. Data**

The data used in this research is organize in a Panel Data for all the Central American countries for the years 1992 to 2012. The region in study is Central America, which is composed by Belize, Guatemala, Honduras, Panama, El Salvador, Costa Rica, and Nicaragua.

With the purpose of analyzing Economic Growth in Central America this research used the Gross Domestic Product Growth Rate from the World Bank Economic Indicator Databank as September 8, 2014. Gross domestic product (GDP) signifies the sum of value added by all its producers. Value added is

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<sup>20</sup> See Ranis, Gustav. 2002. Economic growth and Human development in Latin America from Yale University

<sup>21</sup> Adams Don and Janet Adams. 1986. “Education and Social Development” American Educational Research Association. 38(03) 243-

the value of the gross output of producers less the value of intermediate goods and services consumed in production, before accounting for consumption of fixed capital in production. Annual percentage growth rate of GDP and its components are calculated using the least squares method and constant price data in the local currency. (World Bank, 2014)

Gross Domestic Product (GDP) is also known as:  $Y=C+I+G+NX$ . Where Y = GDP, output, total income, total expenditure, C = consumption, I = investment, G = government purchases of goods and services, NX = export – imports.

To measure social development in Central American countries we used a Social Development index, created on a combination of indicator selected from the World Bank Social Development Indicators. The groups will be organized as follows based on the World Bank Social Development Databank as September 8, 2014:

- **Population**

- ✓ Urban Population (Total)

Urban population refers to people living in urban areas, to estimate urban populations; ratios of urban to total population were applied to the World Bank's estimates of total population.

- **Health**

- ✓ Life expectancy at birth, total (years)

Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

- ✓ Mortality rate, infant (per 1,000 live births)

Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year.

- ✓ Prevalence of HIV, total (% of population ages 15-49)

Prevalence of HIV refers to the percentage of people ages 15-49 who are infected with HIV. Prevalence rates reflect the rate of HIV infection in each country's population.

- ✓ Adolescent Fertility Rate (births per 1,000 women ages 15-19)

Adolescent fertility rate is the number of births per 1,000 women ages 15-19. Reproductive health is a state of physical and mental well-being in relation to the reproductive system and its functions and processes

- **Poverty**

- ✓ Gini Index

Individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

- ✓ Income Share held by the lowest 20%

Inequality in the distribution of income is reflected in the share of income or consumption accruing to a portion of the population ranked by income or consumption levels. The portions ranked lowest by personal income receive the smallest shares of total income.

- ✓ Poverty headcount ratio at \$1.25 a day (PPP) (% of population)

Population below \$1.25 a day is the percentage of the population living on less than \$1.25 a day at 2005 international prices. As a result of revisions in PPP exchange rates, poverty rates for individual countries cannot be compared with poverty rates reported in earlier editions.

- **Labor Force**

- ✓ Labor force participation rate, total (% of total population ages 15-64)

Labor force participation rate is the proportion of the population ages 15-64 that is economically active: all people who supply labor for the production of goods and services during a specified period.

- ✓ Proportion of seats held by women in national parliaments (%)

Women in parliaments are the percentage of parliamentary seats in a single or lower chamber held by women.

- ✓ Unemployment, total (% of total labor force)

Unemployment refers to the share of the labor force that is without work but available for and seeking employment.

- **Education**

- ✓ School enrollment, primary (% gross)

Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Primary education provides children with basic reading, writing, and mathematics skills along with an elementary understanding of

such subjects as history, geography, natural science, social science, art, and music.

✓ School enrollment, secondary (% gross)

Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.

✓ School enrollment, tertiary (% gross)

Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Tertiary education, whether or not to an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

✓ Literacy rate, adult total (% of people ages 15 and above)

Adult literacy rate is the percentage of people ages 15 and above who can, with understanding, read and write a short, simple statement on their everyday life.

- **Additional control variables**

- ✓ Birth Rate

Crude birth rate indicates the number of live births occurring during the year, per 1,000 population estimated at midyear. Subtracting the crude death rate from the crude birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration.

