Improving the international monitoring framework to achieve equity (SDG 4.5): Indicator 4.5.3

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Summary

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

> *Indicator 4.5.3: Extent to which explicit formula-based policies reallocate education resources to disadvantaged populations*

This short note examines the formulation and the technical operationalization of Indicator 4.5.3 of the Thematic Indicators to Monitor the Education 2030 Agenda proposed by the Technical Advisory Group (TAG). It highlights shortcomings of the TAG's current proposal and discusses possibilities for moving forward.

It is recommended that the indicator in its current form be reformulated to enable robust and accurate operationalization, better alignment and interpretation, and communicability. Furthermore, while SABER provides a picture to illustrate what is feasible, this note argues that SABER should not be considered as a main source, because prospects for scaling up and including developed countries are fairly low.

This note also proposes alternative solutions to ensure that the intention behind Indicator 4.5.3 remains monitored, and that even in the absence of sufficient data, a minimum placeholder indicator is used to provide the global community with a monitoring mechanism. Finally, it argues for the short-term feasibility of creating an index of access to domestic education resources from learning assessments in order to calculate a placeholder for Indicator 4.5.3.

In the meantime, two parallel streams should be pursued: i) a medium-term work stream that comprises standardized, qualitative, and well-framed questions in UIS and UOE annual education surveys in order to monitor the existence of reallocation mechanisms in all countries (data should be available end of 2017 at the latest); and ii) a long-term work stream that expands the NEA methodology to include education expenditures towards disadvantaged populations as part of the general tracking and reporting of education expenditures (data should be available within 5 to 7 years).

The recommendations made in this note are based on two sets of criteria. The first set is the one used in the TAG proposal: relevance, alignment, feasibility, communicability and interpretability. The second clarifies the notion of relevance, and discusses how the objects of monitoring should be defined and at which point in the process the monitoring should be done in order to determine how comprehensive the monitoring of financing mechanisms to support equity could be.

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1. Introduction

In October 2015, The Technical Advisory Group on Thematic Indicators to Monitor the Education 2030 Agenda recommended a list of 43 indicators for the monitoring framework. The recommendations were based on the following five criteria: relevance, alignment, feasibility, communicability and interpretability (UNESCO Institute for Statistics, 2015). There is some indication, however, that certain indicators were not subject to the same scrutiny than others and were included in the final list as the expression of an intention rather than a final proposal. Such is the case with Indicator 4.5.3: "Extent to which explicit formula-based policies reallocate education resources to disadvantaged populations", which is complemented in the proposal by the statement "A reporting process will be established to describe and assess country policies on expenditure allocation."

Proponents of the indicators have suggested that this indicator should derive from the SABER School Finance data collection[1] (World Bank, 2013), which measures the extent to which more resources are provided to those in need. It defines two policy levers: 1) the existence of policies that provide more public resources to students from disadvantaged backgrounds; and 2) the proportion of income dedicated to school costs for low-income families.

Further analysis of the validity and relevance of Indicator 4.5.3 suggests that both its formulation and its technical operationalization are not realistic or, at best, need to be re-defined. Indicator 4.5.3 suffers from limitations based on the initial conceptual framework used by the TAG to select indicators. In particular, there is a lack of clarity in the actual wording of the indicator, misalignment between the target and its operationalization (e.g. the technical solution proposed) and, due to these factors, limited feasibility and communicability.

This short note proposes a way forward that ensures the intention behind Indicator 4.5.3 is actually monitored in the short-term (through the use of a placeholder indicator, for instance) and explores potential roadmaps towards a sound monitoring of the concept behind it.

2. Limitations of the current proposal

a) Misalignment between initial intention and current formulation

The current intention of Indicator 4.5.3 is to "capture the effort countries make to equalise education opportunities through their financing system." It is recognized that "[t]he specific formulation reduces the scope of the indicator in two ways. First, it refers to 'education' resources, while other resources (e.g. cash transfers under the social protection budget) can also help equalise education opportunities. Second, it refers to 'formula-based' resource reallocation, while other approaches can also be used for this purpose." (UNESCO Institute for Statistics, 2016)

The first limitation is difficult to address, as it would require an assessment of the share of social protection packages that either: i) is being used by households to access and participate in education; or ii) reduces the marginal cost supported by educational investment and associated with the trade-off between investing in education or other social sectors.

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[1] It is also suggested that the United Nations Economic Commission for Latin America and the Caribbean (ECLAC/CEPAL) has carried out country reviews of social protection systems that collect similar data that is used for regional comparisons. This work has not, however, been summarized in a way that would enable standardized and harmonized production of indicators and as such will not be addressed in this note.

The second limitation, however, could be further discussed, as it refers to a specific mechanism that: i) may not be the main redistribution mechanism; ii) would be quite country-specific as the most disadvantaged population groups, and the unit targeted by an existing formula, would differ; iii) may not cover the distribution of some important resources, including teachers (e.g. are the more qualified and experienced teachers allocated to those most in need?).

