

EDUCATION EXPENDITURE INDICATORS: WHAT ARE THE CHALLENGES GOING FORWARD?

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ABSTRACT

This paper reviews the key measurement issues for the SDG indicators related to expenditure including FFA. Government expenditure on education as a percentage of GDP, 1.a.2 (Government expenditure on education as a percentage of total government spending), 4.5.4 (expenditure per pupil by source) and 4.5.6 (Expenditure on education by source of funding). The paper then proposes an agenda for moving forward: a set of key topics for discussion in future working groups are proposed. The main challenges identified in this paper are (1) coverage of indicators particularly those measuring non-government expenditure, (2) the numerous and conflicting *official* sources of data for public expenditure on education, (3) the challenges measuring private expenditure particularly expenditure by households, and (4) the link between expenditure benchmarks and educational outcomes including equity. The following topics for working group discussions going forward are proposed:

1. **Harmonizing FFA and 1.a.2:** to identify preferred method for harmonizing FFA and SDG 1.a.2 given the multitude of official sources
2. **Improving data collection:** review and identify revisions to the data collection process to increase coverage
3. **Private expenditure:** to identify tools to improve collecting and reporting household education expenditure (e.g.: guidance to NSO on household survey questionnaire design or to governments on estimating expenditure nationally). The data collection through household surveys to produce education indicators is further discussed in the HHS position paper.

1. Introduction

A. SDG Education Expenditure indicator framework and motivation

- expenditure is a critical input into the education system, reflects national commitment to education and has implications for equity

FFA Education 2030 Framework for Action

FFA. Government expenditure on education as a percentage of GDP

Target 1.a: Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions

1.a.2: public expenditure on education as a percent of total government expenditure

Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

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

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

- In addition to equity and government commitment, expenditure data is also used by researchers to better understand how efficient education expenditure is as many factors determine outcomes for a given amount of expenditure; indicators also measure the amount of resources being mobilize in a country by all actors (government, households directly, and development partners)
- Benchmarking has currently been set up for 1.a.2 and FFA: the benchmarks are 15 and 20 percent for expenditure as a percent of total government expenditure and 4 and 6 percent for expenditure as a percent of GDP--these benchmarks were established as part of the Education 2030 Framework for Action and reflect the need of target 1.a to measure the commitment of governments to mobilize public resources for education
- Goals of the indicator: monitor how much a country is investing in education (through government or from households directly, through allocation of ODA, etc), compare across countries and with global benchmarks, understand how efficient expenditure is being used by countries and to learn lessons from each other, but ultimately to inform policy decisions around public expenditure allocations and equity

B. Purpose of the position document

- present how the indicators are currently measured
- review the challenges that have been identified with the current indicators / framework
- set the agenda for the main problems that need to be solved in order improve the goal of the indicators

2. Current methodologies for reporting SDG expenditure indicators

- indicator by indicator, summarize the current methodologies, sources and rationale for methodologies as well as benchmarking where applicable (note benchmarking methodology different than what is being done from the other indicators)

Data sources for FFA: Government expenditure on education as a percentage of GDP

- **Total government expenditure on education** (from all levels of government and all entities) as reported by the IMF Government Finance Statistics (GFS), through the UNESCO-OECD-Eurostat (UOE) data collection (expenditure is rigorously defined in UOE data collection manual) or through alternative publicly available sources
- **Gross domestic product (GDP):** obtained from the World Bank.

See metadata:

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Data sources for 1.a.2: public expenditure on education as a percent of total government expenditure

- **Total government expenditure on education** (from all levels of government and all entities) as reported by the IMF Government Finance Statistics (GFS), through the UNESCO-OECD-Eurostat (UOE) data collection (expenditure is rigorously defined in UOE data collection manual) or through alternative publicly available sources
- **Total general government expenditure (all sectors):** obtained from the International Monetary Fund's World Economic Outlook database when the source of data does not include it (e.g.: IMF GFS data would use the IMF GFS estimate of total government expenditure)

Note: the [IAEG-SDG](#) has decided on 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.

