Inclusive Income methodology

An introduction to the concepts underlying two new measures being developed by the Office for National Statistics (ONS), gross inclusive income and net inclusive income.

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Please note that this methodology has been superseded by the Inclusive income and wealth, UK quality and methods guide.

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1 . Main points

- The Office for National Statistics (ONS) has a strong track record of measuring the progress of the UK; gross domestic product (GDP) is often a measure of economic and wider progress, but its weaknesses in measuring these aspects have been widely discussed.
- There is a spectrum of progress measurement from economic through to multi-dimensional approaches, such as national wellbeing.
- We have developed the concept of inclusive income as a new measure of economic progress, building on and complementing GDP as part of that spectrum.
- Inclusive income is an economic progress measure giving greater prominence for human and natural capital, as well as non-market economic activity including household production.
- We focus here on explaining the economic concepts and general issues around measuring inclusive income, and we will follow this up with more detailed methodological explanations, as well as estimates of the measures.

2 . Overview of Inclusive Income measures

It has long been acknowledged that gross domestic product (GDP) does not measure all aspects of economic well-being, let alone wider well-being. As early as 1934, Simon Kuznets noted that national income was not sufficient to measure the welfare of a nation. More recently, in their Report by the Commission on the Measurement of Economic Performance and Social Progress (PDF, 3.11MB), Stiglitz, Sen and Fitoussi identified the limits of GDP as an indicator of economic performance and social progress. GDP is commonly used to determine and assess policy but does not fully capture some phenomena that have an impact on the well-being of people and society, and nature and the environment. The report emphasised, among other points, the need for a shift from a "production-oriented" measurement system to one focussed on the sustainable well-being of current and future generations. Whether the level of well-being can be sustained over time depends on whether the stocks of capital (natural, produced and human) can be passed on to future generations.

Similarly, Partha Dasgupta's review, The Economics of Biodiversity, highlighted the need to change our measures of economic progress. While GDP is one measure of economic activity and progress, it does not account for the depreciation of assets, particularly natural capital assets. The Dasgupta Review recommended an "inclusive" measure of wealth that includes a wider range of capitals; alongside "produced" capital (which is broadly similar to capital within the current national accounts) would be added natural capital as well as human capital. Integrating natural capital and human capital into a national accounting framework would, according to the review, be a major step toward measurements of economic progress that better reflect whether economic activity is sustainable for current and future generations.

As one part of a broad range of work streams to improve the scope and quality of statistics related to well-being, to address the need for broader measures of sustainable economic progress highlighted by both Stiglitz, Sen, and Fitoussi (2009) and Dasgupta (2021), the ONS have been working to identify a "spectrum" of measures that could build upon current national accounting frameworks to capture flows of benefits from the wider range of capitals currently outside the production boundary of the national accounts. Inclusive income is one such measure, which aligns closely to the concept of inclusive wealth as described in the Dasgupta Review, but it focusses on measuring the flows of benefits associated with a broader range of capitals rather than the stock values themselves. Developing measures of inclusive income is both useful in itself and is also a step toward possible measurement of inclusive wealth in the future.

Inclusive income builds upon GDP as a measure of economic activity through a series of adjustments. While a more thorough explanation of these adjustments is given in later sections, we can give an overview by explaining how and why inclusive income expands on the production and asset boundaries of GDP and the national accounts.

GDP measures the market and non-market production and consumption of goods and services. However, GDP omits certain activities, such as unpaid household production of services, which might still be considered as economic activities and as activities that contribute to economic progress and well-being. Inclusive income expands the "production boundary" to include household production within its definition of economic activity. Additionally, economic activity within the System of National Accounts 2008 (SNA 2008) is limited to production activity that involves the use of labour and capital – where the latter is defined by the "asset boundary" of SNA 2008. As several natural capitals are not defined as capitals within the SNA 2008, this means that the flow of services from these capitals are not included either. As inclusive income expands the asset boundary definition to include human and additional natural capitals, it also expands the production boundary to include these additional flows of services associated with a broader range of natural capitals.

In short, inclusive income builds around the same national accounting framework as measures such as GDP, but it adjusts the production and asset boundaries to both expand the definition of what constitutes economic activity, as well as incorporate human and additional natural capitals.

Inclusive income is intended to complement GDP and other national-accounts-based measures of economic progress, not replace them. Different measures meet different user needs and reflect different trade-offs, and there are trade-offs across quite a few cross-cutting dimensions – for example, statistical quality, international comparability, and data availability. One particular dimension for which inclusive income aims to meet user needs is its more expansive, inclusive definition of what constitutes the economy.