Contrary to many of the other indicators proposed, where the formulation is precise and the scope and methodology are well-defined, the current formulation of Indicator 4.5.3 is imprecise and requires significant methodological assumptions before attempting any operationalization. For example, Indicator 4.18 reads "Percentage of students in primary education whose first or home language is the language of instruction" and Indicator 4.20 reads "Education expenditure per student by level of education and source of funding". In between, Indicator 4.5.3 doesn't define any education level at which it might apply, provide a definition of disadvantaged populations, or specify resources (public, private, international etc.). Finally, it can also be argued that "extent to which" is not a concept that is easily defined without a baseline or scale (as opposed to a percentage of expenditures, for instance).

Taking the above into account, the first recommendation of this short technical note is to consider a reformulation of Indicator 19 in order to: i) better reflect the initial intention; and ii) enable adequate and robust operationalization of the indicator.

b)   Issues with the proposed operationalization of the indicator

Beyond the misalignment between the intention and the actual formulation of Indicator 4.5.3, one critical issue is the misalignment between the formulation of the indicator and the proposed methodology.

The indicator is expected to measure the "degree of national financing policy's commitment to equalize education opportunity to primary and secondary education" and "could be rated by four levels: i) Very low; ii) Low (e.g. there are policies to provide more resources to disadvantaged schools/students); iii) Medium (e.g. which reallocate at least x% of the education budget); iv) High (e.g. are well targeted and effectively monitored)."(UNESCO Institute for Statistics, 2016).

The first consideration here is that the proposed categories are a mix of qualitative data, obtained from policy documents and legislation (Levels i and ii) or budget planning and monitoring (Level iv), and quantitative data (Level iii), derived from an in-depth analysis of budget lines. The TAG proposes that the operationalization of the indicator relies on the data collected in SABER-s School Finance's *Policy Goal 5: Providing more resources to students who need them.*

The SABER-School Finance questionnaire does not necessarily provide the means to respond with the level of detail envisaged in the description of Indicator 4.5.3[2]. In particular, it appears that even a discrete and ordered categorical measurement of a national policy's commitment to equalise education opportunities is not possible from SABER data. At best the data provides a binary indicator on policy design (i.e. there is a mechanism or there isn't) but won't measure whether this is formula-based, or to what extent resources are reallocated (either in terms of needs vs reallocation or in absolute terms).

Additionally, the formulation of the actual questions in SABER might induce an upward bias in terms of coverage, as the questions are quite general and don't refer to formula-based allocation. An example of the SABER output is provided in Table 1.

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2   See the SABER-School Finance questionnaire for more details
       http://wbgfiles.worldbank.org/documents/hdn/ed/saber/supporting_doc/Background/FIN/Questionnaire_School_Finance.pdf

Table 1. SABER school finance data

	Guinea	Jamaica	Paraguay	Serbia
Are there policies to provide more public resources to schools or households with socio-economically disadvantaged students?	Yes, there are policies to provide additional resources to schools or households, and all schools or households that meet the criteria are eligible	Yes, there are policies to provide additional resources to schools or households, and all schools or households that meet the criteria are eligible	Yes, there are policies to provide additional resources to schools and/or households, but only some schools or households that meet the criteria are eligible	Yes, there are policies to provide additional resources to schools or households, and all schools or households that meet the criteria are eligible
How are the needs of socio-economically disadvantaged students identified?	Analysis of household survey data (proxy means test) is performed	Analysis of household survey data (proxy means test) is performed	Needs are projected from historical levels without use of household survey data or targeting is primarily geographical based	Needs are projected from historical levels without use of household survey data or targeting is primarily geographical based
Are there policies to provide more resources to schools or households with other disadvantaged students (ethnicity, gender, native language, urban/rural)?	Yes, there are policies to provide additional resources to schools and/or households, but only some schools or households that meet the criteria are eligible	No, there are no policies to provide additional resources	Yes, there are policies to provide additional resources to schools or households, and all schools or households that meet the criteria are eligible	Yes, there are policies to provide additional resources to schools or households, and all schools or households that meet the criteria are eligible
How are the needs of other disadvantaged students (ethnicity, gender, native language, urban/rural) identified?	Analysis of household survey data (documenting inequities) is performed		No clear method for identifying needs	Needs are projected from historical levels without use of household survey data or targeting is primarily geographical based
Where do students with disabilities or special needs receive their education?	Special schools and mainstream education	Special schools	Special schools and mainstream education	Special schools and mainstream education
Which special needs are met?	Yes, mobility, visual or hearing special needs are met	Yes, socio-emotional as well as cognitive and mobility, visual or hearing special needs are met		

Source: http://saber.worldbank.org/index.cfm?indx=4

c)   Feasibility and communicability

Current coverage of SABER is limited to four countries (those included in Table 1). Prospects for the whole SABER-School Finance exercise to be carried out as a global monitoring exercise are weak for several reasons: i) cost – a SABER exercise could cost roughly USD 50,000 per country,[3] which would mean approximately USD 10 million just for one year to cover the whole world; ii) sustainability – this would have to be a regular exercise; and iii) inclusiveness – the current scope of the whole SABER project is limited to developing countries, however policy mechanisms to reallocate resources towards those most in need apply to all countries and play a particularly important role in developed countries.