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Data sources for 4.5.4 Expenditure on education per student by level of education and source of funding

- **Public expenditure on education by level:** as reported in the UOE data collection survey by country respondents based on government sources (see above)
- **Household expenditure on education by level:** as reported in the UOE data collection survey by country respondents typically based on household surveys
- **International expenditure:** as reported in the UOE data collection survey by country respondents based on government sources
- **Number of pupils per level:** as reported by government respondents in the UIS country survey
- **Purchasing Power Parity Conversion Factor:** IMF World Economic Outlook (for reporting in PPP terms)
- **GDP per capita:** IMF World Economic Outlook

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Data sources for 4.5.6 Expenditure on education by source of funding (public, private, international) as a percentage of GDP

The indicator uses initial financing on education for source of financing based on UNESCO National Education Accounts from 2016

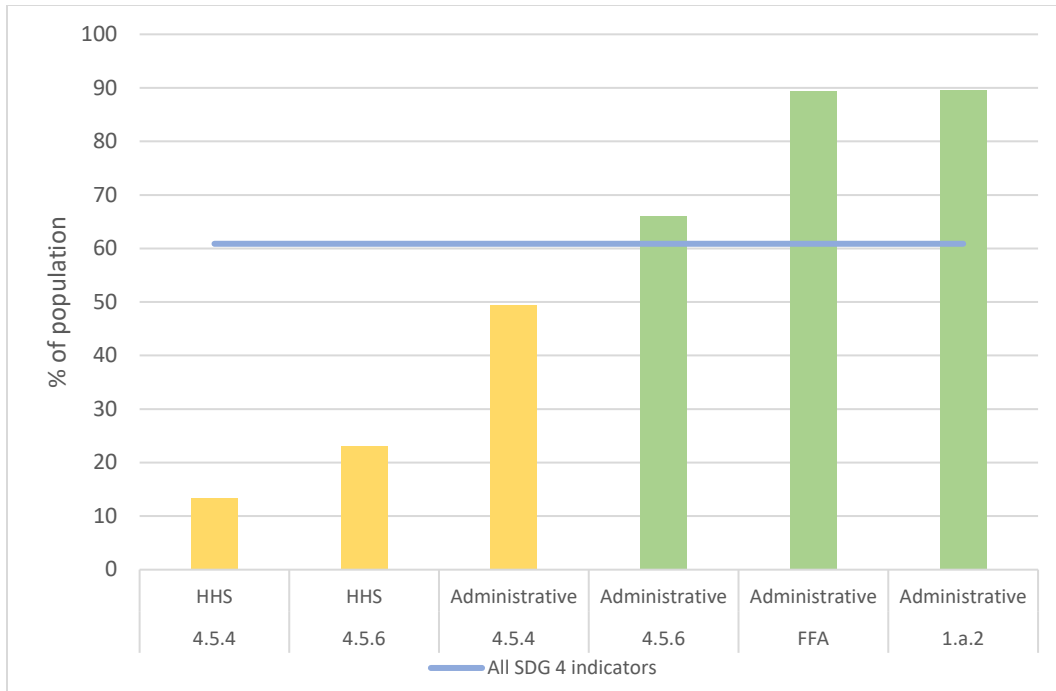
- **Initial public expenditure on education:** total public expenditure on education as reported through the UOE survey by government respondents subtracting on-budget international expenditure.
- **Total initial international expenditure on education:** as reported through the UOE survey if available otherwise ODA financing for education is used from the OECD CRS database
- **Initial expenditure by international sources ODA:** as reported to through the OECD CRS database
- **Initial expenditure by international sources non-ODA:** total expenditure from international sources minus Initial expenditure by international sources ODA
- **Initial expenditure by private sources households:** as reported by government through the UOE survey or by using household consumption on education as reported in national reports of household consumptions surveys and adjusted to a percent of GDP using data on total consumption as a percent of GDP (this data varies by country and has not yet been published but available from the UIS on request)
- **Initial expenditure by private sources non-household:** as reported through the UOE survey
- GDP: World Bank current GDP in local currency units

