

# It is time to fix the low financing trap: public spending on education revisited

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Fixing the low financing trap for education

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## Abstract

**Purpose** – This paper aims to explore whether there is a “low financing trap” that results in underfunding of education systems in low and lower middle income countries (LICs and LMICs). It shows public investment in education has not increased over the last two decades despite extensive advocacy and has equilibrated at about 4% of GDP. More than 6% of GDP is needed to achieve the sustainable development goals.

**Design/methodology/approach** – This research uses large scale data from the UNESCO Institute of Statistics and the World Bank to analyse patterns of investment across sub-Saharan Africa. The most recent data downloaded in 2022 are used for each country. The analysis uses time series analysis to show how flows of resources for education have evolved and illustrates the limits to growth.

**Findings** – The research develops a taxonomy of countries and identifies three bands of effort for investment in education. Individual countries tend to remain in the same band of expenditure level and only the highest band countries are likely to be able to finance their development goals from their own resources between now and 2030. Escape from the low financing trap is critical for future educational development.

**Originality/value** – Innovative approaches to external assistance are needed which recognise that domestic revenues are at the heart of sustainable financing and that greater efficiency and effectiveness are critical to sustainable solutions. The priority is to accelerate the development of fiscal states, which can finance public goods from domestic revenue and make good use of concessionary assistance.

**Keywords** Financing, Education, Aid, Sustainable, Development, Sub-Saharan Africa

**Paper type** Research paper

## 1. Introduction

This paper explores how public expenditure on education has evolved in low and low middle income countries (LICs and LMICs) with a focus on sub-Saharan Africa (SSA). In SSA, LICs allocate around 3.7% and LMICs about 4.2% of GDP to education. This is significantly less than in Organisation for Economic Co-operation and Development (OECD) countries which

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This paper forms part of a special section “International Cooperation in Education at the New Stage”, guest edited by Kazuhiro Yoshida.

**Data availability statement:** Unless otherwise stated this paper uses data publicly available on the World Bank site where the most recent education indicators are listed at <https://data.worldbank.org/indicator/>. Different indicators are used according to the Chart or Table as appropriate. There is no experimental data set.

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average about 5% of GDP. In contrast the proportion of government expenditure allocated to education, which is an indicator of political commitment, averages about 14.5% in LICs and 15.4% in LMICs which is more than the average of about 12% in the OECD.

Strikingly the proportions of government spending as indicated by the median levels of investment have not changed over two decades despite powerful advocacy of the need to spend more than 6% of GDP and 20% of public expenditure on education. A taxonomy of expenditure levels on education over 20 years is developed in this paper that illustrates this stasis. It groups countries according to their apparent effort in terms of government allocation, fiscal commitment to public spending, and the proportion of GDP allocated to education to indicate the nature of the challenges facing different groups of countries if they are to achieve the goals set by SDG4.

In most LICs and many LMICs allocations to education would have to increase massively and be at levels at least 50% higher than today to achieve global goals. If the low financing trap identified in this paper is not resolved the goals will neither be achieved or sustained. Goals have to be adjusted to be financeable, efficiency gains could help stretch limited resources further and domestic revenue must match the demand for finance generated by greatly increased access to education provided as a public good (Lewin, 2020). External assistance, which has also plateaued, can play a catalytic role for educational financing in most LICs and LMICs but cannot solve financing shortfalls in a sustainable way.

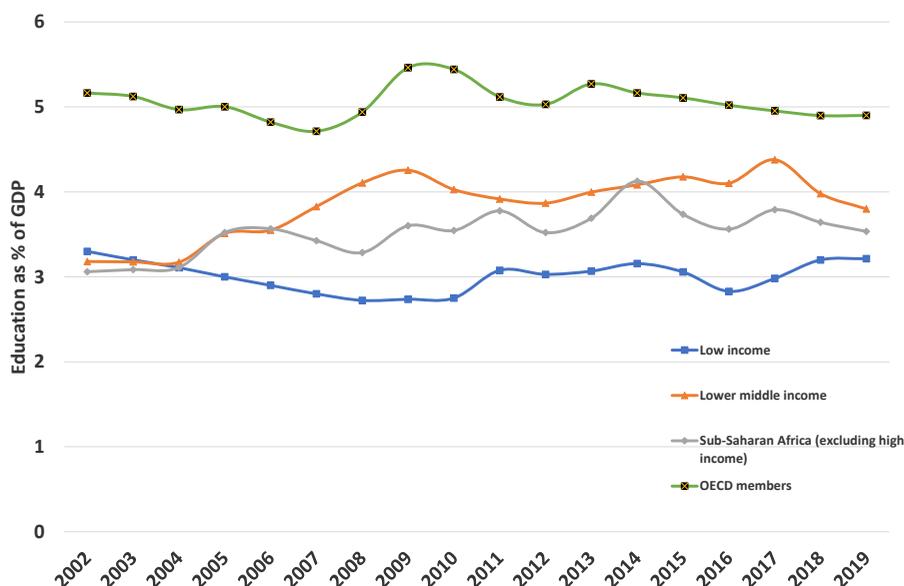
This paper is in seven parts. The second section offers an analysis of educational spending as a proportion of GDP over the last 20 years. Section three profiles educational expenditure as a proportion of the public budget. In both cases spending has plateaued over the last two decades. Section four completes the picture by charting how total public spending has changed giving an indication of the extent to which domestic financing allows the development of fiscal states able to self-finance their education systems. The public expenditure nexus for education is spelled out in section five and this leads to a taxonomy of countries which locates key aspects of the different challenges they face. This is followed by concluding remarks.

## 2. Education as a proportion of GDP in the 21st century

Since 2000 there is convincing evidence that patterns of resource allocation to education in LICs and LMICs have remained flat despite many rhetorical commitments to increased spending. What is striking in the evolution of spending across more than seventy LICs and LMICs, including almost all countries in SSA, is that the level of commitment to spending on education as a proportion of GDP has remained at the same level over the last two decades (Figure 1). This is especially so in the poorest countries, despite much advocacy and repeated global pledging events intended to increase levels of commitment. *De facto* there is a “low financing trap” that limits levels of public investment in education to levels insufficient to provide sustained financing to educate all the children.