The current proposal does not allow for easy communication as the indicator itself carries a lot of caveats and would likely require cumbersome reformulation or a number of footnotes and technical annexes to avoid statistical misuse and abuse.

3. Options for decisionmaking frameworks and additional indicators

a)   Measuring governments' intentions or the actual distribution of educational resources

Keeping in mind the indicator's initial intention is to "capture the effort countries make to equalise education opportunities through their financing system" it is important to clarify which aspect of equity-related policy to monitor at the international level as well as the level of understanding the indicator reflects. What should be measured? A country's intention to tackle equity? The existence of a working and transparent financing mechanism that directly and transparently subsidizes disadvantaged populations? Whether or not disadvantaged populations benefit from education resources globally (including teachers for instance) that are commensurate to the additional burden they carry? **Table 2** summarizes some options for how comprehensive measurement could be.

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[3]   Ball-park estimate provided by WB

Table 2. Measuring country efforts to equalize education opportunities through their financing system

		Weak	Medium	Strong
		Intention	Implementation /Procedural equity	Implementation/Equality of opportunities
Weak	Existence of financing mechanisms	Does the country have an official redistribution mechanism towards disadvantaged populations? — A	Do some of the disadvantaged populations receive additional education resources through the form of direct and transparent transfers based on their background characteristics? — D	Do some of the disadvantaged populations benefit from additional/better education resources through the form of direct and indirect transfers and education resources allocation mechanisms? — G
Medium	Comprehensive financing mechanisms	Does the country have an official redistribution mechanism towards a comprehensive list of disadvantaged populations? — B	Do all of the disadvantaged population receive additional education resources through the form of direct and transparent transfers based on their background characteristics? — E	Do all of the disadvantaged populations benefit from additional/better education resources through the form of direct and indirect transfers and education resources allocation mechanisms? — H
Strong	Comprehensive and effective financing mechanism	Does the country have an official redistribution mechanism towards a comprehensive list of disadvantaged populations? Is the financing mechanism set to equalize educational opportunities? — C	Do all of the disadvantaged population receive additional education resources commensurate to the additional marginal cost they carry through the form of direct and transparent transfers based on their background characteristics? — F	Do all of the disadvantaged populations benefit from adequate education resources commensurate to the additional marginal cost they carry through the form of direct and indirect transfers and education resources allocation mechanisms? — I

Depth/level of scrutiny →

Degree of Comprehensiveness

b)   Some options

The questions in Table 2 provides a number of options for moving forward. These options are summarized below and are divided into two groups of possible indicators. The first group (1 to 3) considers government intentions and existing reallocation policy mechanisms (i.e. does the government take action to redistribute resources towards disadvantaged populations?), while the second group (4 to 6) considers the effectiveness of resource distribution (i.e. do disadvantaged groups benefit from additional resources commensurate to their additional burden?). Several options are proposed to reflect the diversity of views regarding the depth of scrutiny and the degree of comprehensiveness of monitoring. There are also additional factors to note. The possibility of measuring Options C, F and I (i.e. strong degree of comprehensiveness) on a cross-country basis is quite unlikely, as this would require a global consensus on the actual amount of resources that should be dedicated to various disadvantaged groups (with all the definitional work that entails). It should be feasible, however, to aim beyond governments' intentions and reach medium and strong levels of scrutiny. This note argues that Options E and H should be considered the ideal targets for Indicator 4.5.3. **Annex 1** summarizes the six indicators proposed.

4. Measure intention through a review of policy documents and/or a qualitative survey

Given the intention behind the initial proposal it is recommended that the indicator be made less ambitious (i.e. giving up on measuring "the extent to which"), more concise, and easier to interpret by simply assessing whether or not there are some mechanisms/policy intentions to reallocate resources towards disadvantaged populations. This would correspond to Option A or B, depending on the conceptual framework and definitions used. The indicator would then constitute a binary variable coding 1 if the country has a formal redistribution mechanism for

disadvantaged populations and 0 otherwise. In this case all countries could risk having at least one redistribution mechanism for at least one target population. A variation could include the creation of three categories: (0) no reallocation mechanism (1) country has a reallocation mechanism targeting socio-economically disadvantaged populations (2) country has a reallocation mechanism targeting socio-economically disadvantaged populations and other vulnerable groups. Expanding the indicator this way leans towards option B**. Figure 1** illustrates the results that could be obtained using the available SABER-School Finance data.