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3. Current challenges

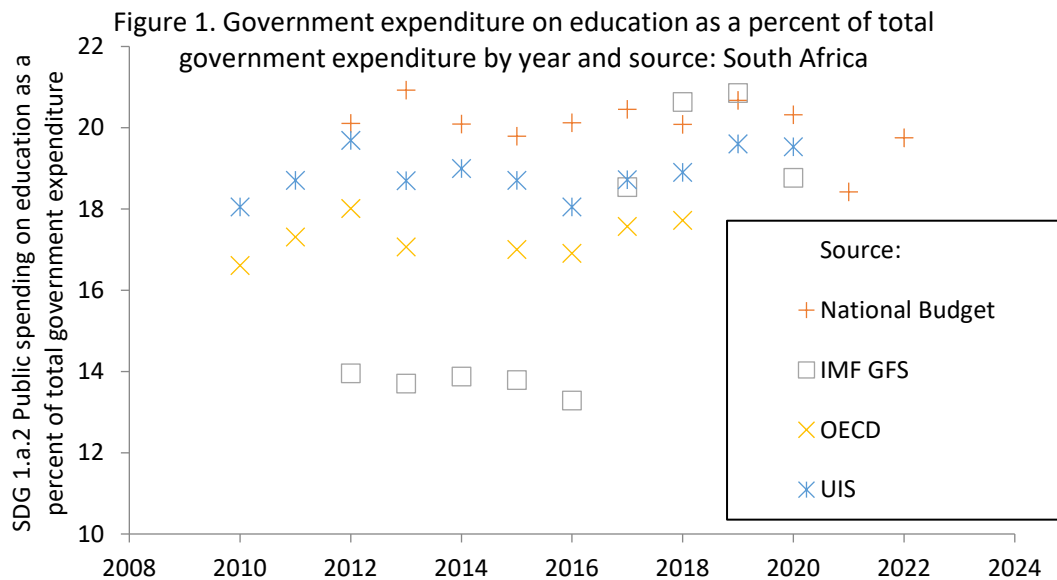
A. Coverage

- apart from total public expenditure, there is quite low coverage for indicators (see figure)
- reporting of public expenditure per level is much lower than that of total public expenditure, though reasons have not been studied, likely due to the need for further processing by country respondent
- low coverage is a major issue for private sources. Household expenditure is not reported except for a few examples: for 4.5.4 from household surveys is available for only 13% of the population (or 26% of the total number of countries)



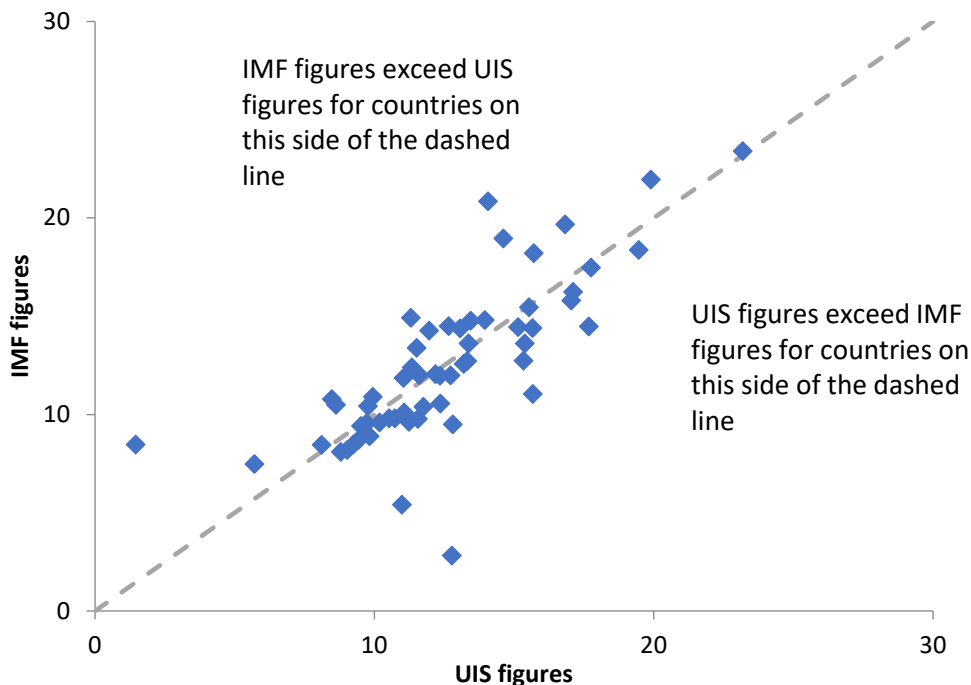
B. Conflicting data sources for public expenditure

