

# Conceptual framework for economic development and human development in Mexico

## Abstract

*Economic growth is the increase in per capita income greater than the increase in the population rate, which is achieved on a permanent basis and which is closely linked to the increase in productivity. Economic development is the next step and is achieved when there is economic growth, which is achieved together with better and better living conditions for the population, in terms of food, education, health, housing, social and public security. According to the most recent information of the Human Development Index (HDI), published by the United Nations Development Programme (UNDP (2020), Mexico ranks 74th, below countries such as the United States (17); Spain (26); Chile (43); Argentina (46); Costa Rica, and above Peru, Colombia, Brazil and Ecuador in this indicator. Mexico City has an HDI equivalent to that of Greece, which is 32nd in the world. The territorial districts of Benito Juárez and Miguel Hidalgo, in Mexico City, have an HDI equivalent to that of Japan, which ranks 20th in the world.*

**Keywords:** economic development; human development; poverty; development theory

**JEL:** O10: General; O54: Latin America

## Introduction

This work attempts to provide a theoretical and conceptual framework of the concepts that will help us understand economic, social and human development. In such a way that it is a conceptual attempt that seeks to explain the process of development in all its areas.

The general hypothesis put forward in this paper is that in order to achieve human development, the necessary stages of economic growth, economic and social development must be reached in a sustainable environment. Undoubtedly, the human development index (HDI) is the concept that has managed to combine all the elements mentioned here, where the new inequality-adjusted human development index (IHDI) has been worked on since 2020 by the United Nations Development Program, incorporating in these measurements important considerations on the care of the ecological environment and climate.

I consider the five important concepts in this subject that I intend to analyze: economic growth, economic development, social development, sustainable development and human development. I begin with the concept of economic growth, from which I start to explain economic development. I will continue with the topic of social development, and then move on to sustainable development and finally to the concept that, in my opinion, is the most complete and the most current topic: human development.

In order to measure the Human Development Index (HDI), I will describe the elements and characteristics of the concepts that lead to the understanding of human development, as well as the problem of income distribution, poverty and inequality. I will also consider the aspect of the Multidimensional Poverty Index (MPI) and will present the new IHDI that is being worked on in 2020, with integrated environmental concepts.

## Economic and Human Development

Varied and different currents of economic thought have discussed and debated on the concept of development, in this sense this term according to M. Murga [1] and O. Mañán

and S. Tezanos [2] presents a polysemy concept, in such a way that development can be given several and different meanings, depending on the historical moment and the aspects that are taken into account for its definition and conceptual framework.

As a theoretical-practical construction, development is determined by power relations, according to J. Valenzuela [3] theories enter and leave the theoretical stage to the extent that the social classes carrying their ideas enter and leave the political stage. Pérez Nájera shows that the theoretical construction of the definition of development has an implicit ideological aspect, which leads us to a globalizing vision of the orthodox capitalist current, which requires for Latin America a heterodox (not hegemonic) approach to development: "Generating new 'theories of development' is indispensable from our reality and it would seem that at least the first step to reduce inequality"[4].

According to Iturralde Durán the concept of development takes elements from the following areas of economics: "The study of development was formalized with the emergence of the <<Development Theory>> as a branch of Economics, which initially took elements from macroeconomics, microeconomics and Political Economy for its analysis, creating a bias towards the economic dimension that when evidenced insufficient required the support of other sciences, creating multidisciplinary approaches that continue its evolution...." [5]

In the opinion of Vergara Tamayo & Ortiz Motta the discussion about the term development has always been at the center of the attention and discussion of economists anywhere in the world, which implies that the concept is closely related to time, that is why it is indisputably dynamic, expressing in this regard: "The discussion about economic development has not lost relevance or validity in contemporary economic analysis, nor has it been confused or overlapped with other similar subjects (basic or elective) in the curricula of economists' training, as some academics sufficiently dogmatic in the technique have tried to show". [6]

It is also noted that economic development has evolved as knowledge, changes in scientific paradigms and modern ways in which the world is interpreted, now taking into account social structures, cultural identity and the dynamics that occur in the relationships between economic agents [7].

Two aspects must be taken into account when speaking of development: 1) Historical concept, which implies that by definition it is not static nor is there a single conception and that it evolves with the passage of time and with the dominant economic thinking; 2) Normative character, which is referred or circumstantiated to a particular and subjective assessment made by the academic community, politicians and other social actors.

Joseph Stiglitz and R. Barre [1] each in turn pointed out the confusion that usually exists between the concepts of development and growth, the former affirming that economic development includes goals other than growth, such as sustainable, equitable and democratic development; while Barre pointed out that the study of development cannot be confused with the study of balanced growth within a capitalist economy. In agreement Márquez et al (2020: 234) point out "Despite their relevance, these concepts are confused, misinterpreted or used as synonyms, despite their differences" [1].

## **1. Theoretical Conceptual Framework of Economic and Human Development**

The topics of growth and development as a theoretical construction appear in the context after the end of the Second World War, it is considered Arthur Lewis who brought to the forefront the topics of growth and economic development in his work written in 1955: *Theory of Economic Development*, where he addresses and emphasizes the topic of economic growth: "A book of this kind seems to be necessary because the theory of economic growth once again intrudes on world interests and because no comprehensive treatise on the subject has been published for nearly a century. The last major book covering this broad range was John Stuart Mill's Principles of Political Economy published in 1848" [2].

Coinciding with this point of view, Pérez Nájera makes us see the following: "However, it was not until after World War II that the formal conception of what we know today as "development theories" began to be constructed, with the intention of explaining the reasons why there were poor regions and rich ones...." [4]

Following Benjamin Retchkiman and Evsey Domar, I can say that economic growth presupposes efficiency, technological progress, adequate administration and sufficient savings and investment, as well as the existence of an interrelation between the increase in production capacity and the growing demand for the goods that the economy produces. Cerón Vargas & Muñoz Alonso in a similar position state that the relationship between technology and economic growth has been widely analyzed in economic science [8].

Márquez Ortiz et al point out sixteen definitions from the same number of authors on what they understand by economic growth, two of which I will take up again: "...is a sustained increase in output per capita or per worker [Kuznets, 1966]...is the substantive change in the fundamental variables of the economy, being the Gross Domestic Product the main indicator when measuring production, that is, growth is generated when all the goods and services produced by a country in a year are more than those produced in the previous year [UN, 2015]" [1].

Castillo Marín [9] indicates that the primary variables or factors that determine eco-economic growth are human capital, natural capital and organization. With the above, economic growth can be defined as the increase in income or production per capita, higher than the increase in the population rate that is achieved on a permanent basis, where economic growth is closely linked to the increase in productivity [10] [11].

In order for there to be economic growth, it must be characterized by a persistent and slightly volatile increase in economic activity over time. The indicators by which it is possible to see whether or not there is economic growth are always linked to macroeconomic variables or what is known as national accounts and which are dealt with by public finances, such as Gross Domestic Product (GDP), investment, consumption, savings, public spending, among others.

The fact that there is economic growth by itself is not a sufficient reason to propitiate the process of economic development. Although it is true that for economic development to exist, it is a fundamental and indispensable condition that economic growth has taken place beforehand, since if it does not occur, it is not possible to distribute or distribute the wealth that does not yet exist [10]. I agree with Vergara Tamayo & Ortiz Motta who express similar positions regarding the fact that development contains economic growth [6].