Figure 1. Do countries have reallocation mechanisms for disadvantaged populations?
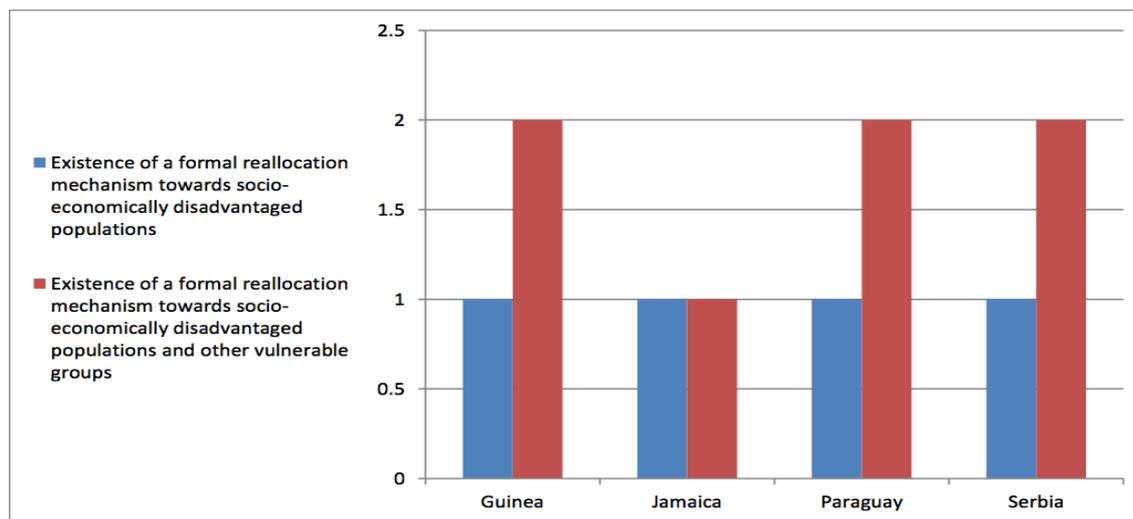
Source: SABER School Finance

This approach has the advantage of being simple and easily understood. Implementation would likely require thinking beyond SABER, as only four countries' data is available so far. A cost-effective option would be to include similar questions in UIS/OECD/Eurostat annual education data collections, which would also require adding quality control and countries-validation mechanisms. This option could definitely be applied in order to, at the very least, provide a placeholder indicator. It should be very easy to both pilot in 2016 and integrate into the 2017 wave of education data collection.

5. Assess teacher allocation policies

Teachers represent the largest share of education spending. It is also shown that allocating the best teachers to the most disadvantaged groups is one of the most effective coping mechanisms (OECD, 2012). As such, one possibility would be to examine how governments allocate teachers across their territory to serve disadvantaged populations. This would perhaps be more focused than Option 1, as it would cover a clearly identified policy stream, but would constitute a proxy given it effectively ignores other reallocation mechanisms. Another advantage of this indicator in comparison to the previous one is that it could also be linked to Target 4.c of the monitoring framework. Similarly to Option 1, this would be a qualitative indicator, coded with either a binary or ordered categorical variable. It would be based on the existence of: i) specific teacher recruitment (e.g. policies to recruit teachers in remote areas) and reallocation policies (financial incentives to reallocate teachers in underserved areas); and ii) specific teacher training and teaching resources for disadvantaged populations. Although this is an indirect way of measuring financing reallocation efforts, it could be considered a good proxy of a government's intention to reallocate its main education resources to support disadvantaged groups. SABER-Teachers makes it possible in part to respond to such an indicator, as it includes a question about incentives for teachers to work in hard-to-staff schools *(see **Figure 2**)*.

Figure 2. Do countries provide incentives for teachers to work in hard-to-staff schools?

Benin	Yes
Bulgaria	Yes
Cambodia	Yes
Cote d Ivoire	No
Djibouti	No
Egypt, Arab Republic of	Yes
Georgia	No
Guinea-Bissau	No
Guyana	Yes
Jamaica	No
Jordan	Yes
Kazakhstan	Yes
Kenya	No
Lebanon	No
Macedonia, FYR	Yes
Mali	Yes
Moldova	Yes
Serbia	No
Tunisia	Yes
Uganda	Yes
West Bank and Gaza	No

Source: SABER Teachers

This is once again a simple approach that is easy to understand and has the potential to be implemented beyond SABER for the same reasons highlighted above. Similar to the previous indicator, it would correspond to Option A or B, depending on the conceptual framework and definitions used. This indicator could also be used as a placeholder and should be very easy to pilot in 2016 and integrate into the 2017 wave of education data collection.

6. Expand the National Education Accounts (NEA) methodology to review public education expenditures targeting disadvantaged populations

A third approach looking at government efforts would examine public education budgets using detailed budget lines to identify public spending directed at vulnerable populations. This would require two initial steps: a detailed classification of education expenditures and an agreed-upon list of vulnerable groups as an initial step to ensure robust and comparable data. Once these steps are achieved, it would be possible to produce aggregates on the actual budget that is allocated towards disadvantaged populations as well as the actual share of the education budget that is reallocated towards the most vulnerable groups (corresponding to Item iii in the initial proposal). This could not be a short-term objective, as it would require serious investment in methodology development, additional data collection, and improved collaboration between Ministries of Finances and Ministries of Education. It could and probably should, however, be a medium-term objective (5-7 years) for the global community to be able to produce such an indicator. The calculation of the indicator would rely on detailed analysis of education budget lines but could be integrated in UIS data collection (Questionnaire B) as an output at the global level of the extended NEA methodology. Doing so would enable annual updates. Depending on the comprehensiveness of what is understood by disadvantaged populations, this indicator would correspond to either Option D or E.