- ✓ Improved Water Source

Access to an improved water source refers to the percentage of the population using an improved drinking water source. The improved drinking water source includes piped water on premises (piped household water connection located inside the user's dwelling, plot or yard), and other improved drinking water sources (public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection).

- ✓ Improved Sanitary Source

Access to improved sanitation facilities refers to the percentage of the population using improved sanitation facilities. The improved sanitation facilities include flush/pour flush (to piped sewer system, septic tank, pit latrine), ventilated improved pit (VIP) latrine, pit latrine with slab, and composting toilet.

### ✓ Government Expenditure

General government final expenditure includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defense and security, but excludes government military expenditures that are part of government capital formation.

### **3.2. Construction of the Social Development Index**

The Indicators selected from previous studies, focusing in the current issues of Central America, they were grouped into five areas to create the area Index (Population, Health, Poverty, Labor Force, and Education) and the Social Development Index.

The index is a statistical measure of changes in a representative group of individual data points. Where the base year is 1992, and are equal to 100 (one hundred), the rest of the years are expressed as 100(one hundred) times the ratio to the base value.

**Table 6. Social Development Index**

<b>Area</b>	<b>Indicator</b>	<b>Effect in the Area Index</b>
<b>Population</b>	Urban Population (Total)	+
<b>Health</b>	Life expectancy at birth, total (years)	+
	Mortality rate, infant (per 1,000 live births)	-
	Prevalence of HIV, total (% of population ages 15-49)	-
	Adolescent Fertility Rate (births per 1,000 women ages 15-19)	-
<b>Poverty</b>	Gini Index	-
	Income Share held lowest 20%	+
	Number of poor at \$1.25 a day (PPP)	-
<b>Labor Force</b>	Proportion of seats held by women in national parliaments (%)	+
	Labor force participation rate, total (% of total population ages 15-64)	+
	Unemployment, total (% of total labor force)	-
<b>Education</b>	School enrollment, primary (% gross)	+
	School enrollment, secondary (% gross)	+
	School enrollment, tertiary (% gross)	+
	Literacy rate, adult total (% of people ages 15 and above)	+

To create the index the following equation is used for each indicator on each of the areas  $Indicator\ index = \frac{IND_t * 100}{IND_1}$ , where  $IND_t$  is the current year digit and  $IND_1$  is the base year. The index for each area (Population, Health, Poverty, Labor Force, and Education) is created using the following equation:

$$Area\ Index = \sum_{i=n}^{i=0} Ave_i (+) - \left[ \sum_{j=n}^{j=0} Ave_j (-) - 100 \right].$$

Table 6 describes how each of the indicators affects the area index as for  $\sum_{i=n}^{i=0} Ave_i (+)$  represent the positive impact or  $\sum_{j=n}^{j=0} Ave_j (-)$  represent the negative impact., were  $Ave_i$  is the average of all the positive impact indicators

and  $Ave_j$  is the average of the negative impact indicators. And finally the Social Development Index is created by an average of all Social development areas index using the following equation:

*Social Development Index* =  $\sum_{i=n}^{i=0} Ave_{areas}$ , where  $Ave_{areas}$  is the Average of the sum of all the Social Development areas.

### 3.3. Methodology

This research includes two different methodologies, to prove the research questions, and asses the behavior between Economic Growth and Social Development in Central America, in all already discuss areas.

To prove the relation between Economic Growth and Social Development we adopted a Granger Causality Test, which is a statistical hypothesis test for determining whether one time series is useful in forecasting another. As we know regressions reflect correlations, but Granger argued that causality in economics could be reflected by measuring the ability of predicting the future values of a time series using past values of another time series.

To test the causality between Economic Growth and Social Development two variables (X1 and X2) have to be consider in the following equations:

$$X_1(t) = \sum_{j=1}^p A_{i2,j} X_1(t-j) + \sum_{j=1}^p A_{j3} X_2(t-j) + E_1(t)$$

$$X_2(t) = \sum_{j=1}^p A_{i2,j}X_1(t-j) + \sum_{j=1}^p A_{j3}X_2(t-j) + E_2(t)$$

where  $p$  is the maximum number of lagged,  $X_1(t)$  is GDP Growth and  $X_2(t)$  is Social Development Index and Social Development areas, and  $E_1$  and  $E_2$  are residuals (prediction errors) for each time series. If the variance of  $E_1$  (or  $E_2$ ) is reduced by the inclusion of the  $X_2$  (or  $X_1$ ) terms in the first (or second) equation, then it is said that  $X_2$  (or  $X_1$ ) Granger-(G)-causes  $X_1$ (or  $X_2$ ).