I have already mentioned that the concept of development is a term qualified as polysemy, offering a wide variety of meanings, besides other words or adjectives have been added that give it a complementary and inclusive tone, as is the case of social development, integral development, sustainable development and human development [1].

I share the opinion of A. Hidalgo [6] that the first writings that raise the concern about development correspond to the school of mercantilists, understanding that they were not only concerned about the importance of gold accumulation as a generator of wealth and power, making it clear that what they also sought is to expand and have a strong State, seeking that in economic activities the factors of production, especially labor, were fully utilized.

It should be noted that the mercantilists considered the intervention of the State essential for economic development to take place, with Thomas Mun, Jean Bodin, Jean Baptiste Colbert, Godefroy Leibniz and Antonio Serra standing out. If mercantilism could be defined, José Romero puts it this way: "We can define mercantilism as an economic nationalism with two purposes: to make the nation as prosperous as possible in its economic dimension and to make it as powerful as possible in its political dimension" [12].

Continuing with the history of economic thought, the father of the classical theory Adam Smith is credited with being the initiator of the concept of economic development, in this regard Vergara Tamayo & Ortiz Motta "In fact, for many, Adam Smith is considered the first development economist and his book, *Inquiry into the Nature and Causes of the Wealth of Nations*, as the first manual on economic development. Smith's fundamental thesis is based on the existence of an invisible hand that maintains a national order (taking up the premise of his predecessors) for the correct functioning of the entire economic system" [6].

It is Joseph Schumpeter who is recognized as the theoretician who formalized the concept of development more than one hundred years ago, when in 1911 he wrote his work *Theory of Economic Development*. Vergara Tamayo & Ortiz Motta point out that Schumpeterian ideas intrinsically relate development to capitalism, expressing: "Without development there is no profit and without profit there is no development", since capitalism is based on profit which is the clearest representation of the accumulation of wealth (Elliot, 1983; Schumpeter, 1967). However, he states that development implies not only a quantitative change (economic component), but also a qualitative one (sociocultural and technological components) (Montoya, 2004), thus giving a more integrating character to the concept" [6].

It should be added that not all developed countries achieved their economic potential by following the classical schools of economic thought. Some nations achieved development with the implementation of modern mercantilist policies or State intervention as an economic promoter, as an example of which Vásquez Medina [13] and J. Romero [14] (2020: 14) point out that the proposals of Alexander Hamilton in the United States and Friedrich List in Germany, achieved the birth and take-off of those countries that became economic powers.

G. Esteva [4] reminds us that Harry Truman, U.S. president from 1945 to 1953, is the one who makes use of the term underdevelopment, to refer to countries with greater economic backwardness, especially in their production (GDP). This was interpreted by some authors as an attempt at a new order colonization, based on economic and cultural aspects. In response to these attempts to classify Latin American countries as underdeveloped, the structuralism theory or school of thought emerged.

Since the fifties of the last century, a Latin American current tried to explain the economic development of the countries of the region, a school known as structuralism and headed by Raúl Prebisch and his followers, especially in studies carried out by the Economic Commission for Latin America and the Caribbean (ECLAC), with the participation of O. Sunkel and P. Paz. As a reference it was considered "the theory or economy of development", another outstanding author of the structuralism school is Octavio Rodríguez with his theory of underdevelopment.

R. Prebisch points out that the use of technology and its advance in productive processes has generated two types of nations: the most developed (center) and the least developed (periphery), in view of this situation he proposes State protection to promote and disseminate technology in the primary stages of the industries of the less developed countries, which in turn leads to an increase in productivity and an increase in the living standards of the population [14].

The failure of the development list model and the structuralism school, in the opinion of Iturralde Durán occurred for the following reasons: "However, in most of the Latin American countries that adopted this model, local industries did not improve their competitiveness because they were created by national power groups associated with transnationals that took advantage of the absence of competition and captive demand to obtain extraordinary profits, requiring the <<paternalism of the State>> for their sustainability, generating inflation and fiscal and balance of payments deficits that explain the failure of the model (Polo, 2016)". [5]

What would be known as development economics, for P. Bustelo [2] would be basically supported by two large groups of theories:

- ❖ Orthodox: includes the pioneers of development, such as Rosenstein-Rodan, Myrdal, Prebisch (structuralism), Bauer and Johnson (conservative), Seers, Jolly, Fishlow, Streeten (basic necessities strategy), and Balssa, Lal, Little, Krueger (against neoclassical revolution).
- ❖ Heterodox: includes Baran, Frank, Amin, Furtado, Cardoso (dependency theory) and Wallerstein, Arrighi, Warren and Foster-Carter (division of labor theory).

Development economics or development theory has derived in several positions or schools of economic thought that have addressed the subject, I will take up from Vergara Tamayo & Ortiz Motta [6], as well as Iturralde Durán [5], to the main theories of development, being these:

- ❖ Modernization theory: authors such as Walt Rostow, Roy Harrod, Evsey Domar, Hans Singer, Ragnar Nurkse, Gunnar Myrdal, Simon Kuznets and Arthur Lewis.
- ❖ Structuralist theory: school headed by R. Prebisch.
- ❖ Neoclassical Institutional Theory: of American origin: Thorstein Veblen, John Commons, Robert Ayres and Douglass North.
- ❖ Dependency Theory: of South American origin, it takes lines from neo-Marxism: Henrique Cardoso, Theotonio dos Santos, Vania Bambirra. Mauro Marini, Celso Furtado and Enzo Falleo.
- ❖ Theory of the world-system or world-economy: Samir Amin, André Gunder Frank and Giovanni Arrighi.
- ❖ Neoliberal model: The Chicago School and Milton Friedman are among its precursors.
- ❖ Theory of sustainable development: born in 1986 with Max-Neef, Elizalde and Hopenhayn, also Beck, Gudynas, Guimaraes, Left, Naredo and Saldaña.

Regarding the neoliberal model that Williamson led in the proclamation of the Washington Consensus, J. Luis Calva states that he wanted to justify the null growth of Latin American economies with the application of the recommended policies, arguing the short time of maturity of the reforms, hoping that from the nineties onwards the benefits obtained by the neoliberal economic policies put into practice would be perceived, our author of reference states: "Therefore, when Williamson summarized the Washington Consensus as the Decalogue of economic policies that developing countries should apply to achieve accelerated and sustained growth, he launched a sort of "challenge to destiny" by proposing the rate of economic growth as the objective criterion for evaluating the benefits of the miraculous Decalogue" [15].

I will now define what is meant by development, which is achieved when the productive forces and activities of society are increased and diversified in a harmonious way, which implies increasing the levels of food, education, social and public security, housing and health. Economic development is a broader term than economic growth, which we can define as the existence of economic growth together with better and greater social living conditions for the population, where income redistribution to the less favored strata is a fundamental point to achieve economic development [11].

Márquez Ortiz et al provide us with sixteen definitions of economic development, from the same number of authors, I take up two of them: "...the qualitative increase of countries or regions in the improvement of social conditions, when the necessary means are created in order to promote and maintain the prosperity of their inhabitants [UN, 2015]...a process by which society as a whole advances towards successive levels of satisfaction, through sustained and permanent growth and a constant transformation of its structures: changes in the structure of production and occupation, in the quantity and composition of resources and the techniques used, as well as changes in demographic characteristics [Myrdal, 1974]" [1].