- as discussed previously, IMF GFS data is the preferred source of this indicator; however, coverage is limited and UIS and other data sources are also being used
- however, many countries have multiple official estimates of education expenditure as a percent of total government expenditure: the IMF GFS, UIS, World Bank BOOST, national budget figures, OECD all publish official figures on this indicator
- But: these different data sources often provide different estimates of the same thing, e.g.: figure



- The UIS published a study in October 2020¹ comparing various sources of data on education expenditure as a percent 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 Public Expenditure Reviews, and data presented in the Education Country Status Reports. The study found considerable variation between sources. Follow-up work² has also found that these differences exist primarily due to differences in the numerator, that is, public expenditure on education (eg next figure)

Figure 2. IMF and UIS figures on education expenditure as a percent of total government expenditure by country using the same number for total government expenditure (i.e.: same denominator)



- methodological differences appear to be quite minor and not explanation for why we see large differences in estimates of total public expenditure on education. The following from previous proposal:
- *Only minor differences are found between the UIS and IMF definitions of government expenditure on education.* Definitions of education appear to be similar if not clearly defined; both manuals offer specific examples of what to include in some cases but their examples are different. Both definitions include expenditure by ministries other than education and at various levels of government. There is some difference in the definition of expenditure in general (as opposed to education on expenditure) between the UIS and IMF; however, their two definitions generally overlap with the exception of “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.
- *Definition of education expenditure:* The definitions of education used by both the UIS to classify expenditure are generally similar if not well defined. The UIS reports education expenditure on formal

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

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 mentions 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. The IMF explicitly notes that 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.” Apart from differing in what the manuals explicitly note 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.

C. Private expenditure measurement

- The UIS’s 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 this data has limited coverage especially for household expenditure in low and middle income countries (UNESCO 2022:398), the GEMR 2022 created a dataset of household education expenditure augmenting data collected by the UIS and OECD Education at a Glance by reviewing the reports of national consumption surveys and combining this with data on consumption as a percent of GDP to estimate household expenditure on education as a percent of GDP. This resulted in estimates of household expenditure on education as a percent of GDP for nearly 150 countries.
- The main limitation for household survey data source lies in the comparability of reported household expenditure across countries: these include differences in whether expenditure is collected for a specific child or the household as a whole, differences in the recall period, and differences in items included under education that households are asked to report on. These limitations are described in more detail in the 2021/2022 GEMR (UNESCO 2022:398) and in EFW 2022 (UNESCO and World Bank 2022:20).
- The data collection through household surveys to produce education indicators is further discussed in the HHS position paper.