And then to test if Economic growth will affect positively or negatively the Social Development index and the social development index areas, is significant to run a Hausman test, the null hypothesis is that the preferred model is random effects vs. the alternative the fixed effects.

$$y_{i,t} - y_{i,t-1} = \alpha + \beta_1 V_{i,t} + \beta_2 X_{i,t} + \varepsilon_{i,t}$$

Where  $y_{i,t}$  is the Social development index and the Social development index area (Population, Health, Poverty, Labor Force, and Education), in country  $i$  and time period  $t$ ,  $\alpha$  is a country-specific effect,  $V_{i,t}$  is GDP growth rate,  $X_{i,t}$  is the control variables,  $\varepsilon_{i,t}$  is an error term. Twenty years periods are employed (i.e.,  $t = 20$ ).

The country specific effect  $\alpha_i$  is designed to capture the determinants of a country's Social Development that are not already controlled for by the other explanatory variables. It thus accounts for unobservable characteristics that vary across countries, but not over time.

## Chapter 4. Data Presentation and Analysis

The methodology explain before was used to calculate the following results

### 4.1. Results and Analysis

Table 7 shows the results of the Granger Causality Tests to assess the relation between Economic growth and Social development in Central America.

Null Hypothesis:	Lag	Obs	F-Statistic	Prob.	Relation
GDP GROWTH does not Granger Cause POPULATION INDEX POPULATION INDEX does not Granger Cause GDP GROWTH	2	126	4.6953 4.0831	0.0109 0.0192	GDP Growth ↔ Population Index
GDP GROWTH does not Granger Cause HEALTH INDEX HEALTH INDEX does not Granger Cause GDP GROWTH	2	126	0.88611 0.0721	0.4149 0.9305	
GDP GROWTH does not Granger Cause POBERTY INDEX POBERTY INDEX does not Granger Cause GDP GROWTH	2	39	2.57261 0.91333	0.0911 0.4108	GDP Growth → Poverty Index
GDP GROWTH does not Granger Cause LABOR FORCE INDEX LABOR FORCE INDEX does not Granger Cause GDP GROWTH	2	83	5.75099 0.89371	0.0047 0.4133	GDP Growth → Labor Force Index
GDP GROWTH does not Granger Cause EDUCATION INDEX EDUCATION INDEX does not Granger Cause GDP GROWTH	2	59	0.05649 0.42629	0.9451 0.6551	
GDP GROWTH does not Granger Cause S. DEVELOPMENT INDEX S. DEVELOPMENT INDEX does not Granger Cause GDP GROWTH	1	52	2.92687 3.574	0.0934 0.0646	GDP Growth ↔ SD Index

Is rejected that GDP growth does not Granger cause Social Development Index and that Social Development Index does not Granger Cause GDP Growth; there is a bidirectional causality between the two variables. (GDP Growth ↔ Social Development Index) with the theory that social

development is a product of economic growth, economic growth has been the focus of several countries policies, such as the Central America governments, like mention before (Ram, 1985) and (Goldstein, 1985) Ram suggests that increase in average per capita income should, increase the level of basic needs satisfaction. Goldstein suggests a causal model based on the supposition that economic factors will strongly affect at least one component of basic needs.<sup>22</sup> Likewise a better taken care society should be more productive and should contribute to the economic growth of their society. In principle, economic growth can generate resources to improve Social development, while Social development by improving human capital, increases productivity and economic growth potential.