"The economy" can be defined in many different ways, some being more narrow and some more expansive than others. On one side, we could picture a rather narrow definition of "the economy" focussing purely on the market, which could be measured using the gross value added (GVA) of the market sector. GDP is less narrow than this, expanding the definition of "the economy" to include general (both central and local) government, non-profit institutions serving households (NPISH) and imputed rentals. GDP in its current form, as measured by the ONS, is defined using the European System of Accounts 2010 (ESA 2010) based on the SNA 2008.

Gross inclusive income (GII) is more expansive still than GDP, maintaining the same national-accounting approach as GDP but expanding the definition of “the economy” to include the unpaid household production and additional ecosystem services from natural capitals, which currently lie outside the production and asset boundaries as defined by the ESA 2010 and SNA 2008. Net inclusive income (NII) takes GII and converts it to a net measure by accounting for depreciation in produced, human, and natural capital. Adjusted inclusive income (AII) would then build upon NII to include additional adjustments that users may find useful for measuring sustainable economic progress, such as adjusting for externalities and changes in the distribution of economic benefits.

But there comes a point at which a definition of “the economy” would be too expansive to be able to be captured within a national accounting framework, or within aggregable frameworks in general, as the concepts included may be practically or theoretically incomparable. At this point, to assess economic progress in the most expansive sense, pluralistic indicator frameworks, such as the Sustainable Development Goals or UK National Well-being, are required.

Some users may benefit from the expanded definitions of what constitutes “the economy” and find the measure more useful for assessing the economic aspect of well-being as a result. However, the national-accounting-based measures also become increasingly difficult to calculate as we use more expansive definitions. Taking just the example of price estimation, we can directly observe market prices for the market sector, but as we move to GDP and inclusive income measures that included non-market activity, we need to calculate equivalents for market prices. This can introduce both additional difficulties in producing data as well as more subjective methodologies.

There are numerous other characteristics that could be traded off, such as international comparability, number of years for which the data are available, and methodological rigour, which users should consider when choosing a measure of economic progress. The inclusive income measures discussed in this article will help meet user needs for more expansive measures of economic progress, but this will come as a trade-off against other factors.

3 . Gross Inclusive Income (GII)

The main difference between gross domestic product (GDP) and gross inclusive income (GII) is the inclusion of investment in additional capitals currently outside the System of National Accounts 2008 (SNA 2008) asset boundary, and the inclusion of household production and ecosystem systems currently outside the production boundary. Under the SNA 2008, the production boundary is defined as “the production of goods and services supplied to units other than their producers (including production of goods or services used up in the process of producing such goods and services), the production of all goods retained by producers for their own final consumption or gross capital formation, the own-account production of housing services by owner-occupiers, and personal services produced by paid domestic staff”.

GII aims to incorporate the flows of benefits derived from a wider range of capitals, effectively expanding the “asset boundary” beyond that of the SNA 2008. This expanded set of capitals can be grouped together into:

- human capital (currently not treated as a capital in national accounts)
- natural capital (only some of which is treated as an asset within national accounts)
- produced capital (most of which are already treated as capitals in national accounts)

Services derived from these capitals may be of recognisable value to society but may not be bought, sold or funded in any explicit manner. As such, some of their services currently lie outside of the SNA 2008’s “production boundary”. To account for these services, GII expands the production boundary beyond that of SNA 2008 to include unpaid household services as well as an expanded set of ecosystem services.

In addition to expanding the asset and production boundaries, GII will also include methodological adjustments to the measurement of economic activity within the asset and production boundaries of the SNA 2008. This will happen where there exist methodological adjustments that are not included or recommended in the SNA 2008, or the Office for National Statistics (ONS) have not implemented these adjustments in national accounts yet. However, these methodological adjustments would increase the use of GII as a measure of economic progress. This would include adjustments such as, for example, quality adjustment of non-market public services output. While the specific adjustments made to national accounts to calculate GII will likely evolve over time, current plans would see GII as being conceptually similar to GDP with the following adjustments:

- expansion of the asset and production boundaries to include investment in an expanded array of natural capitals, as well as the ecosystem services derived from these capitals (as published in the natural capital accounts)

- expansion of the asset boundary to include investment in human capital, building upon the ONS's human capital stocks work

- expansion of the asset boundary to include investment in an expanded array of "intangible capitals", such as intellectual property products as published in our Investment in intangible assets in the UK: 2018 article

- expansion of the production boundary to include services produced by the household for own-use, as published in the Household satellite account, UK dataset, and expansion of the asset boundary to include the household durables used as capital when producing these unpaid household services

- quality adjustment of non-market public services, as published in our quarterly Public service productivity dataset

Specific adjustments and methodologies underlying them will be set out in future publications. However, as the main distinguishing feature of inclusive income (as well as measures of inclusive wealth, which may follow) will be the expansion of the asset boundary, the intuition for how that will be implemented is worth considering in more detail.