7. Use a minimum standard approach: Measure education spending as a share of total household expenditure for the poorest quintile

Many household surveys include data on expenditures, including education. Approaching equity with a minimum standard, one measure that would demonstrate the effectiveness of government efforts to redistribute resources towards populations in need would be to examine the proportion of household expenditure devoted to education among the poorest quintile. This is an exercise that has been done in several studies *(see **Figure 3** for an example)* and could be fairly easily mainstreamed into a household survey data processing protocol. A rapid review of the surveys available on the International Household Survey Network[4] indicates that roughly 60 countries could provide data, though some of it would be quite old. This includes a mix of international surveys (Living Standards Measurement Survey) and national household surveys. While not looking directly at government policy intentions and mechanisms, this indicator would illustrate a government's effectiveness in alleviating the burden carried by many disadvantaged groups when faced with the cost of education. It could be considered an indirect measure of Option G (or H if expanded to other disadvantaged groups) and could require a fair amount of work to harmonize and standardize both available data as well as data that will be collected in the future.

Figure 3. Proportion of household expenditure devoted to education, poorest quintile
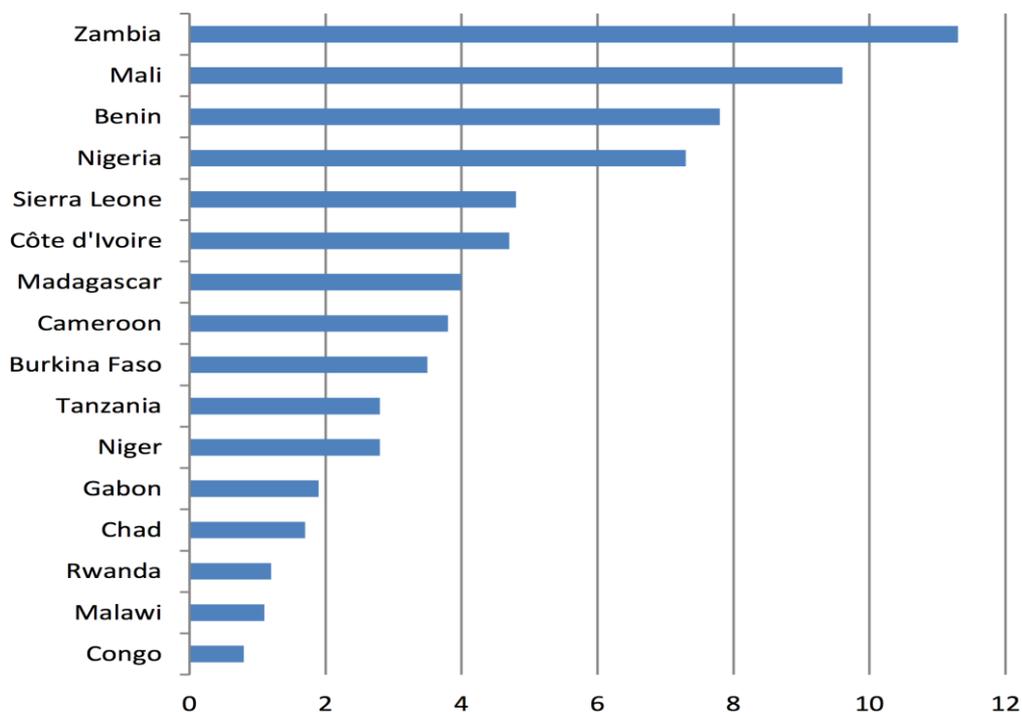
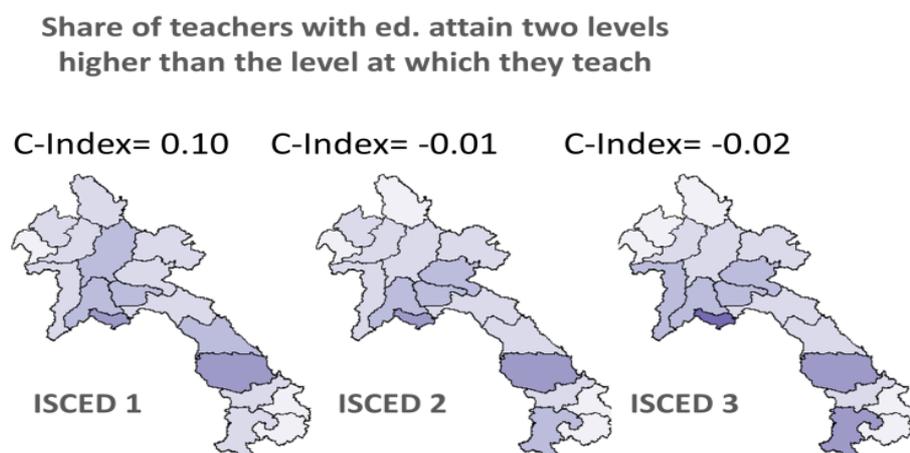*Source: UNESCO Institute for Statistics, IIEP, Pôle de Dakar*

This is an option that remains fairly communicable and is easy to interpret even for a non-expert audience. Its feasibility is quasi-immediate. While it is not totally aligned with the initial indicator's intention, it would require little amendment to accommodate a better alignment between concept and formulation. It could be argued, however, that it doesn't take into account the extra resources that must be invested from the supply side (teachers, infrastructures, pedagogical resources etc.), hence it remains an incomplete proxy.