Is rejected that GDP Growth does not Granger cause Population index and that Population index does not Granger cause GDP Growth; there is a bidirectional causality between the two variables. (GDP Growth ↔ Population Index) This result implies that economic growth is of great importance for population growth for the region, and mutually influences each other. Kapuria-Foreman in 1995 tested granger causality in between Economic Growth and population growth for 15 low and middle income countries, and the results, from population growth to economic growth can be

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<sup>22</sup> See Krishna Mazumda, An Analysis of Causal Flow between Social Development and Economic Growth: The SocialDevelopment Index

rejected for eight countries, and the hypothesis of no causality from economic growth to population growth can be rejected for seven countries.

Is rejected that GDP Growth does not Granger cause Poverty index although is not rejected Poverty index does not Granger cause GDP Growth; there is a unidirectional causality between the two variables. (GDP Growth → Poverty index) indicating that economic growth has a positive impact in poverty as in the research made by Adam in 2002 study of 14 countries in the 1990s found that, poverty fell in the 11 countries that experienced significant growth and rose in the three countries with low or stagnant growth. (Adam, 2002), Ravallion and Chen (1997), Dollar and Kraay (2002), and Bourguignon (2003) all find that economic growth significantly reduces poverty. However Rigolini (2002) argue that the relationship between growth and poverty runs in both directions.

Is rejected that GDP Growth does not Granger cause Labor Force index although is not rejected Labor Force index does not Granger cause GDP Growth; there is a unidirectional causality between the two variables. (GDP Growth → Labor Force index). A research made by the OECD Between 1999 and 2003, for every one percentage point of additional GDP growth, total global employment grew by 0.30 percentage points. (OECD 2000)

Is not rejected that GDP growth does not Granger cause Health index and that Health index does Granger cause GDP growth; there is no causality between

the two variables (GDP growth  $\neq$  Health Index) although Streeten(1981) finds that education and health affect significantly economic growth, because the most access to health institutions, and the increase of health expenditure will create a healthier society.

Is not rejected that GDP growth does not Granger cause Education index and that Education index does Granger cause GDP growth; there is no causality between the two variables. (GDP growth  $\neq$  Education Index), although the literature reviews argue that the relationship of causality between school enrollment and rates of change of per capita income may be expected to run in both directions. (Razin, 1977)

### **Regressions**

Table 8 shows the results of the Panel data Random Effect Model, in which different Control Variables have been used for each Social Development Index Area, for GDP Growth and Population index the control variables are Life Expectancy at birth, Infant Mortality Rate and Birth Rate; for GDP Growth and Health index the control variables are Improved Water Source, Improved Sanitary Source, Government Expenditure; GDP Growth and Poverty index the control variable is Government Expenditure; GDP Growth and Labor Force index the control is School Enrollment Primary; GDP Growth and Education index the control variables are Government Expenditure, Adolescent Fertility Rate; GDP Growth and the Social

Development Index the control variables are Improved Water Source, Improved Sanitary Source, Government Expenditure, Labor Force Participation.

Number of observation varies depending in the available data, for the region variables and the data from the control variables. Seven countries for 20 years (1992-2012).

Table 8. Regression table and results							
Variables	Dependent Variables						
	Population Index	Health Index	Poverty Index	Poverty Index (L2)	Labor Index	Education Index	Social Development Index
GDP Growth	0.0366*	0.037816*	1.07E+00	-2.825901*	2.444829***	0.004177	0.655904***
	2.027929	1.704457	0.829938	-1.882074	3.170144	0.024464	2.890647
Control Variables							
Life Expectancy at Birth	-0.403724*						
	-0.852117						
Infant Mortality Rate	0.729364***						
	4.5451						
Birth Rate	-1.074903***						
	-3.847409						
Improved water source		-0.706498					1.107563
		-0.744519					0.248408
Improved Sanitation Source		2.16904**					-1.264154
		2.365165					-0.310383
Government Expenditure		-6.66E-10**	-2.41E-08	-2.24E-09		-1.43E-10	-9.13E-11
		-2.377052	-0.719	-0.062693		0.8434	-0.099901
School Enrollment Primary					-1.484128		
					-1.623266		
Adolescent Fertility Rate						-0.23273	
						-0.401367	
Labor Force Participation							-0.058357
							-0.074354
obs	140	139	57	55	90	90	68

