



EDUCATION EXPENDITURE DATA

CHALLENGES AND SOLUTIONS FORWARD

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AND STATISTICS**

INTRODUCTION

Expenditure is a critical input into the education system. It reflects the national commitment to education and has implications for equity. There are four education expenditure indicators in the SDG monitoring framework. Two indicators, which feature in the Education 2030 Framework for Action (FFA), have been benchmarked:

- Government expenditure on education as a percentage of gross domestic product (GDP) (FFA for shorthand) (at 4% to 6% of GDP)
- Public expenditure on education as a percent of total government expenditure (at 15% to 20% of total government expenditure) (part of SDG global indicator 1.a.2, which monitors SDG target 1.a to ensure ‘significant mobilization of resources ... to implement programmes and policies to end poverty’)

The other two indicators help monitor SDG target 4.5 to ‘ensure equal access to all levels of education’:

- SDG indicator 4.5.4: Expenditure on education per student by level of education and source of funding;
- SDG indicator 4.5.6: Expenditure on education by source of funding (public, private, international) as a percentage of GDP.

These latter indicators indicate not only government commitment to equity, but also help understand (i) education expenditure efficiency, as many factors determine outcomes for a given amount of expenditure, and (ii) the total amount of resources being mobilized for education by all actors in a country: government, households and official development assistance (ODA). Collectively, the indicators help monitor how much a country is investing in education; compare countries with each other and with global benchmarks; understand the efficiency of expenditure; understand how expenditure is used by countries; learn lessons from each other; and ultimately inform policy decisions around public expenditure allocations and equity. This position document presents how the indicators are currently measured; reviews the challenges that have been

identified with the current indicators and framework; and sets a forward agenda by identifying the main problems that need to be solved to serve the goal of the indicators.

METHODOLOGIES FOR REPORTING

The following boxes contain information on the data sources and methodology for each indicator.

Government expenditure on education as a percentage of GDP

Data sources

- Total government expenditure on education (from all levels of government and all entities): IMF Government Finance Statistics; UNESCO-OECD-Eurostat (UOE) data collection (expenditure is rigorously defined in the UOE data collection manual); or alternative publicly available sources.
- GDP: obtained from the World Bank.

Metadata: https://tcg.uis.unesco.org/wp-content/uploads/sites/4/2021/09/Metadata-FFA-1.a.gdp_.pdf

Public expenditure on education as a percentage of total government expenditure

Data sources

- Total government expenditure on education (from all levels of government and all entities): IMF Government Finance Statistics; UOE data collection (expenditure is rigorously defined in the UOE data collection manual); or alternative publicly available sources.
- Total general government expenditure (all sectors): IMF World Economic Outlook database when not included in the source of data (e.g. IMF Government Finance Statistics data use their estimate of total government expenditure).

Note: The [IAEG-SDG](#) decided in August 2022 that IMF data would be used when they exist for a country.

If IMF data are not available, UIS data will be used.

Metadata: <https://tcg.uis.unesco.org/wp-content/uploads/sites/4/2021/09/Metadata-1.a.2.pdf>

Expenditure on education per student by level of education and source of funding

Data sources

- Public expenditure on education by level: UOE data collection, based on government sources.
- Household expenditure on education by level: UOE data collection, based on household surveys.
- International expenditure: UOE data collection, based on government sources.
- Number of pupils per level: UIS country survey.
- Purchasing Power Parity (PPP) conversion factor: IMF World Economic Outlook.
- GDP per capita: IMF World Economic Outlook.

Metadata: <https://tcg.uis.unesco.org/wp-content/uploads/sites/4/2023/09/Metadata-4.5.4.pdf>

Expenditure on education by source of funding (public, private, international) as a percentage of GDP

The indicator uses initial financing on education as the source of financing, based on UNESCO National Education Accounts from 2016.

Data sources

- Initial public expenditure on education: UOE data collection on total public expenditure subtracting on-budget international expenditure.
- Total initial international expenditure on education: UOE data collection if available; otherwise, OECD Creditor Reporting System (CRS) database.
- Initial expenditure by international sources (ODA): OECD CRS database.
- Initial expenditure by international sources (non-ODA): Total expenditure from international sources minus initial expenditure by international sources.
- Initial expenditure by private sources (households): UOE data collection or national reports; household consumption survey reports, adjusted to a percentage of GDP using data on total consumption as a percentage of GDP (data not yet published but available from UIS on request).
- Initial expenditure by private sources (non-households): UOE data collection.
- GDP: World Bank (current GDP in local currency units).