For Lordello de Mello [11] the very concept of development implies overcoming regional inequalities within each country and raising the standard of living of the people in general. Development is the process of transformation of society or processes of successive increases in the living conditions of all individuals or families in a country or community [9].

I share All Berry's view expressed in the 1970s, where he argued that the main concern of economic development is to move beyond per capita income growth, to focus on income distribution in order to improve the conditions of the poor. As Avila Barrios & Dominguez Perez (2019: 106) put it, economic development is the transition from a particular economic level to a more advanced one, which is achieved through a process of structural transformation of the economic system in the long term, which implies equitable growth among the sectors of production.

I also add to what is explained in Hansen and Prescott's model [16], where the transition moves from constant living standards towards increasing levels, explained by the increase in total factor productivity, achieving this can be done with an intensive application in capital use, which will ultimately lead to an increase in the living standards of the population. For some authors, there is a strong relationship between economic development and the use of technological innovation in the industrial production of a country, for the World Bank: "...the available empirical evidence indicates that there is a strong correlation between the level of development of a country and the effort it makes for the promotion of innovation" [16].

According to Cerón Vargas & Muñoz Alonso [8] these are some of the highlighted authors, who have dealt with the importance of the intensive application of the use of capital, the increase of productivity and the use of technology innovation, which will allow to achieve economic development: Brynjolfsson, Jorgenson and Stiroh, Gordon and Billón, Lera and Ortiz, Wielicki and Arendt, Consoli, Bayo-Moriones and Lera-López, Santinha and Soares.

Sustainable development and sustainable are two terms used in the field of ecology and environmental preservation, generally treated as synonyms, because they start from a common basis. There are lexicological differences between the two terms, but here I will refer to one or the other with the same meaning. Sustainable development is linked in the first instance to the care of ecology and then appears linked to the conception of the environment, where industrialization must always be accompanied by unrestricted respect for environmental care.

In the opinion of Castillo Marín [9] sustainable development is the term applied to economic and social development that makes it possible to meet the needs of the present without endangering the capacity of future generations. The concept of sustainable development arose as a result of the first United Nations Conference on the Human Environment, held in Stockholm, Sweden in 1972.

The conceptual construction of the term sustainable development necessarily implies the approach between the environment and development. The concept of sustainable development according to S. M. Lélé [6] was coined in 1980, when the International Union for Conservation of Nature presented the World Conservation Strategy, where it presents it as an objective to be achieved through the conservation of natural resources.

In 1987, the World Commission on Environment and Development (WCED) issued the declaration Our Common Future or Brundtland Report, laying the foundations for the current concept of sustainable development, showing that the issues of development and environment must be seen from an integral approach [17]. Point 3, paragraph 27 of the report explains that sustainable and lasting development must be achieved without compromising the capabilities and needs of future generations [18] [6].

In June 1992, the United Nations Conference on Environment and Development was held in Rio de Janeiro, Brazil, with the aim of reaching international agreements that respect the interests of all inhabitants and protect the integrity of the global environmental and development system, recognizing the integral and interdependent nature of the earth. The Rio Summit or Earth Summit reached a consensus and an agenda in which the United Nations recognized sustainable development. Principle 1 of the United Nations Conference on Environment and Development of the 1992 Rio Summit states that human beings are at the center of concerns related to sustainable development, having the right to a healthy and productive life in harmony with nature [19].

The Kyoto Protocol on climate change was adopted on December 11, 1997 in Kyoto, Japan and entered into force on February 16, 2005 for the nations that ratified it (including Mexico in 2000) and was dictated to reduce greenhouse gas emissions that cause global warming. The Kyoto Protocol aims to promote the sustainable development of developing countries by encouraging governments to establish laws and policies to comply with their environmental commitments and for companies to take the environment into account when making their investments. The main greenhouse gases are water vapor, carbon dioxide, methane, nitrogen oxide and ozone [20]

Hence, in Mexico, Article 3, Section XI of the General Law of Ecological Balance and Environmental Protection defines sustainable development as: "The process evaluable through criteria and indications of environmental, economic and social character that tends to improve the quality of life and productivity of people, which is based on appropriate measures for the preservation of ecological balance, environmental protection and use of natural resources, in a way that does not compromise the satisfaction of the needs of future generations" [21].

For Castillo Marín [9] it is important to create institutions, laws and organizations that somehow change the structure of economic activity in accordance with the concept of sustainable development. We must recognize that the conscience of the world is changing, now we must be concerned about trying to achieve in the first instance economic growth, which can be converted into economic development, which in turn is channeled by a better world in the environmental field.

Carlos Castilla [21] indicates that a German university conducted a study starting in the 21st century, which was carried out by computers and simulations, where he shows that humanity has only two paths in economic and social matters: 1) Neoliberalism, with its globalization as it is being lived; and 2) Sustainable Development. Of course, the author favors this model of development.

The concept of green growth began to be handled at the end of the last century and in May 2012 the World Bank made it official the concept "green and inclusive growth" in its Annual Report, explicitly adding the third dimension to growth based on environmental protection, which would correspond to the social aspect [18].

The theory of human development arises from the 1980s and was made based on the criticism of the conventional theory of welfare, where it was previously proposed that the purpose of development was to achieve only economic growth (GDP), which had become an end in itself, changing its vision to turn economic growth into a means to achieve economic development first, then turn it into human development. This paradigm is people-centered and was inspired by Amartya Sen's ideas of capabilities.

The human development approach places people at the center of attention of all economic and social policy, seeking to restore their dignity, thus making individuals the subject and object of development. The four pillars or basic requirements to be contemplated in human development are: equity, sustainability, productivity and empowerment [2].

Regarding the term dignity which is essential to understand the concept of human development, Immanuel Kant: "Everything either has a price or has dignity. That which has a price can be substituted by something else as equivalent; on the other hand that which is above all price and, therefore, does not admit of an equivalent, possesses dignity" [23].

For the United Nations Development Program the approach focused on human development reminds us that economic growth is more a means than an end in itself: "The concept of human development emerged 30 years ago, precisely as a counterpoint to the myopic definitions of development...for many countries the most important questions are no longer so much about the total size of the pie, but about the portion that each of them receives" [24].

Human development is achieved when society improves the living conditions of its members, through an increase in the goods with which it can cover its basic and complementary needs, in accordance with a social environment in which human rights are respected. For some authors, human development entails the expansion of possibilities for people to choose their satisfiers, where the individual becomes the central element of a country's development.

For Paul Streeten human development places people at the center of attention, after decades in which a labyrinth of technical concepts had overshadowed the fundamental vision of development, which is to treat men and women as the objective of its proposals, improving the human condition and expanding their possibilities of well-being. On the definition of human development he points out: "We define human development as expanding the range of people's options. Human development is a concern not only for poor countries and poor people, but everywhere. In high-income countries, look for indicators of human development deficits in homelessness, drug addiction, crime, unemployment, urban squalor, environmental degradation, personal insecurity and social disintegration". [2]

The 2000 Report of the United Nations Development Program provides a definition of human development: "Human development is the process of enlarging people's choices, increasing human functions and capabilities. In this way, human development also reflects the results of these functions and capabilities as they relate to human beings. It represents a process as well as an end. At all levels of development, the three essential capabilities are that people live a long and healthy life, have knowledge and access to the resources necessary for a decent standard of living". [2]

According to García Lirios [25] the theoretical frameworks that explain human development are: 1) Theory of the quality of life; 2) Theory of subjective wellbeing; and 3) Theory of social representations, adding that human development is measured by the levels of health, education and employment, where it can be visualized by the interdependence between spaces, habitus and capabilities.