There is a Strong and significant relation between GDP Growth and Social Development Index. Hagen (1980) finds that the distribution of material well-being is improved by the increase of per capita income. Economic growth increases the volume of resources available for country, which to a large

extent, will be reflected in higher household incomes and government. These higher incomes contribute to Social Development, as it is used in those areas that contribute effectively to the increased capabilities such as education or health. The relation of Social Development to economic growth not only depends on the amount of increased revenue but the way that families and the government choose to spend it. For families, there is some empirical evidence that spending on areas for development will be greater if economic growth is "pro-poor". It is assumed that for the governments of Central America, the link between economic growth and Social development will be greater, if there was a larger share of public spending on social programs. Under no circumstances can we imagine achievements in social development without economic development.

There is a Strong and significant relation between GDP growth and Labor Force Index. When high rates of economic growth lead to sustained increase in productive capacity, employment opportunities with rising productivity are generated (Islam, 2004). Economic growth generates job opportunities and henceforward stronger demand for labor. It is important to analyze some factors that influence the decision of individuals to participate in the labor market, the characteristics of the employed and unemployed. In Central America by 2006 40.7% of the total population (gross participation rate) and 57.3% of the working age population (rate Net interest). In relation to the

participation of women of working age in the labor market is still lower than that of men (although it has increased); Therefore, while seven in ten working-age males participated (74.1%), in the case of women that only about four in ten are part of the labor force (41.2%). The creation of new markets in the economy among the region and with others countries, has positive affected the labor participation. There still many issues that the region has to address regarding labor force for instance most jobs in Central America are currently in the informal sector, 30% of urban youth between 15 and 24 do not study or work. The region is currently open to foreign trade and attracts more foreign investment, but now it faces the challenge of encouraging the creation of more and better jobs.

There is a negative relation between GDP growth and poverty Index; lag for 2 years, Lin wrote that China alone has lifted over 450 million people out of poverty since 1979. Evidence shows that rapid economic growth between 1985 and 2001 was crucial to this enormous reduction in poverty. (Lin 2003) Although is important to mention that “Economic growth is important, but alone it does not necessarily reduce poverty and inequality”. (Combating Poverty and Inequality, 2010), The research made by Roemer and Mary Kay Gugerty<sup>23</sup>, about the relation between economic growth and Poverty

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<sup>23</sup> see Michael Roemer and Mary Kay Gugerty, March 1997, “Does Economic Growth Reduce Poverty?”, Harvard Institute for International Development

alleviation, the authors show that economic growth is positively associated with reductions in poverty. In Central America the level of inequality is above the average number of Latin American. Poverty and inequality in the region are highly persistent over time and are closely related, as poverty is less responsive to growth in countries with high inequality.

There is a positive relation between GDP growth and Population Index, (Malthus, 1826) came to the conclusion that Population growth is supposed to decrease the per capita output, because output growth rate cannot keep the same pace. In Central America countries most of the families believe that having more children is in their social-economic interest, because they see them as an source of income and financial support, when their parents get old. The concern in the region is if the population grows at a very high rate, it may be impossible that the economic output grows steadily at the same pace. Although in Central America the production, the infrastructure investment and the total consumption has increased the last decade.

There is a positive relation between GDP growth and Health index, Bloom 2008 in his research states that economic growth and higher incomes promote better health through improved nutrition, better access to safe water and sanitation, and increased ability to purchase more and better quality health care. (Bloom. 2008), the literature review supported the relation between GDP

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growth and Health for Central America, although due to the social inequality in health status and access to basic services between cities there are several problems in the region. For example, the mortality caused by violence is the leading cause of death in the slums of Managua (Ciudad Sandino) in Nicaragua, while for all the region is ranked fourth. Costa Rica, which is regarded as the country with less inequality in Central America, also shows differences in different areas of the city of San Jose. For example, it is estimated that only 40% of the marginal population has access to basic health services. Also, reports that one of the slums of downtown San Jose has immunization coverage of 40% in contrast with 90% coverage are reported for the entire city. In most of the countries of Central America the main cause of morbidity is the transmissible diseases (HIV), even though is less than the Africa's countries.

