



RESEARCH ARTICLE

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THE COVID-19 PANDEMIC AND THE QUESTIONING OF THE PRINCIPLE OF THE HUMAN DEVELOPMENT INDEX « HDI »

***Mourad FAIZ**

Research professor in Economic Science at Cadi Ayyad University, Marrakech

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**Corresponding author: Mourad FAIZ,*

ABSTRACT

In addition to its harmful and deadly effects, the covid19 pandemic in the world has undoubtedly influenced almost all economic and social activities. Thus, forecasts have revised downward the growth rates of economies at the global level. In addition, this pandemic situation has pushed scientific research towards different directions in order to find solutions to the new questions brought about by this pandemic. In this context, and through this article, we have questioned the principle of calculating the human development index (HDI) while introducing new evaluation criteria deemed effective and consistent with pandemic situations to measure sub-dimensional development indicators relating to health, education and income. We have therefore judged that the environmental dimension is essential to measure the evolution of the HDI, which allows us to present a new formula for calculating the HDI.

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INTRODUCTION

The effects of covid19 undoubtedly weighed heavily on the health, economic and social levels of all developed and developing countries. The closure of land, air and sea borders has surely prompted each country to mobilize its own resources and adopt or borrow appropriate strategies in order to curb the spread of this epidemic and to identify its undesirable economic and social effects. Thus, it was noticed that the majority of the rich countries suffered more than the poor countries in managing the risk of this epidemic. The solution was not strong economic means or heavy military power, are necessary conditions but not sufficient. Following this dangerous pandemic situation, the world has lost its compass and several economic values and ideas have been called into question. In this sense and through this article we try to shed light on the effectiveness of the principle of the HDI as a tool for measuring the development of countries.

Presentation of the HDI: Invented by Indian economist AmartyaSen and Pakistani economist MahbulHaq and published by UNDP in 1990, the HDI is a composite index, dimensionless, between 0 and 1. It is calculated on the basis of three indicators main:

First indicator: health / longevity which is based mainly on life expectancy at birth and indirectly taking into account the satisfaction of essential material needs such as access to healthy

food, drinking water, decent housing , good hygiene and medical care.

Second indicator: knowledge or level of education. It is measured by the average length of schooling for adults over 25 and the expected length of schooling for school-age children. It reflects the satisfaction of intangible needs such as the ability to participate in decision-making in the workplace or in society;

Third indicator: The standard of living measured by the logarithm of the gross income per capita in purchasing power parity, this indicator contains the elements of quality of life such as mobility or access to culture. Thus, according to the UNDP, data on life expectancy at birth are provided by the UN Department of Economic and Social Affairs, data relating to years of schooling are advanced by the Statistical Institute of the United Nations. UNESCO and GNI per capita values are taken from the World Bank and the International Monetary Fund. Usually the publication of HDI came with a delay, using figures collected two years earlier. From 2011, the calculation of the HDI is based on a geometric mean whose formula is as follows:

$$IDH = \sqrt[3]{I_{longevity} \times I_{Education} \times I_{Income}}$$

With:

$I_{longevity}$: longevity index

$I_{Education}$: Education level index

I_{Income} : income level index

Limits of the HDI: Like any other composite indicator, the HDI has flaws, the main one of which is that it assumes that its components are commensurable. The calculation of this index ignores the significant correlation of different aspects of the quality of life between individuals and does not take into account the distribution of individual conditions in each country. Thus, the formulas for calculating the elementary indices of the HDI have been widely discussed. Indeed, for the UNDP, the use of log in the calculation of the income index aims to reduce its weight as it progresses. In addition, the HDI suffers from a fundamental flaw, which is the failure to take public freedoms into account in its calculation, since, according to Amartya Sen, development is a process of expanding freedoms.

The questioning of the principle of HDI: First indicator: It is clear that the global crisis caused by covid19 has shown that the issue of human health is a very important factor, that each country should place it at the top of its priorities. This forces us to question the way in which the "health" index is calculated at the HDI level. Thus, relying primarily on life expectancy at birth as a means of assessing health development is necessary but insufficient. Indeed, it was noted during the spread of the virus at the global level that even the health systems of the majority of developed countries (China, Italy, Spain, France, German, etc.) have become almost incapable of supporting the high number of infected. What becomes essential to redefine the longevity index by introducing other parameters and criteria such as the quality of the health system of a country and its ability to offer high quality care to all patients with care serious and urgent cases and dealing with unforeseen serious and dangerous situations in the event of disasters and epidemics. The degree of capacity of the health system can be estimated using the following indices: the number of doctors per thousand inhabitants, the number of hospitals per thousand inhabitants, the number of intensive care beds per thousand inhabitants, the number of people unable to access care, the percentage of people benefiting from health and social coverage. Second indicator: In relation to the first indicator "health" and in order to have a healthy, effective and efficient health system, the education system of a country must be able to produce all that the first system needs, in particular human resources, technical and scientific. In this sense, the second indicator of the HDI, the knowledge or level of education which is based on which its calculation on the average duration of schooling for adults over 25 years old and the expected duration of schooling for children of school age is ineffective in giving a clear view on the health of a country's education system. Indeed, the crisis caused by covid-19 has demonstrated the necessity and importance of investing in the development of scientific and technological research. Also the level of consciousness of the citizens and the degree of their culture played an important role in the siege of the virus because of their understanding of the gravity of the situation and their behavior vis-à-vis the instructions issued by the World Health Organization relating to the fight against this epidemic.

In this context, it is clear that the quality of the education and teaching system is a supreme factor in the assessment of a country's human development. This factor can be estimated via the share of the budget allocated to teaching, the share of the budget allocated to scientific research, the number of scientific publications and / or production, the number of patents and innovation, the percentage of integration of graduates into the labor market, the number of political representatives, with a higher level of education, who participate in political, economic and social decision-making at local, regional or national level and the rate of out-of-school and literacy.

The third indicator of the HDI "the standard of living" which is measured by the logarithm of the gross income per capita in purchasing power parity can be replaced by the relative poverty rate because the first has shown its inefficiency of materialize income inequalities within and between countries. On the other hand, the relative poverty rate gives a clear vision of the quality of life of the inhabitants of a country and to compare it with that in other countries. The fourth indicator: A fourth indicator appeared necessary and is required in order to improve a country's human development indicator, which is respect for the environment and the fight against the effects of climate change. This indicator can be estimated by the degree of the country's contribution to reducing greenhouse gas emissions. The new formula for calculating the HDI: After presenting the four sub-indicators, we propose a new formula for calculating the HDI.

$$IDH = \sqrt[4]{I_{\text{longevity}} \times I_{\text{Education}} \times I_{\text{Income}} \times I_{\text{Environment}}}$$

With:

$I_{\text{longevity}}$: longevity index

$I_{\text{Education}}$: education level index

I_{Income} : Income level index.

$I_{\text{Environment}}$: Environment index and the fight against the effects of CC

Conclusion

Through this article, we have questioned the effectiveness of the principle of the UNDP "HDI" index in light of the spread of the Covid-19 epidemic. Thus, we have proposed a new vision for calculating the human development index by taking into account new criteria appropriate to its components, health, education and income. In addition, we have introduced a fourth indicator relating to the environmental dimension that we consider essential in measuring development. By proposing this new formula for calculating the human development index, we would like to open a scientific debate on the questioning of the old method of calculating HDI in a new context where the fight against the major effects of pandemics and change climate becomes an essential factor to be taken into account before thinking about development. Thus, we will hope to test this new formula via empirical data and by cooperating with national and / or international institutions operating in the development field.

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