In 1990, the United Nations Development Program (UNDP) used for the first time the most complete term on this subject: sustainable human development, which places human beings at the center of attention, seeking to improve their individual capacities to fully meet their needs. Economic development was enriched with the contribution of other sciences such as sociology, politics and law, thus creating a multidisciplinary approach, which including the issue of the environment becomes sustainable human development, which incorporates Amartya Sen's capabilities approach, seeking to achieve the agreements embodied in the 2030 Agenda [5].

It is widely recognized that development has a multidimensional character, and therefore its study requires approaches of an environmental, economic, social and technological nature, but ultimately development has political characteristics. Development understood in the economist vision does not result with viability for these times, since it involves and implies the analysis of human, social and sustainable development, in this sense J. Vargas defines it: "Development is a multidimensional process that involves changes in in-individual behaviors and attitudes that impact the institutional structures of economic, social and political systems whose purpose is the pursuit of economic growth and social improvement of inequality and poverty reduction". [6]

## **2. Generalities and measurements of poverty and inequality**

Corruption and the forms of distribution generated by the elites of the Latin American nations have led to it being considered the area of greatest inequality in the world, given the impressive and even insulting wealth that a few families have hoarded, against a great mass of people deprived of economic and social wellbeing. One would expect in the first instance that when economic growth occurs in a country or a region, due to the increase in real

productivity, one would think of a better distribution of income, but this does not happen, since on many occasions there has been economic growth with a very poor distribution of national income, as has been the case in Mexico for several periods.

The studies of S. Kuznets and A. Lewis [26] show that the main challenge to be met in a country is economic growth, which would be achieved through the modernization of the productive apparatus, where the modern industrial sector would generate flows that would be distributed throughout the economic activity. This objective was not achieved in Mexico and, in general, in all of Latin America.

N. Kakwani [30] argues that economic growth reduces poverty to a greater extent, the lower the initial inequality of the country. Ideologically, the Washington Consensus pointed out that it was necessary to grow first and then redistribute national income, but for T. Mkandwire [26] the perspective was no longer to grow first, but to grow with equity, based on human needs with social inclusion. A World Bank study [30] refers that inequality in Latin America is strongly influenced by the way colonization was carried out in the continent and this has repercussions on the current income distribution.

It cannot be denied that part of the inequality of income in the country comes from the colony, since the conquerors sought above all to exploit and plunder its natural and human resources, but it cannot be explained as the only factor, nor can we fall into 'fatalistic theories' that this happened five hundred years ago and can no longer be remedied.

For Alex Prats [31] these are the ten main causes of global inequality: 1) Unfair tax systems; 2) Corruption and illicit capital flows; 3) Unfair distribution of investment and public spending; 4) Unfair distribution of land; 5) Unequal access to capital, knowledge and technology; 6) Privatization; 7) Unfair access to information and exclusion from decision-making spaces on policies that influence our lives; 8) Gender inequality; 9) Impunity and control of the judicial system; 10) Conflicts (violence).

In order to explain the relationship between economic growth and inequality in underdeveloped countries and especially the case of Latin America, at least these explanatory variables must be incorporated: a) Historical, political and cultural types; b) Consider that inequality is a function of dependency and part of a cultural and political system that is corporative, bureaucratic and authoritarian; c) Education process and regional disparities in subnational spaces; and d) Study land ownership [26]. In a recent study carried out by Cerón Vargas & Muñoz Alonso [8], they point out that Information and Communication Technologies (ICT) can explain income inequality and the index of social backwardness in the country.

Economic Commission for Latin America and the Caribbean (ECLAC) [27] classifies a person as poor when the per capita household income is below the value of the "poverty line" or the minimum necessary amount that would allow him/her to meet his/her essential demands. In the case of indigence, the line used reflects only the cost of satisfying food needs.

Social inequality is understood as a situation of disparity or disadvantage of some part of the population of a country, or between regions, with respect to others that are favored, which implies an unequal distribution of opportunities and access to goods and services. Social inequality is reproduced over time and is reflected in the high and persistent concentration of income.

The United Nations Development Program de-equalities restrict the capabilities of the least favored segments of the population, further limiting investment in productive activities, with the consequent reduction of economic growth, adding: "Inequality also tends to provoke social tensions that can accentuate political and institutional instability, affecting not only governance, but also incentives for internal and external investment, among other factors" [23].

In reference to poverty and inequality in the Latin American region, according to ECLAC estimates [27] the incidence of poverty reaches 34.1% of the region's population, of which 12.6% live in conditions of extreme poverty or indigence, these figures mean that in 2007 there were 184 million poor people, including 68 million indigent in Latin America. This is what ECLAC says about inequality: "The region continues to bear the stigma of being the most unequal in the world and a notable distributive disparity persists, since the average income per person of households located in the tenth decile is about 17 times higher than that of the poorest 40% of households" [27].

Income inequality is defined as the incorrect distribution of income among the population of a country, in particular the accumulation of a large part of the income in a few hands, as is the case of our nation where 80% has low income [4].

For Gerardo Esquivel [28] there are three ways of measuring income inequality of the economy's wealth: 1) Synthetic indicators: they capture in a single number the magnitude of income concentration or inequality; 2) Relative indicators: emphasize income levels between two specific points or segments of the distribution and are presented in the form of ratios; 3) Social tables or distribution tables: present the distribution of income in the form of social strata, classes or groups, using a segment of the poorest or richest group (between 1% or 10%).

Among the synthetic indicators, the most commonly used to measure inequality is the Gini coefficient. To describe it, it is first necessary to construct the Lorenz curve, a graphical representation of an inequality model that deals with the distribution of income, showing the distribution of wealth in a country among different percentages of the population. The Instituto Nacional de Estadística, Geografía e Informática (INEGI) -National Institute of Statistics, Geography and Informatics- states about this coefficient: "The Gini coefficient is a measure of income concentration: it takes values between zero and one. When the value is close to one, it indicates that there is greater income concentration; on the other hand, when the Gini value is close to zero, income concentration is lower" [32].

With information from Julio Santaella, chairman of the board of the INEGI makes it clear that the steeper adjustment of the Lorenz curve in Mexico is due to two reasons: 1) Families report less income in the survey than they actually receive; 2) The survey tends not to reach the richest households because they are few [29].

Before moving on, it is worth mentioning that INEGI presents the Gini coefficient in two presentations in the Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH) - National Household Income and Expenditure Survey-: without government transfers and with transfers. According to World Bank data the Gini coefficient for Mexico is 0.454 for 2018 (no specification is made whether it is with government transfers or not).