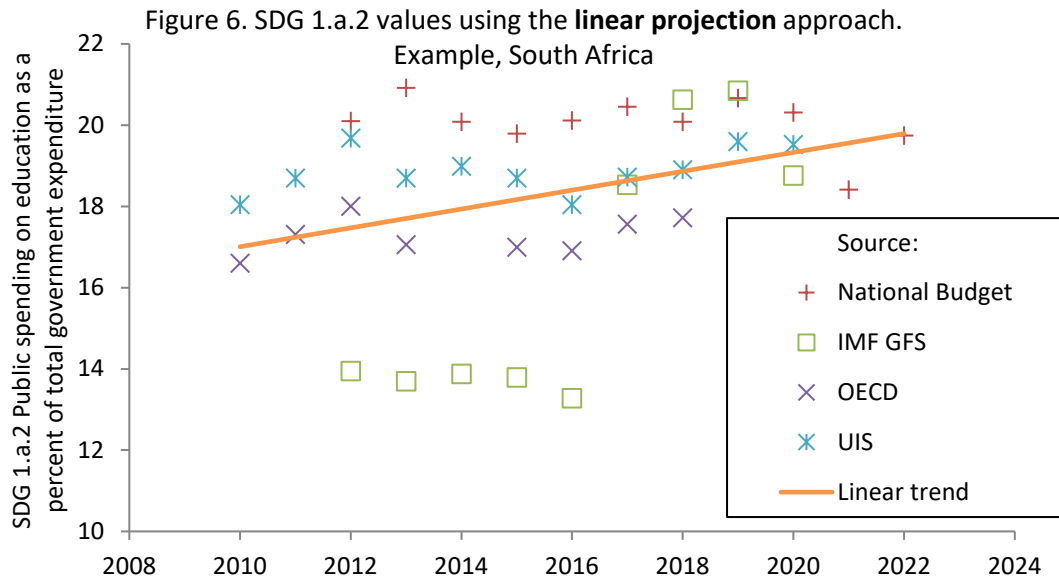
4. Agenda: what are the key discussions needed going forward?

A. Harmonizing FFA and 1.a.2

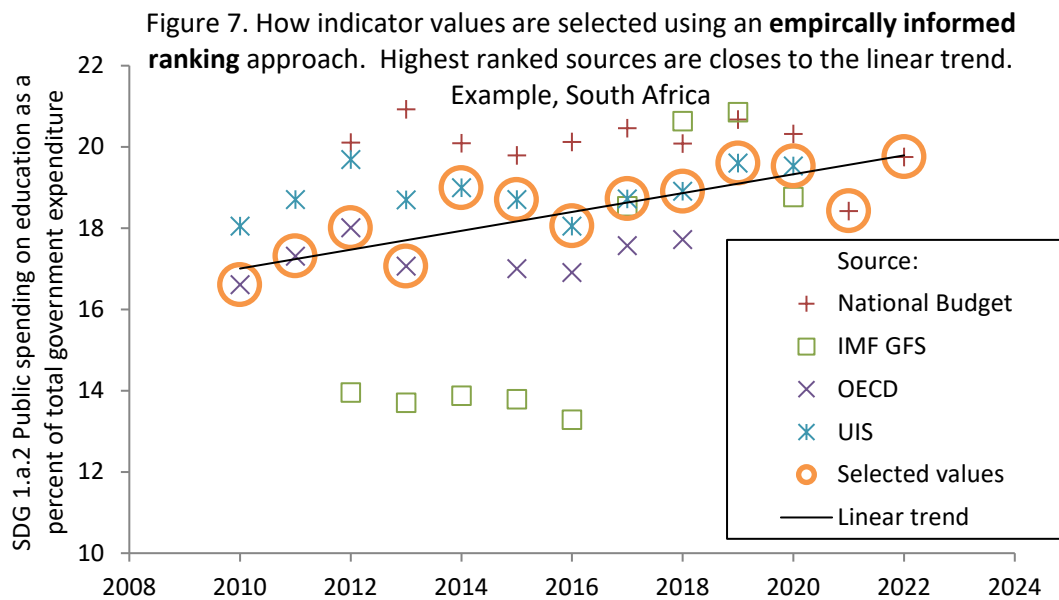
- as discussed above there are a number of different sources of FFA and 1.a.2 reported by government either to the UIS or other entities
- the current practice is to use the IMF GFS source, when available; however, this figure can conflict with the official figure that the education ministries are reporting, it can (like any single source) also be different than figures reported by other sources, e.g.: figure above on South Africa, prior to 2017, the IMF figures were much lower than the other three sources
- finally, there are many cases when IMF GFS data is not available