Thus the patterns are clear.

- (1) First, the allocation of GDP to education in LICs (about 3%) is typically less than LMICs (over 4%) and OECD countries (5%).
- (2) Second, there is no consistent long term trend to increase allocations though there is some upward drift in spending in LMICs up to 2010 after which the values plateau.
- (3) Third, there are fluctuations in the allocation in 1999 - 2002, the years around the World Education Forum (WEF) in Dakar in 2000 where large pledges to increased spending were made (UNESCO, 2000).
- (4) Fourth, there is also volatility around the time of the WEF in Incheon (UNESCO, 2015) and the second GPE replenishment in 2018 (GPE, 2018) which generated many country commitments to SDG4.



**Figure 1.** Education as a % of GDP in all LICs, LMICs, SSA and OECD countries 1999-2019

Source(s): World Bank/ UIS data

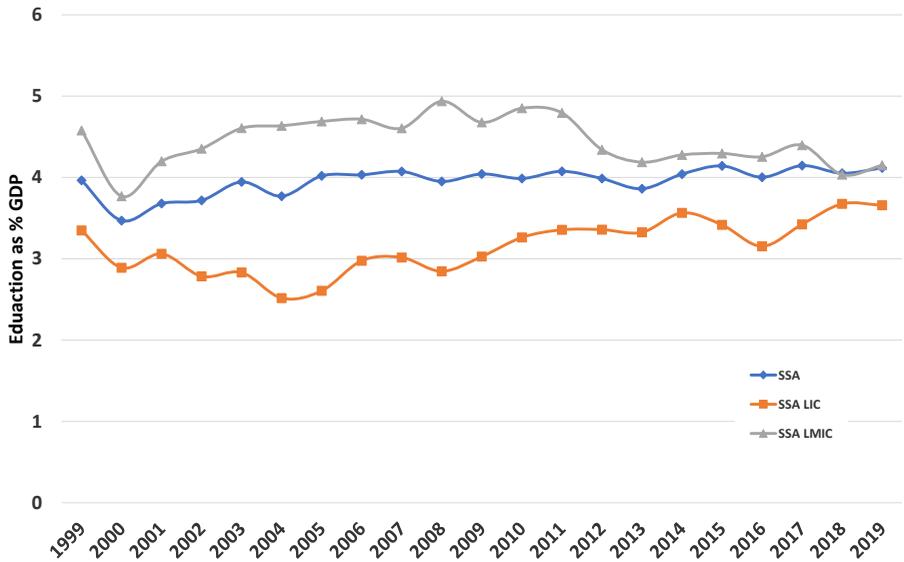
- (5) Fifth, the allocations made in SSA countries generally fall between the averages for all LIC and LMICs.
- (6) Sixth, between 2000 and 2009 LMICs increased their allocation to education as a percentage of GDP from about 3% to 4% but then ceased to increase their average allocation.
- (7) Seventh, there does not seem to be a long term impact of the global financial crisis from 2008-2011 either upwards or downwards.
- (8) OECD countries consistently allocate about 5% of GDP to education and generally have a much larger stream of revenues as proportion of GDP.
- (9) SSA allocation to education has been static since about 2010 with no consistent upward trend.

A closer look at data for SSA countries shows how the poorest LICs have lagged behind LMICs (Figure 2).

In this data the average allocation of LICs trends around 3% ending the decade slightly higher than it began. LMICs have a higher commitment averaging over 4%. This peaks in 2008-9 at the time of the global financial crisis and then falls back.

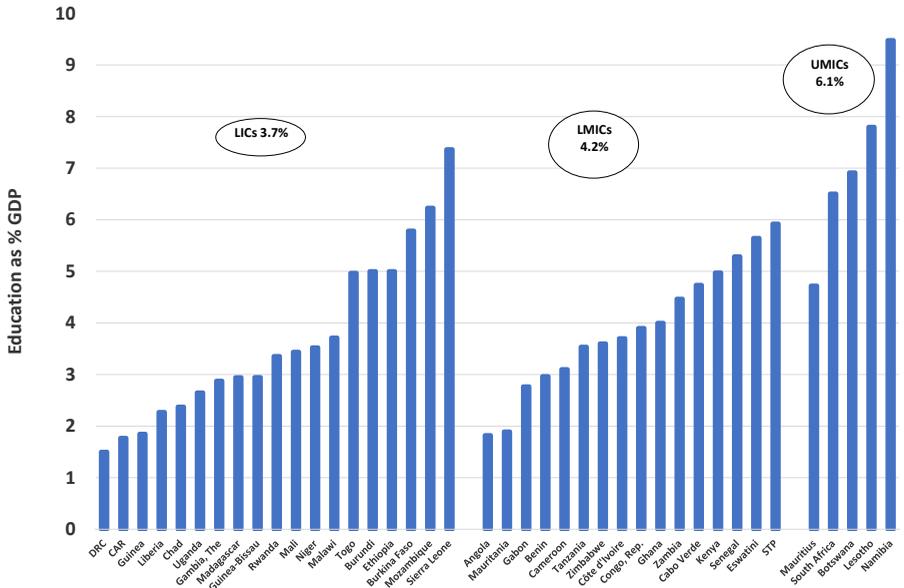
In the latest year available LICs allocated about 3.7% of GDP to education and LMICs 4.2%. DRC, CAR, Angola, Guinea and Mauritania all appear to be spending less than 2% of GDP in contrast to Botswana, Sierra Leone, Lesotho and Namibia which allocate 7% or more of GDP (Figure 3).