GII will include investment in, as well as ecosystem services derived from, all natural capital assets (also known as environmental assets) identified in the System of Environmental-Economic Accounting (SEEA) such as freshwaters, land, oceans, the atmosphere, and minerals. Services from these assets include, but are not limited to, agricultural biomass, fossil fuels extraction, fish capture, and mineral extraction. GII will also capture the services derived from a cleaner atmosphere with less pollution by incorporating the values of services such as carbon sequestration, urban cooling, and noise mitigation.

Currently the natural capital accounts record estimates of the natural capital stock but do not decompose changes in that stock into estimates of investment, capital consumption (or depletion or degradation), and other changes in volume and prices. As measuring investment in additional natural capitals not currently included in national accounts is necessary for a complete calculation of GII, further research into this decomposition is required.

In addition to natural capital, human capital is another significant example of the wider range of capitals that is uncapitalised in the national accounts framework. Human capital is defined by the Organisation for Economic Co-operation and Development as "the knowledge, skills and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being".

Currently, the ONS produces estimates of the total UK human capital stock but does not decompose changes in stock of human capital into gross capital formation (such as investment), capital consumption (such as depreciation), other changes in volume, and other changes in price. This decomposition would be needed to incorporate human capital investment into GII.

Adjustments to incorporate human capital into a national accounting framework would also likely require significant reallocation of flows currently within the national accounts. For example, while education is currently classified as "final output" in national accounts, it would likely need to be reclassified to reflect its role in human capital investment. Initial research has been undertaken into how human capital could theoretically be incorporated into a national accounting framework (PDF, 1.15MB). However, more work still needs to be done to accurately compile estimates as well as consider the interaction between human capital and the other additions in inclusive income.

Finally, GII would also expand the array of "produced capital" – those capitals currently capitalised in the national accounts – to also include investment in previously uncapitalised intangible assets as well as household durables used in household production. Previously uncapitalised intangible assets include assets such as marketing and organisational capital, which contribute to the long-term accumulation of a business' knowledge capital

4 . Net Inclusive Income (NII)

Net inclusive income (NII) seeks to improve upon gross inclusive income (GII) further as a measure of sustainable economic progress by netting off capital consumption. This would include consumption of the expanded set of capitals included in GII, so that total capital consumption would include:

- produced capital – this includes capitals currently included in national accounts (excluding cultivated assets), household durables used in household production, and additional intangible capitals (for example, those currently uncapitalised in national accounts)

- human capital

- natural capital – this includes cultivated assets already included in national accounts and other natural capitals

In addition to building upon GII by accounting for capital consumption, NII will also include income to the United Kingdom from abroad and deduct transfers to foreign countries. This means that NII will relate to GII in the same manner that net national disposable income relates to gross domestic product (GDP).

Accounting for consumption of capital is widely seen as beneficial when compiling a measure of sustainable economic progress. In many simplified economic models, the primary way in which economic activity could be said to lead to increased economic well-being is through increased consumption. There are many issues with this simplification; for example, not all consumption may increase well-being. Many issues with this simplification are difficult to tackle while operating within a national accounting, or aggregable, framework and require moving to a pluralistic indicator framework.

However, taking this simplification at face value, capital consumption – which could be thought of as a measure of economic activity that is needed to simply maintain current capital levels – should be excluded from a measure of sustainable economic well-being. This is evident when considering what a rise in capital consumption would mean: an increased amount of economic activity would be required to simply maintain capital stocks at existing levels. As such, netting off capital consumption gives an idea of how much economic activity could be devoted to consumption (and so contribute to economic well-being) were capital stocks to remain constant (which helps account for the sustainability of economic activity).

Consumption of fixed assets can be achieved in several different ways, consistent with guidance in the System of National Accounts 2008 (SNA 2008). This involves estimation of the present value of the stock of fixed assets, the lifetime of various types of assets, patterns of depreciation, and other factors. Software and other assets, for example, are assumed to have a specific lifespan within which their value linearly depreciates. While these methodologies are a useful starting point for thinking about how to calculate capital consumption of the additional capitals included in inclusive income, those additional capitals – particularly human and natural capital – also present unique challenges that may require bespoke concepts and methodologies.

As mentioned in the previous section on GII, the Office for National Statistics (ONS) do not yet produce a breakdown of changes in human capital stocks into investment, capital consumption (such as depreciation), and other changes in volume and prices. Consumption of fixed capital is defined within the SNA 2008 (PDF, 9.08MB) as " […] the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage".