Metadata: https://tcg.uis.unesco.org/wp-content/uploads/sites/4/2023/09/Metadata_4.5.6.pdf

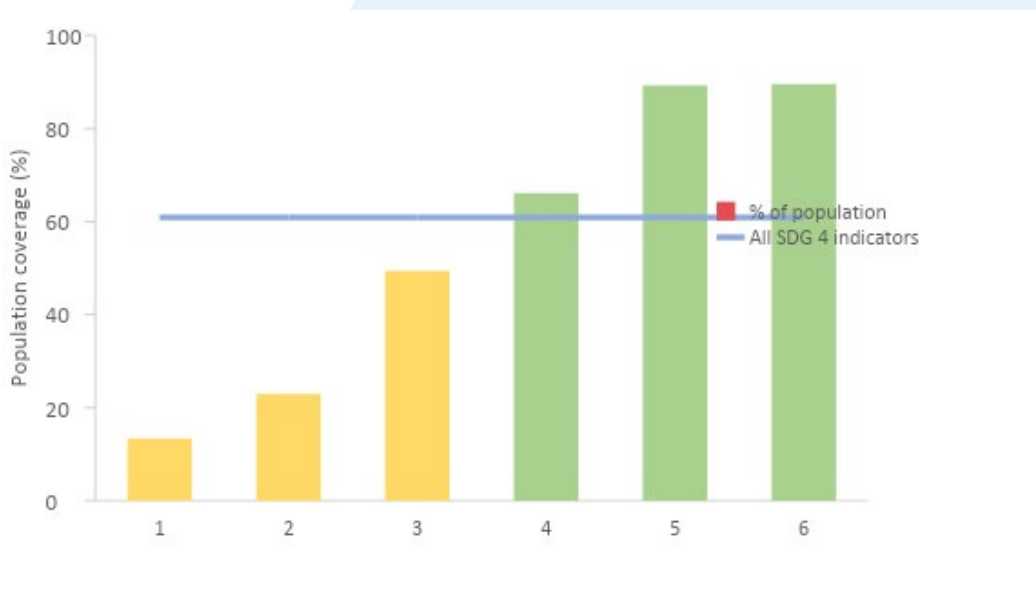
CURRENT CHALLENGES

Three main challenges affect the calculation of expenditure indicators.

Coverage

Apart from total public expenditure, there is quite low coverage for the indicators (**Figure 1**). Reporting of public expenditure by level is much lower than that of total public expenditure. Although the reasons for this have not been studied, it is likely due to the need for further processing by country respondents. Low coverage is a major issue for private expenditure. In the case of SDG indicator 4.5.4, data on household expenditure are available for only 13% of the population (or 26% of the total number of countries).

Figure 1. Percentage of population in countries covered with at least one data point, 2018–2022

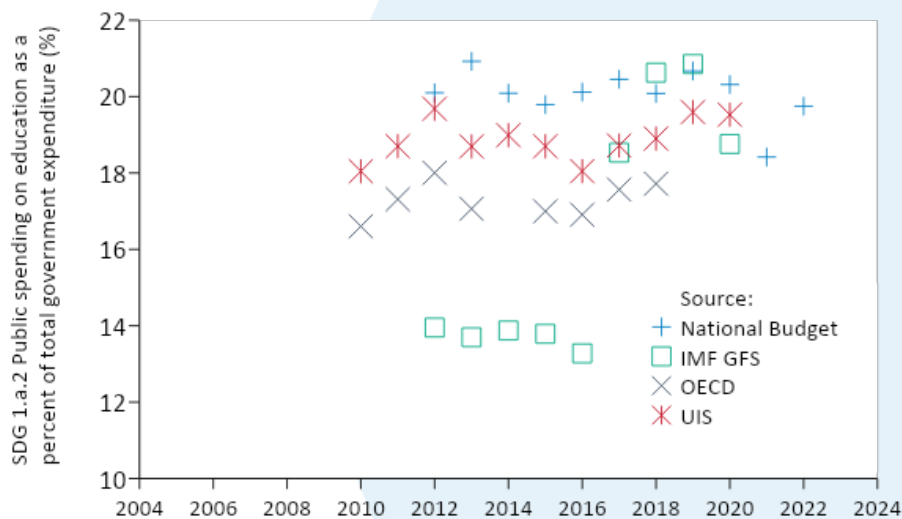


Conflicting data sources for public expenditure

While IMF GFS data are the preferred source of this indicator, coverage is limited and other data sources are also being used, including from the UIS. Many countries have multiple official estimates of education expenditure as a percent of total government expenditure. The IMF GFS, the UIS, World Bank BOOST, national budget figures and the OECD all publish official figures on this indicator. However, these different data sources often provide different estimates (**Figure 2**).