The range over which allocations to education vary is wide. In LICs it is from 2% of GDP to 7% and in LMICs from 2% to 9%. Most countries fall in the range of 3% to 5%. LICs and LMICs have similar distributions across the range of values and there is only a very weak association of GDP per capita with the amount allocated to education. Those countries with



**Figure 2.**  
Education as % GDP  
SSA countries  
1999-2019

Source(s): World Bank/ UIS data



**Figure 3.**  
Education as a % of  
GDP in LICs, and  
LMICs and UMICs  
in SSA

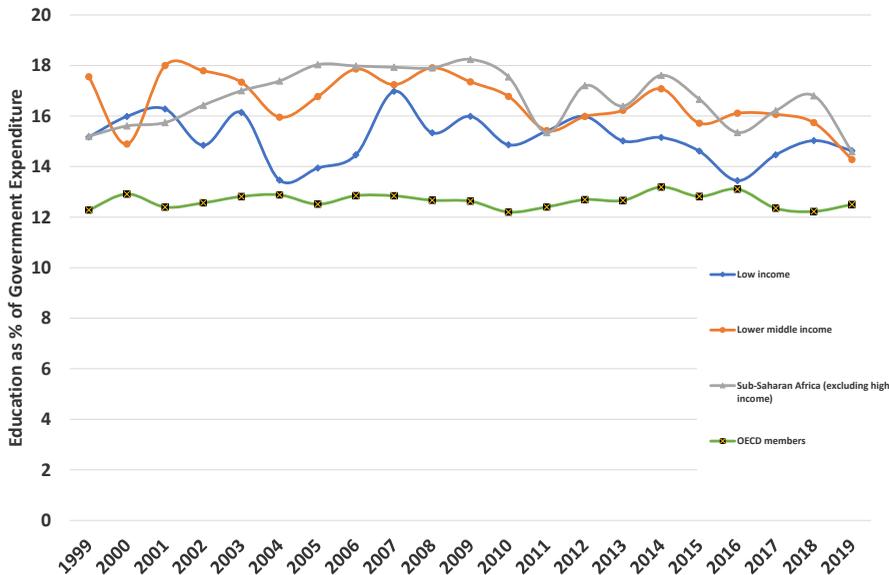
Source(s): World Bank/UIS Latest year

the lowest allocations will not be able to finance universal enrolment to grade 12 as targeted by the Sustainable Development Goals. Even those allocating over 6% may struggle depending on their demography and tax base (Canning, Raja, & Yazbeck, 2015).

### 3. Education as a proportion of government spending

The second key indicator that is used to assess financing effort and target improvements is the proportion of government expenditure allocated to education. This can also be charted over the last two decades (Figure 4). Several things are evident.

- (1) First, LICs average between 14% and 16% of government budgets for education.
- (2) Second, LMICs were spending an average of 17% between 2000 and 2010 and this fell to around 16% over the last decade
- (3) Third, though there are some inflection points in the averages these are not easily mapped onto pledging events e.g. the Global Partnership for Education (GPE) Replenishment, the World Education Forum (WEFs)
- (4) Fourth, OECD countries consistently spend less on education as a proportion of public expenditure than do LICs and LMICs and average about 12% of total government expenditure not least because they have many fewer children per working adult
- (5) Fifth, on average LICs and LMICs spent the same proportion of government expenditure on education in 2019 as they did in the year 2000
- (6) Sixth, over time OECD countries have a fairly constant pattern of allocation; LICs experience a small decline over the last decade as do countries in SSA



Source(s): World Bank/ UIS data

**Figure 4.** Education as a % of government expenditure in all LICs, LMICs 1999-2019

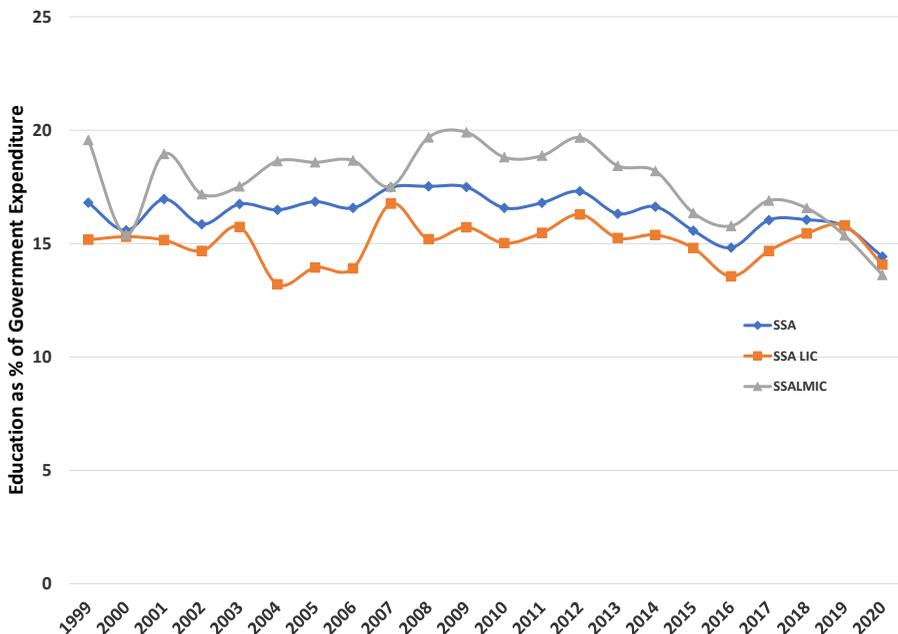
A closer look at SSA distinguishes between LICs and LMICs. LICs consistently allocated about 15% of public expenditure to education over the 20 year period. LMICs averaged more but peaking at close to 20% around 2010 but falling back later in the last decade to less than 16% (Figure 5). The peak coincided with the global financial crisis and may be a result of the stickiness of education expenditure in downturns because most of it is in salaries that cannot quickly be reduced.

The medium term trend of this data is for the proportion allocated to education to fluctuate at levels between 15% and 17%. There does not appear to be a long term trend. Sierra Leone, Uganda, Guinea Bissau, Niger and Mauritania average less than 10% and Burundi, Chad, Eritrea, Eswatini and Mauritius all average over 20%. The range is from under 5% to over 25% which is a larger variation than for education as a percentage of GDP. There is no systematic difference in the distribution between LICs and LMICs.

Education spending by governments varies from below 5% to 35% of the total (Figure 6). Most countries allocate between 10% and 20%. The averages for LICs, LMICs and UMICs are 14.5%, 15.4% and 18.8%. The ambition of SDG4 has been that governments should allocate 20% of more if they are to finance much higher levels of participation.

