

The Gini coefficient

The most widely used summary measure of inequality in the distribution of household income is the Gini coefficient.

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1 . Overview

The most widely used summary measure of inequality in the distribution of household income is the Gini coefficient.

The lower its value, the more equally household income is distributed.

The Gini coefficient is a measure of the way in which different groups of households receive differing shares of total household income.

For example, the bottom 5% of households might only have a 1% share of total household income. The bottom 10% of households might have a 3% share; the bottom 20% might have an 8% share, and so on.

The Gini coefficient is a measure of the overall extent to which these groupings of households, from the bottom of the income distribution upwards, receive less than an equal share of income.

2 . How is it calculated?

The concept is expressed more formally by the Lorenz curve of household income distribution, from which the Gini coefficient can be calculated.

Based on a ranking of households in order of ascending income, the Lorenz curve is a plot of the cumulative share of household income against the cumulative share of households. The curve will lie somewhere between two extremes.

Complete equality, where income is shared equally among all households, results in a Lorenz curve represented by a straight line.

The opposite extreme, complete inequality, where only 1 household has all the income and the rest have none, is represented by a Lorenz curve which comprises the horizontal axis and the right-hand vertical axis.

The Gini coefficient is the area between the Lorenz curve of the income distribution and the diagonal line of complete equality, expressed as a proportion of the triangular area between the curves of complete equality and inequality.

Complete equality would result in a Gini coefficient of zero, and complete inequality, a Gini coefficient of 100.

All the Gini coefficients shown in [the effects of taxes and benefits on household income](#) are based on distributions of equivalised household income.

Equivalisation is a standard methodology that takes into account the size and composition of households and adjusts their incomes to recognise differing demands on resources.

3 . Strengths and limitations

The [Gini coefficient](#) is one of the most widely used measures of income inequality, and the characteristics of this metric make it particularly useful for making comparisons over time, between countries and before or after taxes and benefits. The Office for National Statistics (ONS) report the Gini coefficient on an annual basis providing timeseries back to 1977, with underlying data published alongside headline statistics, to include 95% confidence intervals to aid interpretation.

The ONS publish a range of income inequality metrics to supplement the Gini coefficient, to include the S80/20, P90/10 and Palma ratios, and top 1% share. In doing so, we aim to overcome limitations of using single summary indicators such as changes to the shape and composition of the income distribution. Furthermore, ONS now takes the approach of [integrating survey and administrative data](#) to better capture the top 3% of earners which can be underreported when using survey approaches alone.