The UIS published a study in October 2020¹ comparing various sources of data on education expenditure as a percentage of total government expenditure including the data reported to the UIS by countries, the IMF GFS, the World Bank’s BOOST data, the data presented in World Bank Public Expenditure Reviews, and data presented in Country Status Reports in Africa. The study found considerable variation between sources on this indicator. Follow-up work² found that this is primarily due to differences in the numerator, that is, public expenditure on education (**Figure 3**).

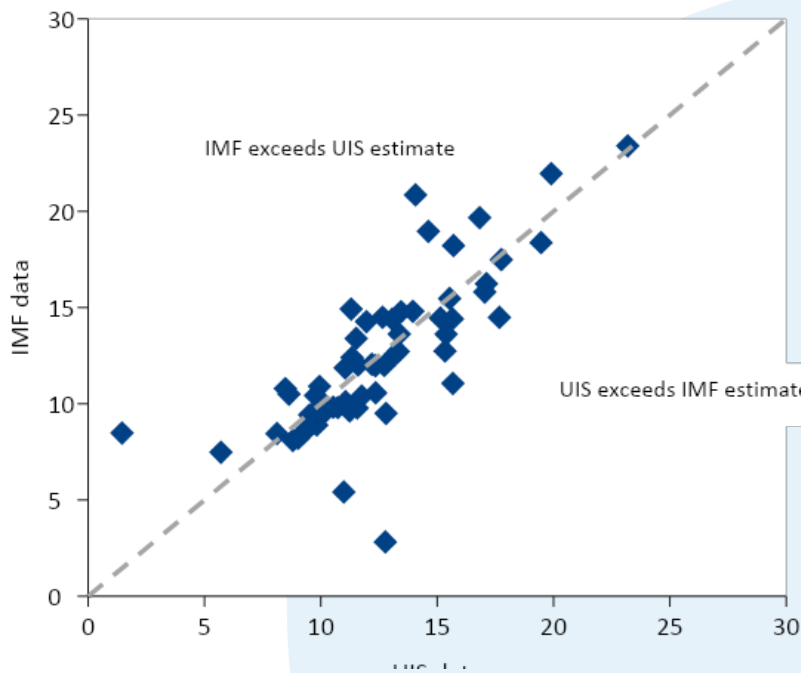
Figure 2. Public expenditure on education as a percent of total government expenditure by year and source: South Africa



¹ UIS (2020). *Producing internationally comparable education expenditure data*. TCG7/WG/F/REF/1.

² TCG Working Group on Education Expenditure Data WG/F/2021-07/1.

Figure 3. IMF and UIS data on education expenditure as a percentage of total government expenditure by country using the same denominator



Minor methodological differences exist between the UIS and IMF definitions of government expenditure on education that cannot explain the large differences in total public expenditure on education estimates:

- The definitions of education used by both the UIS and IMF to classify expenditure are generally similar, if not very clearly defined. Both manuals offer specific examples of what to include in some cases, but their examples are different. The UIS reports education expenditure on formal education programmes and defines government education expenditure as 'consolidated expenditure on educational goods and services made by local, regional and central governments.' While the UIS manual does not provide a definition of 'education goods and services', it explicitly states that it includes expenditure by all 'government ministries and agencies' providing education services. The IMF adopts the UN

Statistics Division's Classification of the Functions of Government (COFOG) classification system in which education is one of the categories.

- Both definitions include expenditure by ministries other than education and at various levels of government. For instance, the IMF explicitly notes expenditure by 'military schools and colleges where curricula resemble those of civilian institutions, police colleges offering general education in addition to police training and the provision of education by radio or television broadcasting.'
- There is some difference in the definition of expenditure in general (as opposed to expenditure in education expenditure) between the UIS and IMF. However, the two definitions generally overlap except for 'consumption of fixed assets' which the IMF explicitly includes and of 'net investment in financial assets' which the IMF explicitly excludes. Neither of these is mentioned explicitly in the UIS manual. However, these are likely to result in small differences in expenditure figures between the UIS and IMF.

Apart from differences in what the manuals explicitly define as being part of education expenditure, there appears to be little reason to believe that the definition of education is a source for the differences in the total expenditure figures.