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4   http://www.ihsn.org/home/

8. Measure the actual distribution of teachers

The second option in the group of indicators looking at the effectiveness of governments to reallocate resources where they are most needed is one that would measure the effectiveness of the policy intentions behind Option 2. Spefcically, are teachers distributed in such a way that disadvantaged groups are no longer underserved? Some existing exercises enable this measurement. For instance, examining the distribution of teachers at the sub-national level is already revealing. It is possible, for example, to calculate equity in the distribution of qualified teachers in order to to estimate whether or not the most qualified teachers are concentrated in the richest provinces. As teachers represent the main share of recurrent education expenditures – above 75% in most countries – the distribution of teachers and teachers' human capital (experience, training etc.) is a critical policy intervention that would enable disadvantaged groups to catch up with their peers from the most advantaged populations. Depending on definitions, this could provide a proxy measure of Options D, G, E or H. **Figure 4** is an example of a situation (Lao PDR, 2013) where the distribution of teachers with a qualification at ISCED level 3 or higher slightly favours the richest provinces. It uses the concentration index but could also use a parity index (ratio of PTRs between the poorest and the richest provinces) or another equity indicator.

Figure 4. Concentration index of the distribution of teachers with an educational qualification at least two levels higher than the ISCED level at which they teach, Lao PDR, 2013



Source: UNESCO Institute for Statistics

The concentration index is not necessarily the easiest indicator to communicate, and as such would require some work to establish an adequate communication strategy. This indicator would demand, as with the previous one, an amendment to the current formulation. There are at least two possibilities for estimating the distribution of teachers in relation to students' socio-economic background. The first option would be to use and scale-up administrative data collections like the UIS regional module on teachers and combine it with data on provincial characteristics. This would enable comprehensive and standardized coverage but proxy would be limited to the provincial level. This would require a minimum of two years to be implemented, and a certain cost, but would enable annual monitoring of the situation. The second option would be to use the background data available in regional and international learning assessments to estimate the distribution of teachers in relation to students' individual characteristics. This would enable a more detailed analysis, but would be based on a limited sample with a much lower frequency (approximately every five years). This could be accomplished within one year.

9. Measure access to domestic education resources

The last indicator proposed in this note is the most innovative, and perhaps the one for which good coverage could be achieved very rapidly. Most learning assessments include data on school infrastructures, pedagogical resources, and classroom environment as well as teacher characteristics. These represent the main areas of government education spending and constitute the pool of education resources that a pupil can benefit from when enrolled in the education system. There are, however, many variations in the quantity and quality of domestic education resources that pupils have access to. It is proposed to develop both an index of access to domestic education resources as well as an indicator that would measure which groups have access to the best/most valuable education resources (use of simple parity indices or odds ratio). In effect, this indicator would examine the association between any dimension (wealth, for example) and access to domestic education resources. It would be an expanded version of Indicator 5 above, as it would include characteristics other than those of the teacher. Depending on the definitions adopted, this could lead to the measurement of Options G or H.