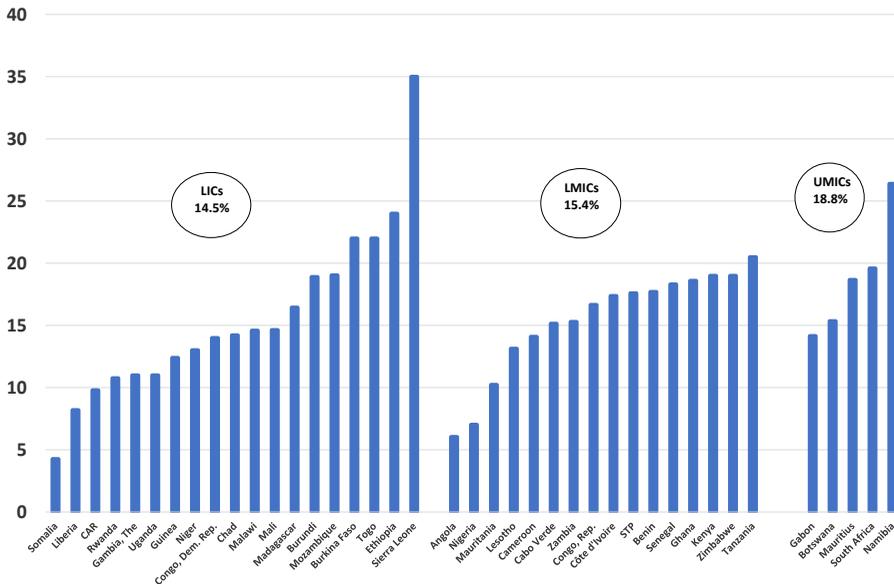
#### 4. Total government expenditure as a % of GDP, tax revenues and aid

The picture is not complete without considering how large total government expenditure is as a proportion of GDP. Total government expenditure has been broadly stable over the last two decades as a proportion of GDP. In LICs in SSA it has averaged around 14% of GDP, in LMICs nearly 20% and in UMICs over 25%. 2008 to 2010 saw some volatility but in the medium term the trend was clear and essentially flat (Figure 7).



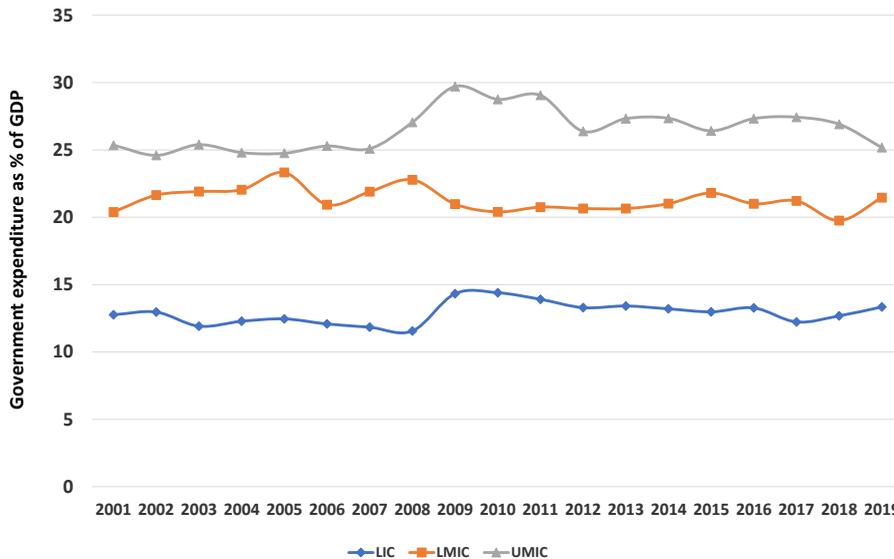
**Figure 5.**  
Education as percentage of government expenditure in SSA countries 1999–2019