Private expenditure measurement

The UIS Survey of Formal Education, as part of the UNESCO-OECD-EU joint data collection, asks countries about government expenditures and transfers, including from international sources as well as private expenditure. Because these data have limited coverage, especially for household expenditure in low and middle income countries (UNESCO 2022:398), the 2022 GEM Report created a data set of household education expenditure augmenting data collected by the UIS and OECD Education at a Glance by reviewing reports of national consumption surveys and combining this with data on consumption as a percentage of GDP to estimate household expenditure on education as a percentage of GDP. This resulted in estimates of household expenditure on education as a percentage of GDP for nearly 150 countries.

The main limitation for household survey data sources is the lack of comparability of reported household expenditure across countries. This includes differences in whether expenditure is collected for a specific child or the household as a whole, the recall period and in items included under education that households are asked to report on. These limitations are described in more detail in the 2021/2 GEM Report (UNESCO 2022: 398) and in the 2022 Education Finance Watch (UNESCO and World Bank 2022: 20). Data collection through household surveys to produce education indicators is further discussed in the household survey position paper.

AGENDA FORWARD

Solutions to the above challenges need to be identified in the following directions.

Harmonizing FFA and 1.a.2 indicators

As discussed above, there are a number of different data sources on indicators FFA and 1.a.2 reported by governments, either to the UIS or other entities. The current practice is to use IMF GFS data when available. However, these can conflict with official data reported by education ministries. They can also be different than data reported by other sources, like any single source. As seen above, prior to 2017, the IMF data on South Africa were much lower than those from three other sources (**Figure 2**). Finally, there are many cases when IMF GFS data are not available.

The **objective** is to identify the preferred method for harmonizing FFA and 1.a.2 estimates, given the many official sources. Approaches discussed include:

1. Ranking: This is the current approach which considers the IMF GFS as the preferred source.
2. Median value: With this approach, the median value for each year is taken which results in a value for each year that is less influenced than the average value each year by any outlier values.
3. Linear trend: A linear trend is estimated using a linear regression model (**Figure 4**).
4. Empirically informed ranking: With this approach, the highest ranked data source is the one that is closest to the linear trend (**Figure 5**).

Figure 4. Harmonization of SDG indicator 1.a.2 values using the linear projection approach, South Africa

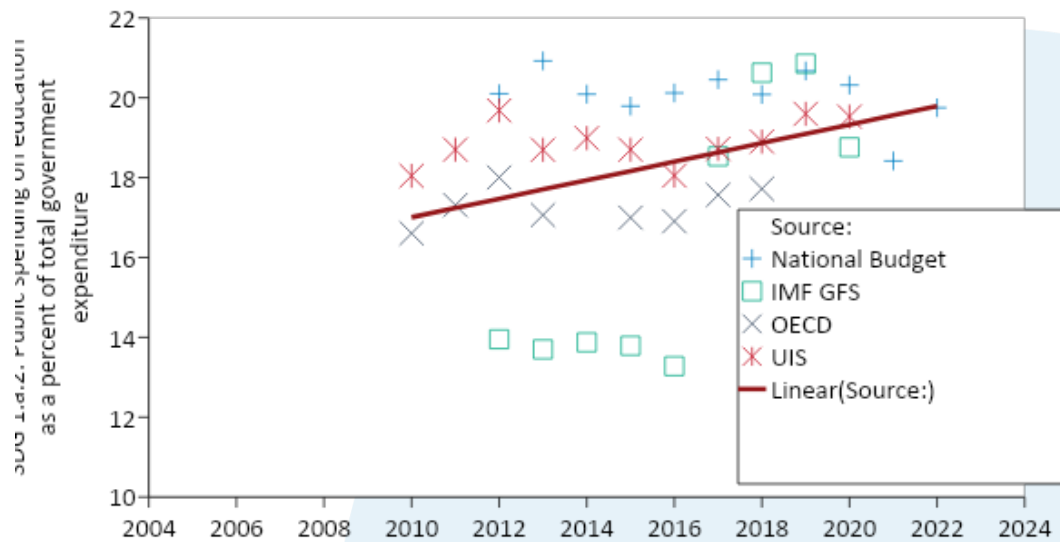
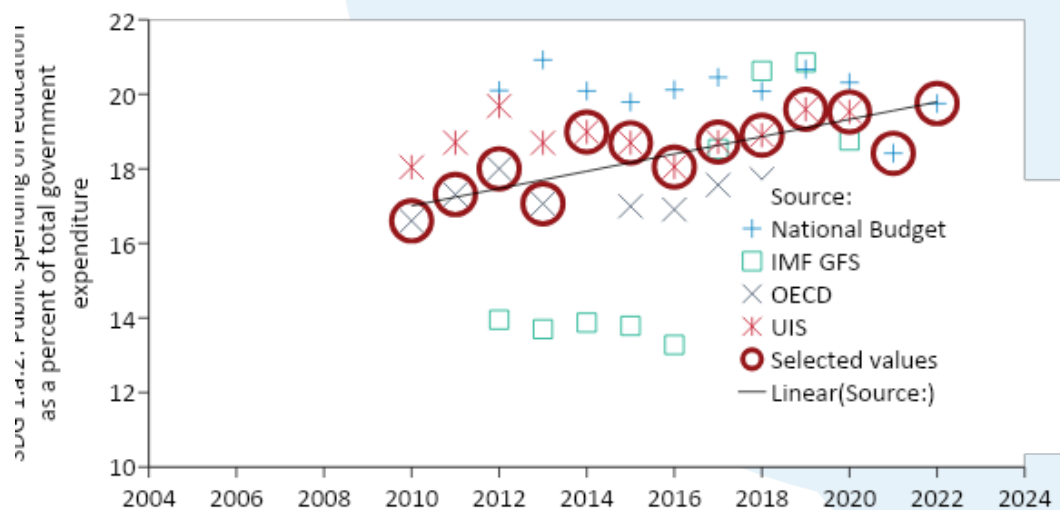