G. Esquivel [28] with information from the World Bank in 2019, places Mexico within the countries with the highest levels of inequality, appearing in the group ranging from 119th to 151st place, with Gini coefficient of 0.434, as a point of reference among the countries with a low coefficient (and therefore better income distribution) are Ukraine, Slovenia, Belarus, Finland, Norway, with coefficients lower than 0.276; while with a coefficient higher than 0.51 and with a very high income concentration are a good part of the African nations, and curiously Brazil appears in this group.

INEGI [32] in the National Survey of Household Income and Expenditures marks these data for this Gini coefficient for three years:

- 2016: Without government transfers 0.499 and with transfers 0.449.
- 2018: Without government transfers 0.475 and with transfers 0.426.
- 2020: Without government transfers 0.468 and with transfers 0.415.

From the data observed, it can be seen that in four years the Gini coefficient decreased by 2.4 percentage points without the intervention of government transfers, which indicates that the unequal distribution in Mexico no longer grew and, on the contrary, it is observed that the

indicator decreases, producing a reduction in the distribution of national income. Government intervention reduces Mexico's income maldistribution (measured by the Gini coefficient) by 5 percentage points in 2016, while by 2020 it will fall by 5.3 percentage points. This makes us see that despite the contingency caused by COVID-19, in our country government subsidies and transfers helped to prevent the unequal distribution of national income from becoming greater.

Among other alternative indicators to measure inequality that are based on the use of income ratios, we have those that are located in opposite parts of the distribution, here I will only refer to one of them. Ratio S80/S20 is the ratio of the total income received by the 20% of the population with the highest income and that received by the 80% of the population with the lowest income. With data from 2018, it is observed that Mexico presents an indicator in this ratio of 10.3, while the Organization for Economic Cooperation and Development [33] presents 5.4 on average. We are twice as unequal as the OECD.

The unequal distribution of income in our country causes a very low collection of federal contributions, for 2018 these (without considering social security contributions) obtained by the public sector in Mexico are located at 13.5% of total GDP, while in OECD countries this average is 26% of GDP. As for poverty indicators, the main objective of the Living Conditions Survey is to analyze the distribution of income among households, as well as aspects related to their living conditions (material deprivation, housing conditions, and difficulties) following harmonized criteria used in European Union countries [34].

The starting point for analyzing the information is the disposable income per household or net household income, which is the sum of the income received by all household members, net of taxes and social security contributions. It includes income from wages, capital and property income, transfers and social benefits received in cash, including pensions and retirement benefits. The average income per person or per capita income is obtained by dividing the household's net income by the number of household members.

With data from INEGI-ENIGH [32] we have that in 2020 the average quarterly current income per household was 50,309 pesos, as opposed to 2018 where it was 53,418 pesos, representing a 5.8%. We could surely explain this setback by the effects caused by the COVID-19 contingency. The most punished sectors in 2020 were education and leisure with growth of -44.8%; clothing and footwear -42%; and transportation and communications -18.9%; while health spending had an increase of 40.5% with respect to 2018.

Another concept that is widely used to measure poverty is imputed rent, where the adults in the household own the homes and this concept is incorporated by assuming what would be paid in the market for that home, while the interest paid on housing loans is deducted from the total household income. In Mexico the household income (adjusted net household income in 2017 PPP per capita is \$16,300 dollars, while on average OECD countries (2020) have \$28,000 dollars.

For the Income Insufficiency indicator, the first thing we must measure or define is the 'threshold' or 'line' of poverty. The welfare line or income poverty line is the value of the minimum amount of food and services that a person must purchase in a month to avoid starvation. The income poverty line includes the cost of the food and non-food basket (the minimum in transportation, clothing, health, housing, education, recreation and others),

As of 2018, the Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL) -National Council for the Evaluation of Social Development Policy- estimated that in order to live with dignity, \$3,027.30 pesos were required monthly, of which \$1,513.6 pesos comprised the food basket and \$1,513.7 pesos the non-food basket (highlighting here these items: education, culture and recreation; public transportation; housing; health care; and clothing and footwear). According to that information 47.9 million people in Mexico are those who lived with an income below that threshold and represent 38.5% of the country's population in 2018 [35].

The per capita labor income for the first quarter of 2021 according to CONEVAL [8] estimates, corresponds to \$1,635.04 pesos at 2010 first quarter prices (deflated with the food basket index), such that 39.4% of the country's population presents labor income lower than what is required to acquire the food basket.

In order to identify the population groups suffering from poverty, it is necessary to elaborate indicators that directly represent the standard of living, without taking into account the amount of resources enjoyed, for which the material deprivation indicator is useful, which is measured by the percentage of people with some type of material deprivation. CONEVAL [35] in its report Multidimensional Poverty Measurement shows us this panorama of the poverty situation in Mexico:

- ❖ The population in poverty was 52.2 million people in 2016, while in 2018 of 51.9 million and in 2020 of 55.7 million. In the first year it represented 43.2% of the country's total population, 41.9% in 2018 and 43.9% in 2020.
- ❖ The population with moderate poverty was 43.5 million people in 2016, 43.2 million in 2018 and 44.9 million people. Representing of the total population 36% in 2016, 34.9% in 2018 and 35.4% in 2020.
- ❖ The population in extreme poverty was preserved at 8.7 million people in 2016 and 2018, while in 2020 it was 10.8 million. Representing 7.2% of the total population in 2016, 7% in 2018% and 8.5% in 2020.

From the information presented it can be inferred that in the middle of Peña Nieto's six-year term the population in general poverty decreased 0.3 percentage points, while by 2020 with López Obrador it grew by 1.7 percentage points, it should be clarified that in this year the contingency of the COVID-19 pandemic hit, causing most national economic activities to decline, so much so that the national GDP fell by approximately 8.5%.

CONEVAL itself mentions that in 2015 8.3% of the total population was in a situation of extreme poverty, managing to lower it in the last year of Peña Nieto to 7% of the population, but all the progress made collapses by 2020, partly explained by COVID-19, observing that for this last year again the situation of extreme poverty is 8.5% of the national population, falling back by 0.2 percentage points in this poverty indicator that with the pandemic in the country did not fully lower that indicator.

Finally, social inclusion is a way of reflecting aspirations to achieve autonomy and material well-being, with the essential competencies to develop in societies based on information and knowledge. The most frequently mentioned categories of inclusion are: 1) Having a trade or profession; 2) Having one's own income; 3) Owning property; 4) Having higher education; 5) Speaking a foreign language; and 6) Using a computer. People with lower income and education manifest feelings of exclusion with greater intensity than the non-poor, these being: 1) Perceptions and feelings of loneliness; 2) Powerlessness and disorientation [27].

Exclusion from economic life marginalizes individuals in the distribution of economic resources. When in conditions of poverty and material deprivation, opportunities for education and participation in social life are substantially reduced. The unemployment rate is often the main indicator of exclusion from economic life.

The number of employed people in Mexico between 25 and 64 years of age in relation to the total is 68.9%, which means that 7 out of every ten people in that age range are employed, while in OECD countries (2020) there are 76.5% in that indicator. The comparison shows that in employment we are 7.6 percentage points below the OECD average in Mexico.

In terms of exclusion from social protection services, the indicators that are usually used correspond to education, health, social protection, access to housing and basic infrastructure.