Source(s): World Bank/ UIS data



**Figure 6.** Education as a % of government spending in LICs, and LMIC and UMICs in SSA

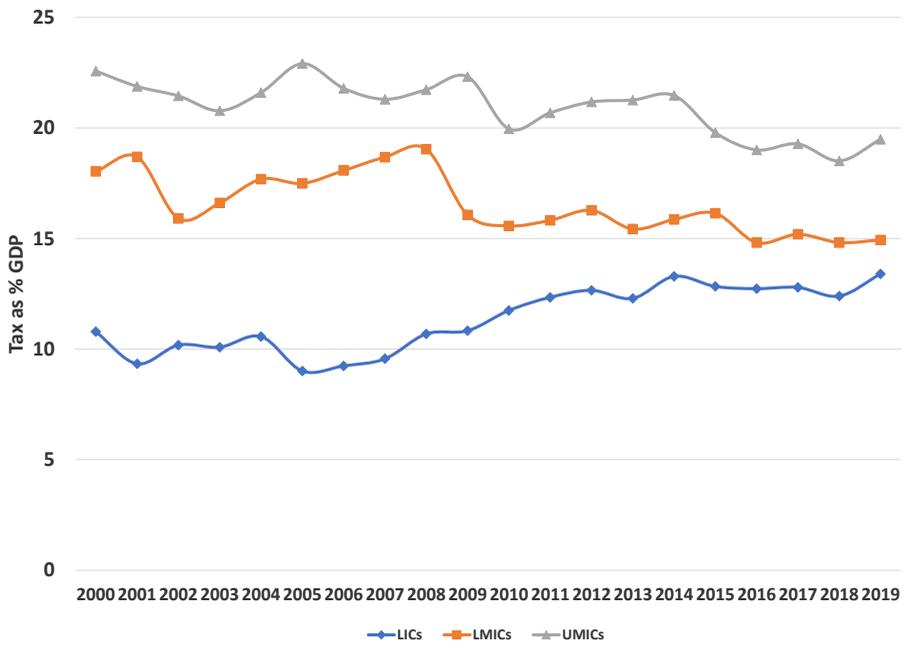
Source(s): World Bank/ UIS data



**Figure 7.** Total government expenditure as % GDP in SSA

Source(s): World Bank/ UIS data

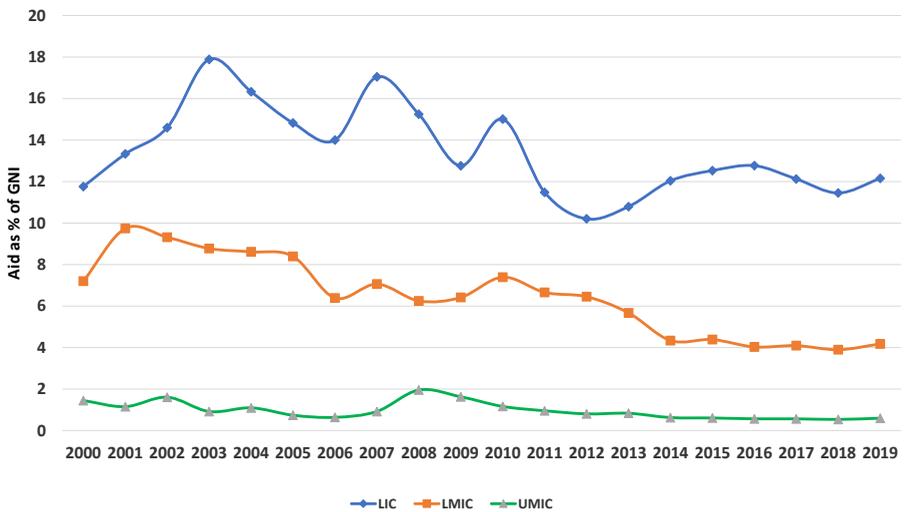
Government expenditure is supported by domestic revenue raised predominantly from taxes. This also seems to have remained stable in the recent past. LICs collect about 14% of GDP up from about 10% in 2000. LMICs collect between 15% and 17% and UMICs nearly 20% of GDP. LICs have increased their revenue collection (Figure 8).



**Figure 8.**  
Tax revenue as percentage of GDP in SSA

Source(s): World Bank/ UIS data

In addition total aid has fluctuated and averaged about 12% of gross national income (GNI) in LICs, 4% in LMICs and less than 1% in UMICs (Figure 9). Aid peaked in the early 2000s. Broadly the average LIC in SSA is still substantially aid dependent for government expenditure.



**Figure 9.**  
Aid as percentage of GNI in SSA

Source(s): World Bank/ UIS data

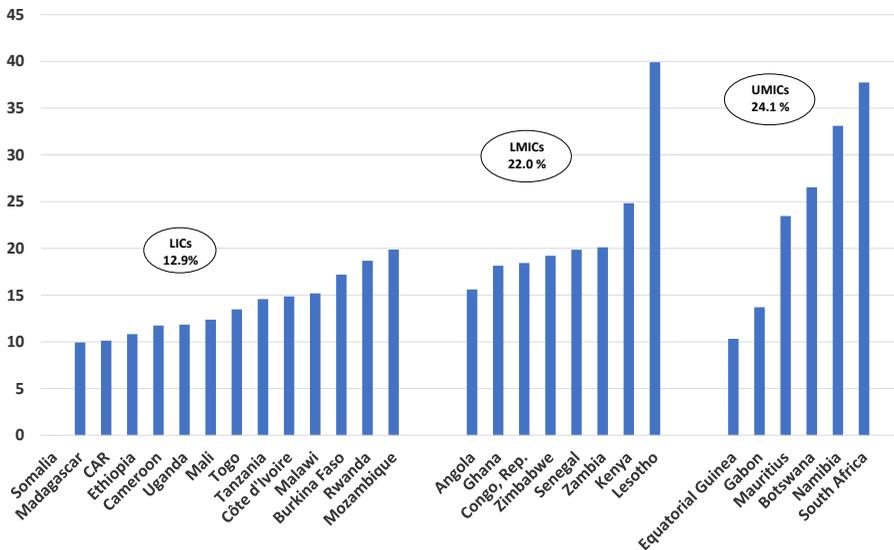
Countries with the lowest levels of expenditure on government services, lowest revenue collection rates and highest dependence on aid are likely to be places in which education is most underfunded. They include Somalia, Madagascar, CAR and Ethiopia, Cameroon and Uganda which all allocate less than 12% of GDP to all public spending. Surprisingly some LMICs and UMICs (Angola, Equatorial Guinea and Gabon) allocate 15% or less of GDP to government expenditure contrary to the trend for richer countries to allocate proportionately more to public services including education (Figure 10).

In general government expenditure runs at about 13% of GDP in LICs in this data set (with many missing cases), 22% in LMICs and 24% in UMICs. If a deficit is not to accumulate revenue has to exceed government expenses taking into account any grants and loans.

Rates of revenue collection as a percentage of GDP vary from 14% in LICs to 15% in LMICs and 19% in UMICs. DRC, CAR Eritrea, Liberia and Ethiopia collect less than 12% of GDP in tax revenue, as does Cameroon, Angola, Kenya and the Congo (Figure 11). Low rates of revenue collection are widely recognised as a key issue for educational financing (Fredriksen & Tan, 2008; Archer, 2016; Ron Balsara, Klees, & Archer, 2018, Lewin, 2021a).

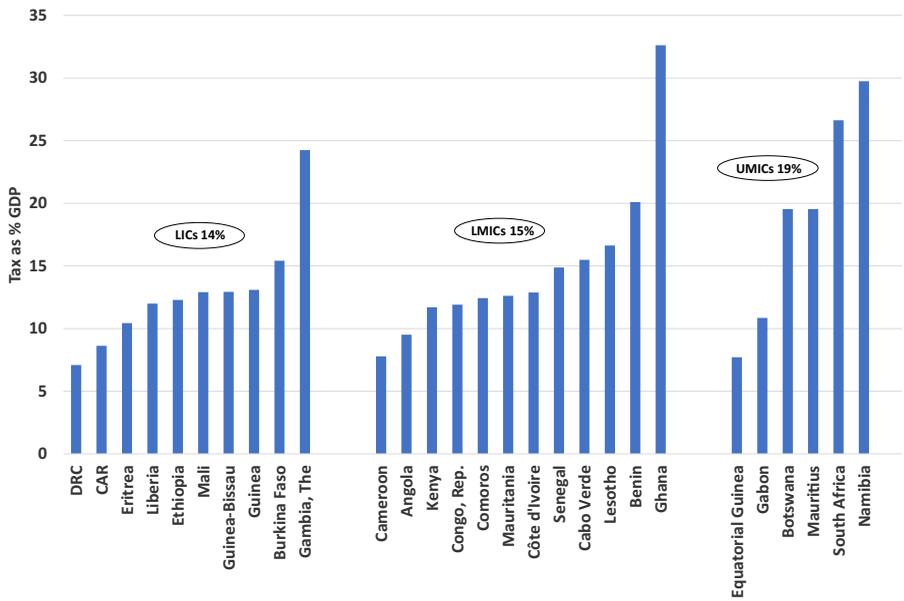
The most heavily aided countries are now receiving more than 10% of GNI in official development assistance (ODA). Country data are incomplete but illuminating. Figure 12 shows that in LICs in SSA aid accounts for about 12% of GNI on average. In LMICs this falls to about 4%. At least a dozen countries receive more than 10% of GNI in aid, and almost all LICs receive more than 5% including several not in the data set as data is unavailable. UMICs receive less than 1% and are not recorded in the chart (Figure 12).