There is no relation between GDP growth and Education index, the literature of education establish that if the States that are richer, faster growing, or have better institutions probably find it easier to increase their education spending. (Aghion, 2009). And education can also affect per capita income growth via its impact on the denominator, i.e., population growth. Many studies have shown a negative correlation between female schooling and fertility. (Ainsworth & Nayamele, 1995) In Central America there is a huge difference between education in rural and urban areas, for instance in the cases of

Guatemala and Nicaragua there is evidence that children belonging to ethnic groups have less access to education than others. The pattern of inequality in education in the region is compared as the inequality in income distribution. In conclusion, efforts in the education field will have to be substantially increased. A good part of this effort will be of the monetary kind (expenditure, investments), but it must be complemented by measures. In contrary with the results found in Central America, most economists agree that education played a central role to the economic growths we know from the experience of the "Asian tigers" for example about 58% of the rate of growth in Japan and 87% in the rate of growth of Thailand is due to the education of its workforce. The majority of the education systems in the Central American countries are run by the central governments, although private schools are common. However, there is a discrepancy in the way the centralized governments fund their schools, maintaining elitism at the heart of the one public service that should be bridging the gap between the rich and poor.

This inequity is further augmented by the fact that majority of students in higher education are members of upper class. A common trend among elites is to send their children to private primary and secondary schools, before sending them to the public national universities, which are known for their prestige. Other common situation is that Central America is plagued by the

cultural acceptance of machismo or maleness, which holds the power of patriarchy at the highest levels possible, when it comes to asserting power over women. It is often the case that while, parents may send both genders to primary school; the girl children are likely the first to be pulled out, in order to help in the home and in domestic income earning work.

#### **4.2. Conclusions**

With the results of this research we analyze the casual relationship between economic growth and social development, and we found that there is causality between the two of them (GDP Growth ↔ Social Development Index), although when we divide social development into areas, we found that there is a bidirectional causality between economic growth and population (GDP Growth ↔ Population Index) with means that economic growth is of great importance for population growth in the region, and mutually influences each other. A unidirectional causality between economic growth and poverty (GDP Growth → Poverty index), indicating that economic growth has impact in poverty. In this same way, there is a unidirectional causality between economic growth and labor force (GDP Growth → Labor Force index), which we can say that economic growth gives more opportunity to creation of job opportunities. There no causality between economic growth and health which means that one does not affect there other in a lag of 2 years (GDP growth ≠

Health Index) and finally that there is no causality between economic growth and education(GDP growth  $\neq$  Education Index).

With the results of the regressions I identified that there is a strong and significant relation between economic growth and social development. Which means that the efforts made by the Central American Governments on increasing economic growth to achieve Social Development are well located, although I discover the lack of relation between economic growth and education, due to inequality in the access to education, not only in rural but in urban areas as well. The main problems of the education in Central America are due to the social and cultural believes, among the majority of the region. It is important to say that in several reading and having as example other develop countries we realize that education is an important factor to achieve economic development, which is not happening in the region. Central America governments should give a priority to develop the areas in this research, which will drive the society into more healthier and proactive population.

## **Policy Recommendation**

### **Economic Growth**

Central American Government should continue, with open and common markets, the economic efforts made in the region have an impact in the Social Development areas.

### **Education**

A reduction of Size in the Ministry of Education by eliminating ineffective and duplicative programs and consolidating other programs. The Policymaker should give special attention to prioritize a No Child Left Behind policy in which every Child in each country could have access to good quality education. At the same time, the governments should work to restore good constitutional governance in education, and involve the parent's participation to compromise in the student's enrollment. To help with this policy the following recommendations are made: first expand access to Education, in the urban and rural areas with the expansion of public school choice options such as school choice within and among school areas. Second to create a penalty to parents that doesn't send their child to school, and finally the creation of more available scholarships, for primarily, secondary and tertiary level.

## **Health**

A policy that Support community-based outreach, health promotion and prevention efforts, including services of community health workers, with special attention to low income families and minorities

Establish a policy to reduce inequalities on health care by race, ethnicity, low income and minority populations, which now they receive fewer health care services, lower quality services, and face obstacles to prime care, resulting in high rates of disease and death.

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