Again I take information from CONEVAL [35] in its report Multidimensional Poverty Measurement to specify the indicators of social deprivation in Mexico in 2020: In educational backwardness there are 35.7 million people in 2020 (19.2% of the total); in backwardness of

access to social security there are 66 million (28. There are 11.8 million people (9.3%); 22.7 million (17.9%) are lacking access to housing services; 28.6 million (22.5%) are lacking access to nutritious and quality food.) In the lack of access to health services, there is a brutal drop in the attention of Mexicans in the period we are looking at, with this deficiency growing by 16.9 million people in 2019 to 35.7 million in 2020 (28.2%).

In current times, exclusion from social networks is a problem even for schoolchildren, and the COVID-19 pandemic we are suffering is exacerbated by the fact that there are approximately 81 million cell phones in Mexico. But the problem itself, becomes with the monthly connection or rent that households in Mexico have to pay. Recently, even parents living in poverty are trying to make an extra effort to have their children connected in classrooms with online classes at primary and secondary level, where they have had to sacrifice other satisfactions to try to have access to Internet networks.

Exclusion from citizen participation includes the different electoral processes, the right to elect and be elected, freedom of expression and association, as well as access to justice and public information. Electoral participation (proportion of registered voters who cast ballots) in Mexico averages 63%, while in OECD countries (2020) it is 69%. As can be seen, our country has 6 percentage points less electoral participation than OECD countries.

The use of ICTs, in addition to the fact that it can lead to a digital divide between those who regularly and constantly use them and those who lack them and therefore may fall into social exclusion, was used in a study conducted by Cerón Vargas & Muñoz Alonso [8] for Mexico, based on the multivariate statistical technique called Principal Component Analysis (PCA), with information from the National Survey on Availability and Use of Information Technologies in Households 2020, from which I derive these indicators that I present below:

- ❖ As ICTs are used with greater intensity in the entities of the Republic, they present a lower Índice de Rezago Social (IRS) -Social Gap Index- of CONEVAL (they have a better standard of living). On the contrary, the less ICT use in states, the higher the IRS
- ❖ If the indexes of access to ICT (ICT index) are positive, it is seen as a good indicator and the higher the better, while if the IRS is positive, there will be greater poverty in the states; if it is negative, they have a higher quality of life.
- ❖ The states with the highest concentration of productive activity in the country have better ICT indexes and lower IRS. I present the top three entities in location:
  - Nuevo León: IRS= -1.2547; TIC index= 3.0218. Number 1 in both cases.
  - Mexico City: IRS= -1.1153; TIC index= 2.2936. Number 3 in both cases.
  - Coahuila: IRS= -1.1476; TIC index= 1.6002. Number 2 (IRS) and 9 (TIC index).
- ❖ The entities with less economic and productive activity have a lower ICT index and a higher SRI. I present the last three entities in the country:
  - Chiapas: IRS= 2.6442; TIC index= -5.4812. Number 32 in both cases.
  - Oaxaca: IRS= 2.5909; TIC index= -3.9350. Number 31 in both cases.
  - Guerrero: IRS= 2.4503; TIC index= -3.5028. Number 30 in both cases.
- ❖ The classification of the 32 Mexican states, located in five large groups similar to those marked by CONEVAL's IRS:
  - Very high: northern states, Baja California, Baja California Sur, Chihuahua, Nuevo León, Sonora; Mexico City; Colima and Jalisco.
  - High access: central states of the country, Aguascalientes, State of Mexico and Querétaro; Pacific states: Nayarit and Sinaloa.
  - Medium Access: Campeche, Durango, Guanajuato, Michoacán, Morelos, Quintana Roo, Yucatán and Zacatecas.
  - Low access: eastern and southeastern states: Hidalgo, Puebla, San Luis Potosí, Tabasco, Tlaxcala and Veracruz.
  - Very low access: Chiapas, Guerrero and Oaxaca.

### 3. Human Development Index (HDI)

The origin of the Human Development Index (HDI) is based on the literature on welfare economics, concentrating on the focus of income analysis and consumer behavior, which in large aggregates when they improve their utility will in turn be reflected in the improvement of the utility of all individuals in society, where it is derived that the great classics Stuart Mill and Adam Smith would be like the 'grandfathers' of welfare economics.

From my perspective, welfare economics is developed by the followers known as the neoclassicals (including Wilfredo Pareto, Cecil Pigou, John Hicks and Nicholas Kaldor), which is studied in advanced economic theory, within one of its great divisions: microeconomics, where the explanation of marginal utility is the mainstay of that theory.

During the last two decades of the last century, Amartya Sen, following the theoretical thoughts of the great classics, has developed the capabilities approach, gaining great recognition within the economic profession, where he tried to give structure to the welfare perspective based on the concepts of functioning's and capabilities. From these analyses and theories arises the Human Development Index.

Ibáñez & Castillo [36] mention that since the late 1980s the paradigm of human development shifted from a development management, focused on consumer goods to a people-centered management and more than twenty years of history, the Human Development Index (HDI) has managed to consolidate itself as one of the main measures of development, which in addition to the measurement of GDP per capita, encompassed aspects such as education and health.

The measurement of human development is a fundamental element for the design of a country's public policies, which allows, among other things, the evaluation of progress or setbacks in the living conditions of its inhabitants [37]. To measure human development, the most commonly used variable is the Gross Domestic Product (GDP), which quantifies the economic capacity to generate satisfactory goods for its population; however, this indicator has its limitations to reflect development in a broader sense.

Of the efforts made in the world to systematically measure human development, the most prominent and globally recognized is the Human Development Index (HDI), proposed by the United Nations Development Program (UNDP), which uses three elements to evaluate the progress of countries in terms of human development: GDP per capita, health and education, with equal weighting of its three components.

The UNDP has published annually (with some exceptions) the Human Development Report, changing the objective of the study with each presentation; in this regard, Herrera H. [2] presents a very good summary of these publications. In addition to this report, the UNDP has published regional and country reports, and in some countries it has even developed sub-national indicators (state and municipal). Ibáñez & Castillo [36] add to the human development indicators, fields and variables of ethical, spiritual and cultural nature.

Many countries have adopted the human development indexes as a policy instrument and as an indicator of success or failure of their national policies, the HDI is published once a year in the World Human Development Report and additionally about 150 countries produce their own national human development report, with the objective of having an analysis at the regional level and greater local detail [37].

At the beginning of the century, the United Nations Development Program (UNDP, 2006: 393) used five human development indices: 1) Human Development Index (HDI); 2) Human Poverty Index for developing countries (HPI-1); 3) Human Poverty Index for selected OECD members; 4) Relative Gender Development Index; and 5) Gender Empowerment Measure. López & Vélez [38] add the sixth index to those of human development, the Index of Technological Advancement (ITA), which reflects the performance of countries in terms of creating and disseminating technology and creating a human skills base.

In quantitative information, Mexico has had the human development index since 1990, where the HDI methodology has undergone several changes over time and therefore its

values are not strictly comparable. In 2002, the Mexican government and the United Nations Development Program (UNDP) agreed that the international organization would produce the first Human Development Report, the emphasis of which would focus on studying diversity and inequalities in human development at the regional and state level for the first time [37].

In 1990, Mexico's HDI was 0.655, taking into account that expert authors on the subject consider that the methodology underwent changes years later, it cannot be considered as comparable, while in 2002, when the methodology was already accepted, an HDI=0.719 was calculated, showing a growth until reaching an HDI=0.779 in 2019 [39], which increased the nation's development indicator by six percentage points.

