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Wealth Index

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Definition

The wealth index is a composite indicator for measuring the living standard of households in low- and middle-income countries. It is calculated using data on a household's ownership of a selected set of assets, dwelling characteristics, type of water access, and toilet and sanitation facilities. The wealth index considers characteristics related to wealth status, avoiding variables that do not represent an asset, or outcome variables.

Description

Since the late 1990s, wealth indices have become widely used instruments for measuring the economic status and living standard of households in low- and middle-income countries, deriving information on "long-run wealth" from data already collected in large-scale surveys.

There are several ways in which wealth, economic status of households, and living standards can be measured. Income, expenditure, and consumption are three common measurements. However, there are challenges in collecting and measuring income and expenditure accurately. An alternative is to use data on asset ownership and housing characteristics and combine this information into a proxy indicator such as the wealth index, which is created using the statistical technique of principal component analysis (PCA). Asset ownership gives an indication of the long-term economic status of a household and is less dependent on short-term economic changes compared with other wealth or poverty measures (McKenzie 2005).

The Demographic and Health Survey (DHS) Wealth Index was originally constructed from existing data on household assets, services, and amenities in order to examine health, population, nutrition, education, and other indicators of societal well-being according to economic status. The use of wealth index allows the researchers to identify the impact of wealth status on health outcomes – such as unequal access to health care or increased risk for infection with HIV – and is also used to target poverty alleviation programs and projects. Developed by the DHS Program with partial funding from the World Bank, the DHS wealth index also allows governments to evaluate whether public health services, vaccination campaigns, education, and other essential interventions are reaching the poorest (WPF 2017; www.dhs.program.com/topics/wealth-index).

The wealth index is now standard in reports and analysis based on datasets from Demographic

F. Maggino (ed.), *Encyclopedia of Quality of Life and Well-Being Research*,
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and Health Surveys (DHS), UNICEF Multiple Indicator Cluster Surveys (MICS), and WFP surveys (mainly CFSVAs and EFSAs) and is used to rank households into quintiles (http://www.measuredhs.com/). Hundreds of research papers have appeared in which wealth indices were used for studying variation in health, mortality, poverty, education, work, and other outcomes in almost all countries of the developing world (see e.g, Smits and Steendijk 2015).

The DHS Wealth Index is based on the assumption that the possession of assets, services, and amenities is related to the relative economic position of the household in the country. It is calculated using data on a household's ownership of a selected set of assets, such as televisions, bicycles, and cars; dwelling characteristics such as flooring material; type of drinking water source; toilet and sanitation facilities; and other information about household's material wellbeing. The wealth index considers characteristics related to wealth status, avoiding variables which do not represent an asset, such as nutrition, or outcome variables, such as education.

The inspiring approach is to treat wealth (and economic status) as an underlying unobserved dimension that can be estimated using latent variable techniques such as principal component or factor analysis. In this sense, the wealth index is a proxy measure of the long-term standard of living of the household.

The general methodology used to calculate the wealth index is given in Filmer and Pritchett (2001), and the specific approach used in the DHS is described in Rutstein and Johnson (2004). Both papers compare the DHS Wealth Index with more traditional indexes of consumer expenditures, concluding that the wealth index better represents long-term (permanent) economic status and also is much easier to implement.

Each asset eligible to measure wealth for which information is collected is assigned a weight or factor score generated through principal components analysis. The resulting asset scores are standardized in relation to a standard normal distribution with a mean of zero and a standard deviation of one. Each household is assigned a standardized score for each asset, where the score differs depending on whether or not the household owned that asset. These scores are summed by household, and individuals are ranked according to the total score of the household in which they reside. The sample is then divided into population quintiles, that is, five groups with the same number of individuals in each (https://dhsprogram.com/topics/wealth-index/).

This approach for defining wealth quintiles has the advantage of producing information directly relevant to the main issue of interest, for example, the health status or access to services for the poor in the population as a whole. This choice also facilitates comparisons across indicators for the same quintile, since the quintile denominators remain unchanged across indicators.

Wealth indices owe their success to a variety of properties and advantages: they are intuitive appealing (they refer to assets that the large majority of people wants to own, or at least buys when having the possibility); they are widely available in household surveys for developing countries (e.g., DHS, MICS); they are easy to compute (asset score are added up to get the index); and they represent a reliable measure (assets included are easily observable by the interviewer).

In spite of these desirable properties, the major disadvantage of the wealth index is the lack of comparability among countries and across time (McKenzie 2005; Smits and Steendijk 2015; Rutstein and Staveteig 2014). Usually, a separate wealth index is constructed on the basis of the assets available in a survey. Such a separate index is tailored completely towards the specific wealth distribution in a specific survey year in a given country, and is not related to indices used in other surveys. In this sense, the resulting indicator is a valid measure of wealth differences only in that specific country-year combination, but generally cannot be used to study wealth differences in other places and times. To solve this problem, some solutions have been recently proposed, namely, the International Wealth Index (Smits and Steendijk 2015) or the Comparative Wealth Index (Rutstein and Staveteig 2014).

A second concern with the original wealth index is that it is characterized by ownership of different types of assets in urban areas compared

with rural areas, leading to the so-called "urban" bias (Rutstein 2008). This problem is generally overcome by including in the index computation variables that are valid as proxies of wealth in both urban and rural areas or, if the living conditions in urban and rural areas are very different, by creating separate indices for urban and rural areas.

Cross-References

- Cluster Analysis
- Composite Indicator(s)
- Factor Analysis
- Latent Variables
- Principal Component Analysis
- Wealth

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