If public expenditure averages 12% of GDP and aid is more than 5% of GNI it is likely that between a third and a half of all government spending is financed by aid. This then generates policy dependence and undermines the financial sustainability of publicly funded educational development that is endogenously owned and driven. It also may confuse public accountabilities and create ambiguous principal-agent relationships.



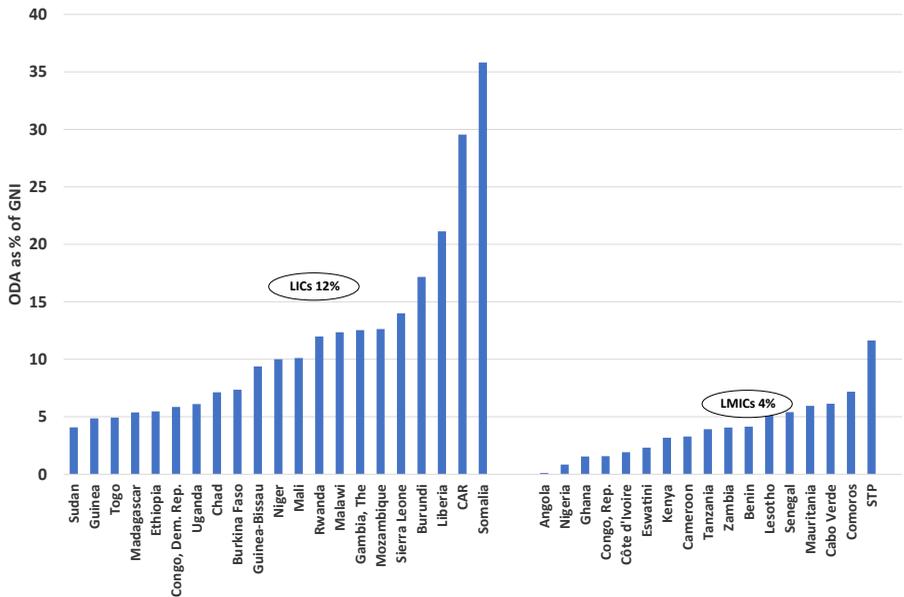
Source(s): World Bank/ UIS data

Figure 10. Total government expenditure as % of GDP in SSA



**Figure 11.**  
Tax as a % of GDP  
in SSA

Source(s): World Bank/ UIS data



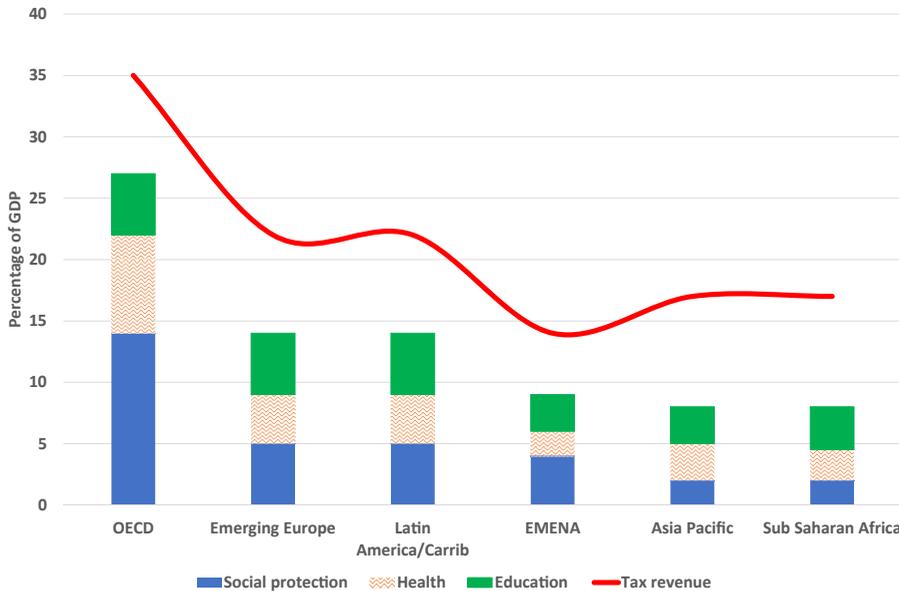
**Figure 12.**  
ODA as a % of GNI  
in SSA

Source(s): World Bank/ UIS data

### 5. The public expenditure nexus

At the heart of educational financing lies the commitment of governments to allocate resources to education in competition with other sub-sectors from a pool of resources determined by domestic revenue which may or may not be complemented by grant aid and borrowing. Government expenditure as a proportion of GDP is much higher in OECD countries than it is in LICs and LMICs. Within the total, the balance between social protection, health and education and other expenditure (e.g. infrastructure, defence, debt servicing) is characteristically different. Typically in high income OECD countries 35% of GDP is raised in revenue that finances public expenditure. Education accounts for about 5% of total expenditure and is much smaller than social protection or health spending. In other poorer regions of the world governments raise and spend less as a proportion of GDP (Figure 13). Debt slows growth as it pre-empts domestic revenue gains (OECD, 2020).