The calculation of the index could follow what has been done for wealth, using the principal component analysis to produce quintiles of access to domestic education resources. Some steps have already been taken in this direction; for instance, PASEC calculates indecies of school infrastructure and school / classroom pedagogical resources. The UIS has begun to develop a more comprehensive index by combining additional variables that code for access to education resources (such as teacher qualification and teaching experience) to the existing indices in order to produce a global index of access to education resources (IADER) using a principal component analysis (PCA) similarly to what is being done for wealth (Filmer and Pritchett, 2001). Pupils are then divided in quintiles depending on the value of their index. Quintile 1 represents limited access to domestic education resources and Quintile 5 represents high access to domestic education resources.
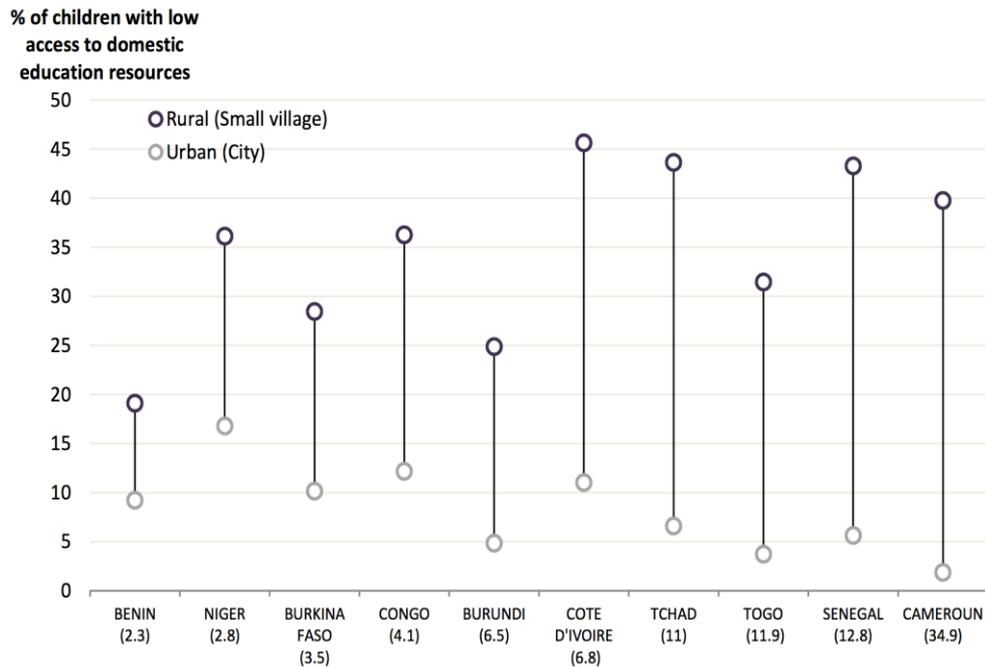
Figure 5. Percentage of children with low access to domestic education resources, children from the poorest 20% of households and children from the richest 20% of households
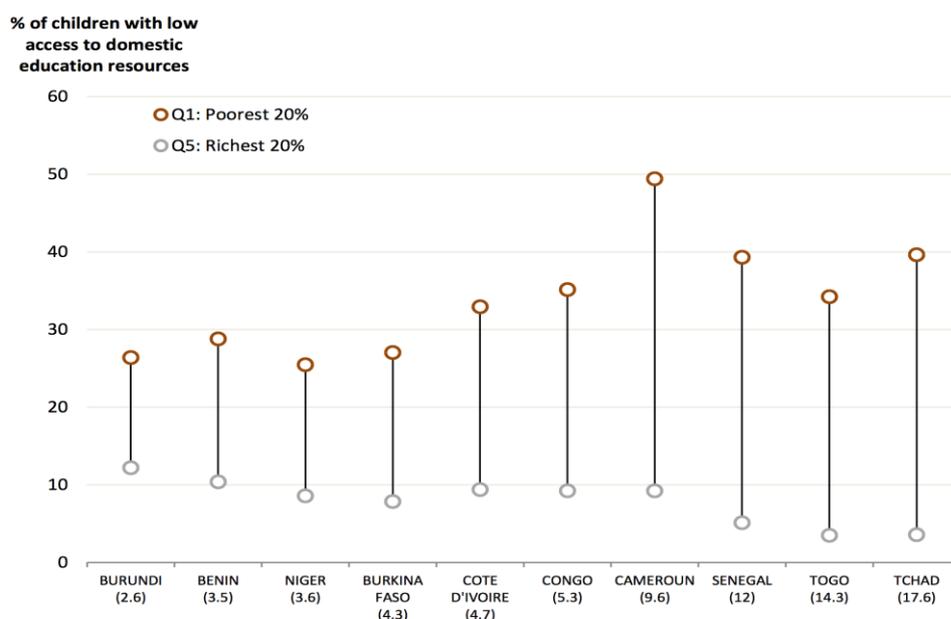
Note: Countries are ranked by the value of the odds ratio for the likelihood of having low access to domestic education resources between children from the poorest 20% households and children from the richest 20% households (in brackets).
*Source: UIS calculations based on PASEC data*

Figure 6. Percentage of children with low access to domestic education resources, children living in a small village and children living in a city

Note: Countries are ranked by the value of the odds ratio for the likelihood of having low access to domestic education resources between children living in a small village and children living in a city (in brackets).
Source: UIS calculations based on PASEC data

Figure 7. Percentage of children with low access to domestic education resources, children not speaking the language of the test at home and children speaking the language of the test at home
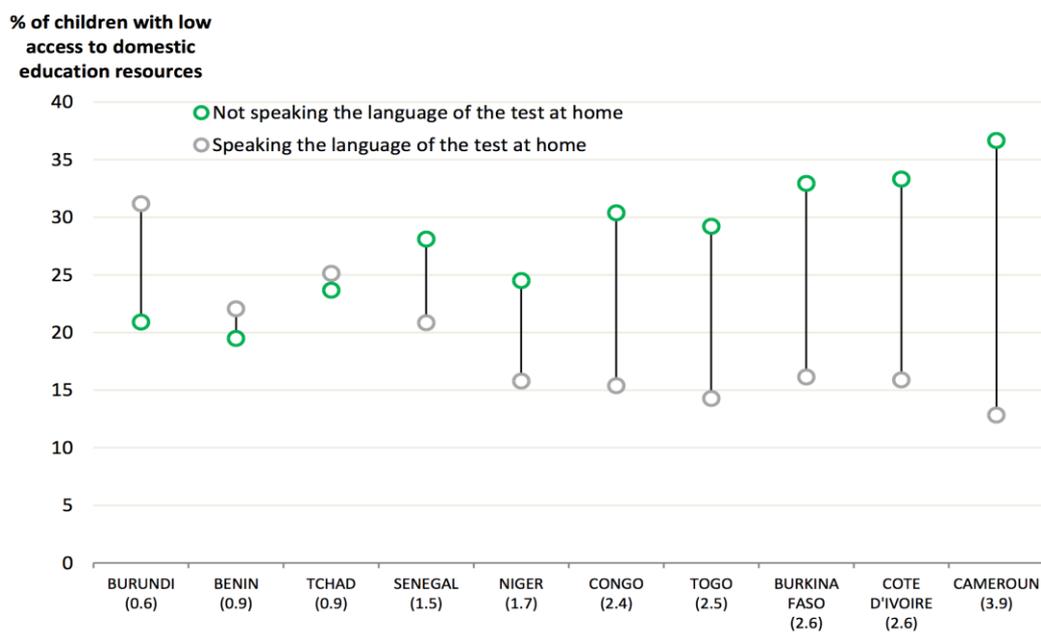
Note: Countries are ranked by the value of the odds ratio for the likelihood of having low access to domestic education resources between children not speaking the language of the test at home and children speaking the language of the test at home (in brackets).
Source: UIS calculations based on PASEC data