According to the most recent information released by the UNDP (2020) Norway occupies the number 1 place in HDI with 0.957, then some countries are listed according to the place and respective HDI coefficient: (6) Germany: 0.947; (17) United States: 0.926; (26) Spain: 0.904; (43) Chile: 0.851; (46) Argentina: 0.845; (62) Costa Rica: 0.810; (74) Mexico: 0.779. Below Mexico are countries such as Peru, Colombia, Brazil and Ecuador. As can be seen in the information, our country is in 74th place, behind Latin American countries such as Chile, Argentina and Costa Rica.

For the case of Mexico's states in 2019 [39] these are the places they occupy:

- 1. Mexico City with 0.837. It has been in first place since 2010.
- 2. Baja California with 0.809. Tied in 2010 with Sonora in this place.
- 3. Nuevo León with 0.807. Since 2010 it has been in third place.
- 4. Baja California Sur with 0.804.
- 5. Sinaloa and Sonora with 0.803 and 0.802 respectively.
- 28. Veracruz with 0.743.
- 29. Puebla with 0.741.
- 30. Guerrero with 0.714.
- 31. Oaxaca with 0.708.
- 32. Chiapas with 0.696. It has occupied the last place since 2010.

López & Vélez [38] derive data from the National Population Council of 2001: "The results show that the Federal District has an HDI similar to that of Portugal, which occupies 28th place in the world ranking, On the other hand, Chiapas has an index similar to that of Algeria, which occupies the hundredth place".

Portugal in 2019 ranks 38th with 0.864 in the HDI, while Mexico City presents a coefficient of 0.837 in that same year, noting that the development indicator grew more in the country of Portugal and separates it from Mexico City by 2.7 percentage points from 2001 to 2019.

Regarding the HDI presented by the country's municipalities, the United Nations Development Program states in this regard: "Of the ten municipalities with the highest HDI in the country, six are in Mexico City, two in Nuevo León, one in Oaxaca and another in Querétaro. Their HDI is comparable to that of countries such as the United Kingdom, Israel or Spain. On the other hand, the municipalities with the lowest development are in Oaxaca (4), Chiapas (2), Chihuahua (2), Veracruz (1) and Jalisco (1), with values similar to countries such as Malawi, Ethiopia or the Democratic Republic of Congo" [40].

According to the latest available data of the HDI measurement by municipality in the country in 2015 [40], these are the top ten places occupied by the municipalities with the highest HDI of the 2,457 municipalities in the country for that year:

- ❖ 1. Benito Juárez (CDMX) =0.944 and 2010=0.929, similar to Switzerland (1st in the world).
- ❖ 2. Miguel Hidalgo (CDMX) = 0.917 and 2010=0.888, compared to United Kingdom (13th).
- ❖ 3. San Pedro Garza García (N.L.) = 0.901 and 2010=0.866, similar to Israel (20th).
- ❖ 4. Coyoacán (CDMX) = 0.883 and 2010=0.868, compared to the Czech Republic (27th).
- ❖ 5. Cuauhtémoc (CDMX) = 0.878 and 2010=0.854, similar to Italy (28th).

- ❖ 6. San Sebastián Tutla (Oaxaca) = 0.868 and 2010=0.856, similar to Estonia (30th).
- ❖ 7. Corregidora (Querétaro) = 0.866, compared to Greece (30th).
- ❖ 8. Iztacalco (CDMX) = 0.861 and 2010=0.831, similar to Cyprus (32nd).
- ❖ 9. San Nicolás de los Garza (N.L.)=0.859 and 2010=0.848, similar United Arab Em. (36).
- ❖ 10. Azcapotzalco (CDMX) = 0.854 and 2010=0.842, compared to Andorra (34th).

It is worth noting that the Benito Juárez territorial district of Mexico City has an HDI similar to that of Switzerland, which ranked first worldwide in 2015, with 16 other municipalities of the country's capital city in the top ten places in that year.

The CONEVAL [35] in its Social Gap Indicators for 2020, in the section on entities and municipalities, points out that in the country there are 2,463 municipalities (including the 16 mayors' offices of Mexico City), placing these ten municipalities with the lowest Social Gap Index (IRS) or with the best standard of living in the country: 1. - Benito Juárez (CDMX); 2.- Apodaca (Nuevo León); 3.- Coacalco de Berriozábal (EDOMEX); 4.- San Nicolás de los Garza (Nuevo León); 5. - Coyoacán (CDMX); 6.- Miguel Hidalgo (CDMX); 7.- Cuautitlán (EDOMEX); 8.- Guadalupe (Nuevo León); 9.- Cuauhtémoc (CDMX); and 10.- Azcapotzalco (CDMX).

Derived from the information presented by the HDI (UNDP) and IRS (CONEVAL), it is observed that the municipality of Benito Juárez (CDMX) is in first place in both variables, with which it can be affirmed that it is the municipality with the best quality of life in the country, with San Nicolás de los Garza (NL) also in the lists of the first ten places; Miguel Hidalgo (CDMX); Coyoacán (CDMX); Cuauhtémoc (CDMX); and Azcapotzalco (CDMX).

### 3.1 New Human Development Index 2020

The year 2020 marked the 30th anniversary of the edition of the Human Development Reports published by the United Nations Development Programme (UNDP). Human beings, with their multiple productive activities over the last century, have caused climatic pressures to be unleashed, resulting in global warming, which is why it is said that the earth may have entered a new geological epoch: the Anthropocene (the era of human beings).

The Anthropocene is a term first used by the chemist Paul Crutzen, winner of the Nobel Prize in 2001, proposing it as an alternative to the Holocene (geological epoch of the Quaternary period, which would have begun 11,500 years ago and in his opinion had ended some time ago, some place its termination in the 18th century with the birth of the Industrial Revolution), which is used to emphasize the irreversible effects of human activities on the earth's ecosystems and climate.

In view of this problem, the UNDP is presenting a new experimental Human Development Index in 2020, adjusted for the climate issue and seeking to alleviate the pressures on the planet. In the first column of the table we can see the place that each country occupied in 2019 in the HDI, as well as its respective coefficient. The novelty in 2020 is the IHDI (adjusted for Inequality), where in the next two columns we see: how much they lost in percentage points with the adjustment and how many positions moved from the original place.

**Table 1. New Human Development Index adjusted for Inequality (IHDI) 2020**

Place	Country	HDI 2019	IHDI	Loss (%)	Difference place IHDI
1	Norway	0.957	0.899	6.1	0
6	Germany	0.947	0.869	8.2	-4

17	United States	0.926	0.808	5.4	7
25	España	0.904	0.783	13.4	-13
43	Chile	0.851	0.709	16.7	-12
46	Argentina	0.845	0.729	13.7	-4
62	Costa Rica	0.810	0.661	18.5	-11
74	México	0.779	0.613	21.3	-13
79	Perú	0.777	0.628	19.1	-8
84	Brasil	0.765	0.570	25.5	-20
86	Ecuador	0.759	0.616	18.8	-3

Source: Own elaboration. Based on information from the UNDP's New IHDI (2020)

From the table presented, Norway loses 6.1 percentage points in HDI, but remains number 1 in the index (with and without adjustments for inequality). Of the remaining ten nations presented in the table above, the United States loses 5.4 percentage points, but is the only country that improves its place in the IHDI by 7 positions; Spain ranks 10th in HDI, but with the IHDI it loses 13.4 percentage points and 13 positions.