In SSA total public expenditure is only about 16% GDP and education expenditure averages less than 4% of GDP. It is usually more than health spending and much more than social protection. However, because total government expenditure is much smaller this translates into persistent under-funding of education (and other sub-sectors). This makes it difficult to achieve the 6% of GDP needed for education to meet the expectations of SDG4.



**Figure 13.** Government expenditure by sub-sector by region

**Source(s):** Derived from World Bank 2018

The allocation of funds to education is determined by the size of public expenditure and the proportion of it that is allocated to education. Mathematically if,

- (1) X = the proportion of GDP spent on education
- (2) E = public expenditure as a proportion of GDP
- (3) S = the proportion of public expenditure allocated to education

Then,

$$X = E * S$$

The value of X depends on both E and S. Any given increase in X can be the result of an increase in E or S, or both. Targeting changes in X requires targeting of both E and S with known interactions between the two. Considering them separately can mislead. Thus, UK GDP fell by 29% between 2008 and 2010, Nigeria's GDP fell by 14% and Malaysia's GDP decreased by 15%. Education spending as a share of GDP increased in each case, but not because of an increase in its value. The proximate cause was the global financial crisis. In all these countries publicly funded teachers continued to be employed and there were no mass redundancies. Salary spending was sticky on the downturn and remained at historic levels, but GDP fell. Consequentially the value of X increased as expenditure represented a larger share of a diminished GDP and smaller total government spending.

The value of S is subject to all the difficulties of aggregating what is spent on education by governments especially where several Ministries are involved, and expenditure is by local as well as national government and external flows may or may not be off budget. Compounding these problems what is allocated is not what is disbursed and what is disbursed is not necessarily what is spent on the activities for which it was allocated. Moreover, no account is often taken of private expenditure by households which may be equivalent in value to public spending or even greater. These difficulties are compounded by the need for exchange rates in any cross national comparisons, the most relevant inflators to apply to time series, and the appropriate use of purchasing power parities.

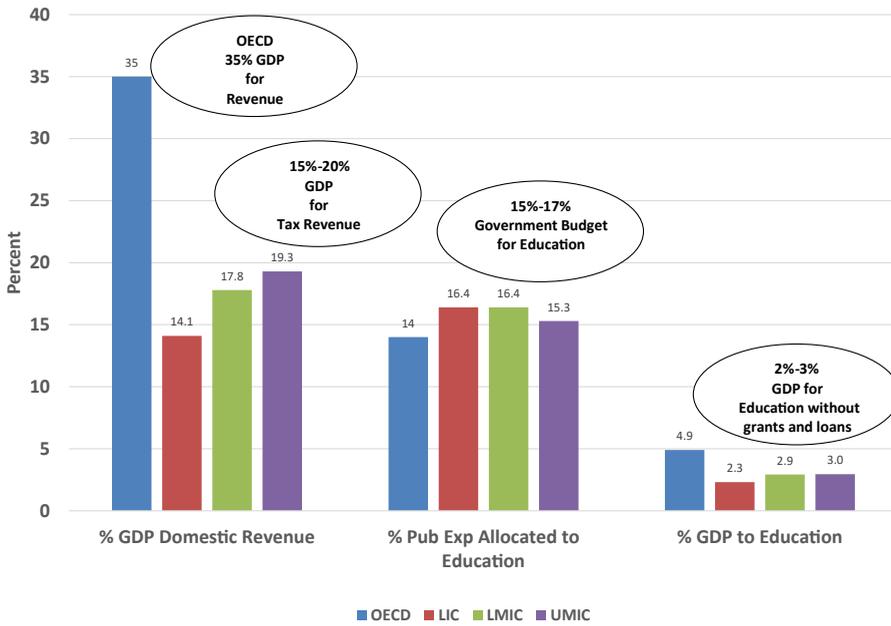
The value of E may or may not reflect the amount of domestic revenue generated by governments net of borrowing and any grants and loans that are relevant. Debt repayments may greatly diminish E if they take a substantial share of revenue (IMF, 2018; Carneiro & Kouame, 2020). Revenue that depends on fluctuations in the prices of global goods will create volatility where national economies are dependent on a few sources of income which preclude risk management and diversification.

Accepting all these limitations it is possible to chart the options for public financing of education systems. Figure 14 shows that typical values for OECD countries for government spending as a share of GDP and education spending as a share of government spending result in about 5% of GDP being allocated to education. The values are much lower for LICs, LMICs and UMICs in SSA. LICs average about 15% of GDP on public expenditure and 15% of public expenditure on education. This is equivalent to only 2.25% of GDP for education (i.e. 15% of 15%). Averages derived from UIS data sets for the proportion of GDP are higher and for LICs appear to be around 3.7% suggesting that grant aid and concessional lending are included in some methods of calculating flows to education.

The key issue is revealed when Figure 14 is compared to Figure 15. This shows the changes that would be necessary to raise the percentage of GDP spent on education to more than 6% which is the first order costs of SDG4. Large increases are needed both in revenue that supports government expenditure and in the proportion of that expenditure that is allocated to education. LMICs should be able to raise a greater share of GDP in revenue and thus finance education with a smaller share of public expenditure than can LICs with much weaker economies.