Correspondingly, capital consumption of human capital stock could reflect any physical deterioration, or normal obsolescence, in that stock. Taking the example of physical deterioration, when people die, they effectively take the knowledge and experience – their human capital - with them. In the case of normal obsolescence, the economic value from knowledge and experience, such as a university degree, may decrease if it is not maintained through training and/or participation in the job market. Factors such as these would need to feature in a model of human capital consumption, which would then be netted off from GII each year (alongside consumption of other capitals) to calculate NII. Research has been undertaken to consider what this model might look like; for example, in Robert Dunn's 2022 publication Measuring Human Capital in the UK Economic Accounts: An experimental satellite account (PDF, 1.15MB). However, more research needs to be done to establish what would be feasible with current data sources, and then the estimates would need to be calculated accordingly.

Turning to natural capital consumption, this would account for the use of, and damage to, the environment each year such as reduced fish stocks, loss of land from rising sea levels, and damages from hurricanes and storms. However, when deciding how to calculate consumption of natural capital, two distinct concepts are given by the System of Environmental-Economic Accounting: Ecosystem Accounting (PDF, 5.98MB). This highlights the difficulty in translating the concept of capital consumption to natural capital: depletion and degradation. Depletion occurs when activity involving a natural resource is above the sustainable level; for example, the rate of reduction in the stock of a natural resource is larger than the rate of regeneration of the stock. It is a measure of how economic units cause a reduction in the stocks of environmental assets relative to the rate of regeneration. The focus is therefore on the specific benefit that each environmental asset offers to the economic unit taking part in its extraction and use. As a result, depletion could be considered as fairly closely aligned to how capital consumption is typically conceptualised within national accounts.

Degradation, on the other hand, is broader and looks at the changes in condition and future flows of ecosystem services from an environmental asset. For example, polluted rivers may result in the destruction of fish stocks. However, the reduction in fish stocks is not solely linked to this factor. Therefore, degradation focuses on the "capacity" of an environmental asset, in conjunction with other assets, to deliver broader ecosystem services. As a result, degradation is a more complex concept capturing the interconnectivity of natural capitals. Its use as a measure of capital consumption might require more fundamental changes to the treatment of other capitals to ensure consistency (for example, considering externalities). These more fundamental changes might be considered for future research into an "adjusted" inclusive income (AII) measure but would be out of scope of NII.

5 . Future developments

In the near future, the Office for National Statistics (ONS) plans to publish estimates for many of the data sources that will feed into both gross inclusive income (GII) and net inclusive income (NII). This includes data for quality-adjusted public services, unpaid household work, human capital, natural capital, and uncapitalised intangibles.

The timelines for these publications can be found in the New Beyond GDP measures workplan.

The ONS also plans to undertake research into what additional conceptual changes could be made to net inclusive income to construct a measure of adjusted inclusive income. This includes, for example, adjustment for the value of externalities or for changes in the distribution of income and consumption.

Finally, initial work towards developing a measure of inclusive capital broadly and conceptually consistent with inclusive income has been published alongside this article.

6 . Related links

New Beyond GDP measures for the UK: a workplan for measuring inclusive income
Article | Released 12 May 2022
Planned work, as well as timeline estimates, for projects feeding into a new measure of "inclusive income", aligned with the concept of "inclusive wealth".

Human capital estimates: supplementary tables
Dataset | Released 25 April 2022
Human capital stock and per head values, equating to lifetime labour earnings, supplementary to human capital stock publications.

UK natural capital accounts: 2021
Bulletin | Released 12 November 2021
Estimates of the financial and societal value of natural resources to people in the UK.

Inclusive capital stock, UK: 2019 to 2020
Article | Released 11 November 2022
Bringing together estimates of productive capital, natural capital and human capital, this article gives a picture of the UK's inclusive capital stock for 2019 and 2020.

7 . Glossary

Unpaid household production

Unpaid household production activity includes services provided by individuals in the household sector to each other (such as unpaid childcare, household housing services, nutrition, and laundry) as currently captured in the Office for National Statistics' (ONS') Household Satellite Account.

Gross inclusive income

A measure of economic welfare that builds on current gross domestic product (GDP) by capitalising additional capitals (such as natural capital and human capital) and expanding the scope of economic activity within the production boundary to include additional ecosystem services as well as unpaid household production.

Net inclusive income

Net inclusive income takes gross inclusive income and subtracts (in other words, nets off) capital consumption across all capital types, and flows of income and transfers from abroad.

Production boundary

Under the System of National Accounts 2008 (PDF, 9.08MB), the production boundary is generally defined as "activity carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital, and goods and services to produce outputs of goods or services. There must be an institutional unit that assumes responsibility for the process of production and owns any resulting goods or knowledge-capturing products or is entitled to be paid, or otherwise compensated, for the change-effecting or margin services provided."

8 . Cite this methodology

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