Of the 7 Latin American nations, Brazil is the one that loses 25.5 percentage points and 20 positions with the IDHI, moving from 84th to 104th place worldwide, while Mexico loses 21.3 percentage points and 13 positions, moving from 74th to 87th place internationally. Chile was the best placed before applying the IHDI, but with the adjustment Argentina (which loses only four positions) is the best placed in Latin America, noting also that Ecuador is the one who loses the least positions (only 3) and Costa Rica would be better placed than Mexico in the world IHDI.

When environmental care issues are introduced into the HDI, Mexico and Brazil come out very poorly; of the eleven nations presented in the table, they are the ones that lose the most percentage points in the adjusted IHDI.

#### 4. Multidimensional Poverty Index (MPI)

The Multidimensional Poverty Index (MPI) reflects the incidence of deprivation and intensity (how many deprivations are suffered at the same time) of poverty. It is important to differentiate that the HDI measures average achievements, while the MPI measures deprivations [41]. Therefore, the closer the HDI is to 1, the higher the development, while the MPI that is closer to 0 (zero), the better level of development that country will have.

The Human Poverty Index for developing countries (HPI-1) and the Human Poverty Index (HPI-2) were used and applied from 1998 until 2009, when they fell into disuse. The Multidimensional Poverty Index (MPI) came into force in 2010. If the indexes are closer to zero, the countries or regions have better living standards.

In July 2010, the Oxford Poverty and Human Development Initiative (OPHI) in coordination with UNDP presented a new way to measure poverty. Like development, poverty is multi-dimensional, the 2010 Report [42] notes: "The index identifies a series of deprivations in the same three dimensions of the HDI and shows the number of people who are poor (suffering deprivations) and the number of deprivations with which a poor family usually lives. It is possible to group the index by region, ethnic group, poverty dimension and other categories, thus presenting a very useful tool for policy makers".

Thus, the Multidimensional Poverty Index captures both the incidence of deprivations and their intensity (how many deprivations are suffered at the same time). By 2010 the UNDP counted 5.2 billion people in 104 countries that it measured, of these about a third (1.75

billion people) lived in multidimensional poverty, reflecting severe deprivations in health, education and standard of living [42].

The Human Poverty Index (HPI), by using means or averages of national health, education and quality of life indicators, could not determine whether individuals, families and large groups suffered deprivation, while the MPI provides a solution to this lack of information. It is understood that the MPI was designed to compare indicators among developing countries, in which 'severe' poverty is measured, not to be confused with the World Bank's measure of 'extreme' poverty, which is attributable to people living on less than \$1.25 a day in 2010.

The MPI indicators [42] are drawn from the Millennium Development Goals (MDGs), being the same for both: food (MDG 1), child mortality (MDG 4), access to safe drinking water (MDG 7), access to sanitation facilities (MDG 7) and use of the best cooking fuel (MDG 9).

The Multidimensional Poverty Index (MPI) is composed of three major components, which in turn consist of 10 parameters or indicators with different weights:

- I. Education: two parameters with a weighting of 1/6 each: 1.- Years of schooling, without access or if no household member has completed five years of schooling; and 2.- School-age children, without access or if school-age children do not attend school.
- II. Health care-health: two parameters with a weighting of 1/6 each: 3.- Infant mortality, if a child has died in the family; and 4.- Nutrition, without access if an adult or child is naked.
- III. Quality of life-social well-being: six parameters with a weighting of 1/18 each: 5.- Electricity, without access to the household if they do not have it; 6.- Sanitation, without access if the household does not have a bathroom or if it is shared; 7. - Potable water, no access if the household does not have the service or if it is more than 30 minutes walking distance from the household; 8.- Soil, no access if the household floor has dirt, sand, earth or dung; 9.- Household fuel, no access if cooking with firewood, charcoal or dung; and 10.- Goods, no access if the household has no more than one radio, television, telephone, bicycle or motorcycle.

A person is considered poor if he/she does not have access in at least 30% of the weighted indicators. The intensity of poverty indicates the proportion of the indicators to which he/she does not have access. The MPI is calculated as follows:  $H \times A$  (where H: is percentage of the population that are poor, and A: average poverty intensity).

Mexico has  $MPI=0.015$ , ranking 35th out of 101 countries. The first places with  $MPI=0.000$  correspond to Belarus, Slovakia, Slovenia and Czech Republic (European countries oriented towards socialism in the last century), Brazil occupies the fifth position with  $MPI=0.0005$ , Peru occupies the fourteenth position with  $MPI=0.005$  and Russia occupies the fifteenth position with  $MPI=0.005$ . Before Mexico, Uruguay and Ecuador are also in a better position. In the worst position among Latin American countries is Nicaragua, in 64th place on this indicator. The last positions of the MPI are occupied by African nations, with Ethiopia and Niger in the last positions.

Finally on this point, it seems to me that the dictates of the UN Universal Declaration of Human Rights are very well reflected in the Political Constitution of the United Mexican States and in the laws that derive from it, with an acceptable legal framework to implement public and economic policies that will influence and seek the social and economic development of the nation. The problem I see is the lack of funds to allocate them to the programs required by the 10.8 million people who are classified as extreme poor in Mexico in 2020, which is the central issue of national public budgets.

## Conclusions

Based on the hypothesis, economic growth is the increase in income or production per capita above the increase in the population rate that is achieved permanently and which is closely linked to the increase in productivity. I define economic development as economic

growth that is achieved together with better and greater social living conditions for the population, in terms of food, education, social security, public safety, housing and health, among others. Sustainable or sustainable development is the term applied to economic and social development that makes it possible to meet the needs of the present without endangering the capacity of future generations. Human development is the process by which a society improves the living conditions of its members through an increase in the goods with which it can cover their basic needs.

This paper presents information corresponding to poverty in Mexico, based on the link I want to make between the concepts and measurement of variables that explain human development, and therefore brings up data on the Gini coefficient, the social gap index and some others that explain the great inequality of income in Mexico, which will allow us to locate the human development index.

According to the most recent information of the Human Development Index (HDI), released by the UNDP (2020), Mexico ranks 74th, with a coefficient of 0.779, this is the list of some selected countries: (1) Norway: 0.957; (6) Germany: 0.947; (17) United States: 0.926; (26) Spain: 0.904; (43) Chile: 0.851; (46) Argentina: 0.845; (62) Costa Rica: 0.810; (74) Mexico: 0.779. Below Mexico are countries such as Peru, Colombia, Brazil and Ecuador.

Mexico City has an HDI equivalent to Greece, which corresponds to 32nd place worldwide. The territorial districts of Benito Juárez and Miguel Hidalgo in Mexico City have an HDI equivalent to that of Japan, which ranks 20th in the world.

With the IDHI (adjusted), Norway continues to occupy the first position worldwide, while the United States drops from 17th to 10th position. Of the Latin American nations, Brazil and Mexico are the ones that lose the most positions with the IDHI, Mexico loses 21.3 percentage points and 13 positions on the world scale, going from 74th to 87th place, which shows that our country is one of the most unequal at the international level and where environmental protection measures are not applied.

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