Figure 5. Harmonization of SDG indicator 1.a.2 values using empirically informed ranking approach, South Africa



Note: Highest ranked sources are closer to the linear trend.

Simplify the data collection instruments

The UIS Questionnaire B on Education Expenditure requires reporting some 440 data points. This is extremely time consuming for government respondents. The questionnaire is not only used to produce SDG indicators but also other policy relevant indicators. The number of data points required to collect data just for FFA, 1.a.2, 4.5.4 and 4.5.6 would be less than 100.

The questionnaire asks for expenditure amounts by type of expenditure and by education level. There are 30 different types of expenditure, which include both public and private expenditure on education. Under public expenditure, categories include expenditure on public and private educational institutes, intergovernmental transfers, expenditure by regional and local governments, subsidies to households, staff compensation, and recurrent and capital expenditure, among others. There are nine levels of education from early childhood development up to tertiary including a category for expenditure that is not distinguishable by level.

Providing the education amounts requested in the questionnaire generally requires the respondent to do research and make a number of calculations. Educational expenditure often occurs not only at more than one level of government (e.g. national, provincial and local) but also by multiple ministries: some have their own vocational colleges, while social ministries provide direct subsidies for education to poor households, among others. There is the issue of what constitutes educational expenditure (e.g. expenditure on goods and services vs financial instruments), how to distinguish various types of expenditure (recurrent vs capital) and how to allocate amounts by level when the data sources on expenditure are aggregated. These definitions and methodologies are presented in Section 5 of the Instruction Manual for the Survey of Formal Education.³

The **objective** is to review and identify needed adjustment in the data collection process to increase coverage. As discussed previously, potential elements of a revised approach include the following:

³ See <http://uis.unesco.org/en/methodology>.

- Simplify or prioritize FFA and SDG indicators in the UIS questionnaire on expenditure: Only the data fields needed for SDG monitoring should be kept or, at least, could form the first part of the questionnaire, to focus the respondents' efforts on answering the specific fields needed.
- Provide clear guidelines to UIS survey respondents on how they can obtain the data needed to fill out the fields: For example, respondents could be guided how to request finance ministries to generate reports or how to read household survey national reports.
- Collect metadata on the source of expenditure information for the SDG indicators, possibly by using a checklist for what expenditure is included, for example, from all ministries, government units and subnational jurisdictions.

Private expenditure

Measuring private expenditure on education generally relies on household survey data, including data reported by governments to the UIS and data collected by the UIS or others directly from national reports.

There are a number of challenges with estimating household expenditure on education from household surveys, particularly relating to issues including the structure of the questionnaires and recall time.

The **objective** is to identify tools to improve collecting and reporting household education expenditure. Given the variation in how education expenditure data are collected from households using consumption or other surveys, guidance could be provided to:

- national statistical offices on how to design household survey questionnaires, including on the ideal recall period, whether expenditure should be asked about each child rather than the household, the level of education for data collection, how data should be recorded in national reports of household surveys among other issues.
- ministries of education on how to take household consumption measured in consumption surveys and convert it to an estimate as a percentage of GDP; for example, many surveys use the Classification of Individual Consumption According to Purpose (COICOP) of

consumption items, but pre-primary and primary education are sometimes merged together.