Objective of this agenda item: to identify preferred method for harmonizing SDG FFA and 1.a.2 given the multitude of official sources

- A number of approaches have been discussed so far
 1. **Ranking:** which is currently the approach with the IMF GFS source as the preferred source
 2. **Median value:** In 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 (see Figure)



4. **Empirically informed ranking:** whereby the highest ranked data source is the one that is closest to the linear trend



5. **Other modeling approaches:** there are also more sophisticated modeling approaches including the Bayesian methods used by the GEMR and UIS to estimate completion rates and out-of-school children
- Other questions surround what the role of the UIS should be in reporting 1.a.2; for example, should government report the indicator directly (i.e.: instead of reporting the amount of public expenditure and the UIS calculating the indicator, official education ministry statistical digest or education annual reports report this indicator in many countries already though using different methodologies)?
- Should the selected source, wherever the approach taken, be used as well to calculate the rest of expenditure indicators such as 4.5.4 and 4.5.6 for the initial government spending component?

B. Simplify the data collection instruments

- The UIS Questionnaire B on Education Expenditure requires reporting many data points (around 440) which is extremely time consuming for government respondents because it is not only used to produce SDG but also Other policy relevant indicators (OPRI). 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.
- In fact, it asks for expenditure amounts across two dimensions: type of expenditure and 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 as well as amounts for staff compensation, 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 versus provincial versus local) but also by multiple ministries, including ministries responsible for specific industries having their own vocational colleges and social ministries providing direct subsidies for education to poor households, among many others. Then, there is the issue of what constitutes educational expenditure (e.g.: expenditure on goods and services versus financial instruments), the definitions of the various types of expenditure (recurrent versus capital), and how to allocate amounts by level when data sources on expenditure are aggregate. These definitions and methodologies are presented in Section 5 of the Instruction Manual Survey of Formal Education³.

Objective of the agenda item: review and identify revisions to the data collection process to increase coverage

- Potential elements of revised approach might include (some of these have been discussed previously):
- **Simplify or prioritize FFA and SDG indicators in the UIS expenditure on questionnaire:** 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.
- **Clear guidelines on how UIS survey respondents can obtain the data needed to fill out the fields,** e.g.: to request MoF to generate a report, etc. how to read household survey national reports, etc.

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

- **Collect metadata on the source of expenditure information for the SDG indicators or a checklist** (e.g.: was expenditure from all ministries / government units / sub-national jurisdictions included, etc)
- The various proposals come with trade-offs and need to be assessed

C. Private expenditure

- Measuring private expenditure on education generally relies on household survey data (whether reported by government to the UIS or UIS or others collecting the information from national reports directly)
- There are a number of issues with the estimating household expenditure on education from household surveys, particularly around the structure of the questionnaires, recall time, etc.
- The collection of data through household surveys to produce education indicators is further discussed in the HHS position paper.

Objective of the agenda item: to identify tools to improve collecting and reporting household education expenditure (e.g.: guidance to NSO on household survey questionnaire design or to governments on estimating expenditure nationally)

- given the variation in how education expenditure data is collected from households using consumption or other surveys, a guidance note on best-practice for education modules in household surveys could be developed
- e.g.: what is the ideal recall period, should expenditure be asked about each child rather than the household, the level of education should be collected, etc. and how this data should be reported in national reports of household surveys
- guidance is also needed by MoEs on how to take household consumption measured in consumption surveys and converted to an estimate as a percent of GDP for instance
- e.g.: Many surveys use COICOP classification of consumption items but pre-primary and primary are sometimes merged together
- relies on household surveys, but this means that household surveys need to included correct questions, how to build capacity with NSO's? Through education ministries? Or should it be a directive from MoF and UIS to produce guidance to NSOs?