Calculating the IADER and equity in the distribution of domestic education resources could be replicated in many countries depending on the availability of background variables in the various learning assessments. Obtaining a global picture of equity in the distribution of education resources would be feasible within the short term.

10. Conclusions

This note has proposed several adjustments to accommodate the shortcomings of Indicator 4.5.3 in the current proposal made by the TAG. The minimum adjustment should be to reformulate Indicator 4.5.3 to ensure alignment between the initial intention and possible technical operationalization. In addition, this note suggests a roadmap towards improved monitoring of Indicator 4.5.3. The short-term indicator uses a newly developed index of access to domestic education resources that would approximate which pupils benefit from the current pool of resources available in education systems, and provide an estimate of the effectiveness of governments to allocate resources towards disadvantaged populations. Due to its low frequency, this indicator should be used as a placeholder. Recommendations for the medium-term include both expanding UIS/UOE data collections to include more qualitative questions on education policies and international reporting on the existence of policy mechanisms for the reallocation of resources towards disadvantaged populations. This should expand the data provided by SABER and ensure annual reporting for all countries. The long-term proposal would build on progress made with the national education accounts methodology and include the identification of budget lines targeting disadvantaged groups. For any of the short, medium, and long-term proposals, it is critical to agree on definitions and standards, notably regarding disadvantaged populations and how to measure them.

Figure 8. Proposed roadmap: Short, medium and long-term solutions

Annex 1

	Type	Variable	Current coverage	Sources	Scale-up options			Periodicity	Methodological standards required
					Instruments	Time frame	Additional cost		
Group 1: Governments' intentions and existence of reallocation policy mechanisms									
Indicator 1: *Do countries have reallocation mechanisms towards disadvantaged populations?*	Quali	binary or categorical ordered	4 countries	SABER School Finance	UIS/UOE data collections. Add questions to regular annual education surveys	Could be piloted in 2016 and scaled up in 2017	Low	Annual	Standard definitions for disadvantaged groups and reallocation mechanisms
Indicator 2: *Do countries have incentives/reallocation mechanisms to ensure that teachers go to the hard-to-staff schools?*	Quali	binary or categorical ordered	21 countries	SABER Teachers	UIS/UOE data collections. Add questions to regular annual education surveys	Could be piloted in 2016 and scaled up in 2017	Low	Annual	Standard definitions for hard-to-staff schools and incentives/reallocation mechanisms
Indicator 3: *% of domestic education spending allocated to the disadvantaged populations (From NEA methodology)*	Quali	Continuous, Percentage	None		UIS, NEAs	5 to 7 years	High	Annual or Biennal	Detailed reference classification of education expenditures and an agreed list of vulnerable groups, expanded NEA methodology
Group 2: Effectiveness of policies to reach disadvantaged populations									
Indicator 4: *Education spending as a % of total household expenditure for the poorest quintile*	Quanti	Continuous, Percentage	~20 countries	LSMS, National household surveys	LSMS, National household surveys, ~60 surveys	2 years	Fair	Triennal	Generalization and standardization of questions on education expenditures
Indicator 5: *Equity measure of the actual distribution of teachers across pupils (Concentration Index, Parity Index, Odds ratio)*	Quanti	Continuous, range will depend on the equity indicator chosen; CI: [-1,1], Parity and odds ratio [0,+∞[	~10 countries	UIS regional module	Option 1: scale-up UIS survey to other regions Option 2: use regional LAs as proxy	Option 1: 2-3 years Option 2: < 1 year	Option 1: Fair Option 2: Low	Option 1: Annual Option 2: ~Quinquenal	Option 1: Standardized sub-national characteristics (wealth, urban/rural etc.) at the first level of administrative divisions Option 2: Align methodologies for background variables (wealth, rural/urban, ethnicity etc.)
Indicator 6: *Equity measure of acces to domestic education resources (Concentration Index, Parity Index, Odds ratio)*	Quanti	Continuous, range will depend on the equity indicator chosen; CI: [-1,1], Parity and odds ratio [0,+∞[	None		PASEC, SACMEQ, TERCE, PISA, TIMSS, PIRLS	<1 year	Low	~Quinquenal	Standardized and transparent methodology to calculate an Index of Access to Domestic Education Resources (IADER)