**1. Framework and objectives**

**2. Brief theoretical and Technical Review on HDI**

The human development index (HDI) is considered very important to measure the development of countries and is considered a fairer measure-to-measure economic welfare. According to Gezikol, Ergüzel and Tunahan (2019) welfare includes basic concepts such as happiness, health, education and income, with the HDI emerging as one of the most important indicators for assessing the welfare and performance of countries and different regions. Calculated and disseminated by the United Nations (UN) since 1990, this indicator includes key dimensions of development that reflect social and economic welfare: a long and healthy life, access to knowledge and a decent standard of living (Javaid, Akbar & Nawaz, 2018).

According to the United Nations, the HDI was created to emphasize that people and their capabilities should be the final criteria for evaluating a country's development, in contrast to the idea of ​​using only economic growth (GDP). Thus, the UN Human Development Report (2015) states, “human development focuses on the enlarging people’s choices and richness of human lives”.

**Measuring and Calculation of human development[[1]](#footnote-1)**

According to the United Nations Human Development Report (2018), “the HDI is a composite index focusing on three basic dimensions of human development: the ability to lead a long and healthy life, measured by life expectancy at birth; the ability to acquire knowledge, measured by mean years of schooling and expected years of schooling; and the ability to achieve a decent standard of living, measured by gross national income per capita”.

Technically, according to the same organization, the HDI is the geometric mean of the normalized indices for each of the three dimensions, where: - the health dimension is evaluated by life expectancy at birth, the education dimension is measured by the average of the years the level of education of adults aged 25 years and over and the years of education expected for school-age children, and the dimension of the standard of living is measured by the gross national income per capita.

Mathematically, the HDI is calculated as follows:

[1]

The calculation of the HDI begins first with the creation of the aforementioned indices of dimensions. These indices are calculated according to the pre-established minimum and maximum values. These values are defined in order to transform the indicators expressed in different units into indices between 0 and 1, as shown in table 1.

Table1:

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension** | **Indicator** | **Minimum** | **Maximum** |
| Health | Life expectancy (years) | 20 | 85 |
| Education | Expected years of schooling (years) | 0 | 18 |
| Mean years of schooling (years) | 0 | 15 |
| Standard of living | GNI per capita (2017 PPP$) | 100 | 75,000 |

Source: 2018 UN Human Development Report

Taking into account the values in Table 1, the index of each dimension referring to each country is calculated as follows:

[2]

**3. A multivariate analysis of the human development index: Proposal and Comparison**

1. This topic is based on the technical note of the United Nations Human Development Report [↑](#footnote-ref-1)