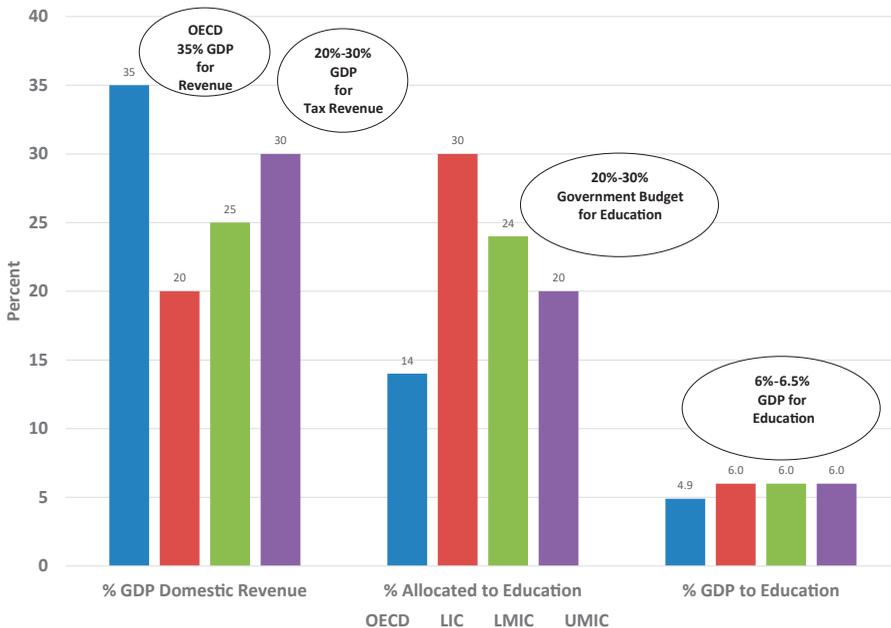
The amounts needed to greatly increase participation and make sustained inputs to quality and learning levels (World Bank, 2018; UNESCO, 2017) are much greater than the sums currently allocated from national budgets. LICs and LMICs need to target an average of more than 6% of GDP. Very few countries have sustained 6% of GDP for education and none have allocated more than 30% of public expenditure to education consistently and sustained it for three years or more. The amounts needed are many times larger than the volume of grant aid and concessional financing for basic education in SSA which has been averaging less than 3% of current spending (UNESCO, 2018).

Most disturbingly UNESCO Institute of Statistics (UIS) and Global Education Monitoring Report (GEMR) predict that education as a proportion of GDP will remain static at around 4%



**Figure 14.** Pattern of public expenditure on education in 2020 – the status quo

Source(s): Author’s chart



**Figure 15.** Expenditure patterns to achieve 6% GDP for education

Source(s): Author’s chart

until 2030 (UIS/GEMR, 2022). At the same time their projections show education as a proportion of government spending increasing from around 15.5% to over 19.5%. The basic arithmetic of  $X = E * S$  outlined above is that if  $X$  (education as a percentage of GDP) remains constant and  $S$  (the proportion of government expenditure allocated to education) goes up, then  $E$  (the total size of government expenditure) must decline. This would happen if the tax GDP ratios were to fall. These projections cannot be reconciled with a policy agenda that clearly implies significant increases in  $X$  are needed with more revenue not less. Wishful thinking is not a substitute for analysis.

## 6. A taxonomy of expenditure on education

Countries vary in the resources they invest in education. How much they need to mobilise depends on their levels of ambition in terms of participation rates, the costs of participation per learner, and the number of learners that need educating. The demand for financing this creates is determined by the basic arithmetic of educational financing. Expenditure as a proportion of GDP is a product of the proportion of public spending allocated to education and the value of government spending as a proportion of GDP. A fundamental policy dialogue thus evaluates whether government allocations to education are high or low and whether public spending as a whole is high or low. If funding is insufficient to finance the achievement of system goals then this should lead to discussion as to whether under-funding is a result of low domestic prioritisation of education or low domestic revenue collection and consequentially low public expenditure. A simple taxonomy identifies countries with different levels of commitment to financing their education systems as shown below (Table 1).

Table 2 classifies countries by level of financial commitment to education. This is based on aggregate spending that does not differentiate between educational levels. More detailed analysis would yield insight into how expenditure was balanced between primary, secondary and tertiary level and between types of provision e.g. general schools, TVET, professional further education and conventional degree courses, etc.

From this matrix those countries that fall into the low spending category allocate on average 2.4% of GDP and 9.8% of government expenditure to education. Total government expenditure averages only 10.4% of GDP. These countries are a long way from becoming fiscal states able to finance their own development from revenue with levels of commitment that could conceivably support mass education systems with full enrolment up to grade 12 as SDG4 envisages. They would have to increase the resources available by at least 250% to approach the kind of levels necessary for SDG4.

Countries with middle levels of commitment average 3.8% of GDP and 15.5% of government spending and at the same time mobilise 17.2% of GDP for all government spending. This can generate considerably more resources for education. However this still falls far short of what would be needed leaving a substantial financing shortfall. These countries fall close to the median case in SSA indicating that the financing problems are not marginal but central to the ambitions of SDG4.

The highest spending countries allocate on average 6.2% of GDP and 21.5% of government expenditure and have total government expenditure representing 28% of GDP. These countries have some chance of financing high levels of educational access from grades 1 to 12, providing mass pre-schooling and investing extensively in enhanced quality.

Progression to become fiscal states is dependent on many things but most critically it needs political stability that allows accumulation of assets, predictable decision making by governments and economic stability and growth over the medium term. Low income countries are challenged to develop the conditions that accelerate development and allow

Expenditure on education as percentage of government expenditure S	Total public expenditure as a percentage of GDP E	Public expenditure on education as percentage GDP X = S * E	Comment
Low <13%	Low <14%	Low <3%	Low spending on education (S) and low public expenditure (E) signals needs to increase level of public spending on education and raise more domestic revenue through fiscal reforms
Low <13%	High >20%	Middle 3%-5%	Establish reasons for low government spending on education e.g. low level of political commitment, priority of other sub-sectors, high debt servicing and act accordingly
Middle 13%-18%	Middle 14%-20%	Middle 3%-5%	Identify opportunities to increase allocation to education and to government expenditure related to revenue towards 6% of GDP
High >18%	Low <14%	Middle 3%-5%	Explore fiscal reforms to increase domestic revenue that can be used to support public goods like education
High >18%	High >20%	High >5%	Maintain high level of allocation of public expenditure to education and seek increased efficiency and effectiveness

**Note(s):** This table is illustrative rather than comprehensive. There are more possible combinations of S and E than are shown and the matrix can be extended to accommodate these if needed. X depends on S and E so is determined by their values

**Table 1.** Taxonomy of effort to invest in education

fiscal states to evolve. Stable political states are a prerequisite for any kind of cumulative development and a systematic approach to how it can be financed.

## 7. Conclusions

This paper has highlighted a range of critical issues for financing and drawn attention to the extent to which key indicators of public educational investment have remained at levels insufficient to finance sustainable educational development in line with national and global goals. In summary,

- (1) Financial commitments to public education systems in LICs and LMICs have settled around 15% of government spending and 4% of GDP since the 1990s despite many analyses that much more was needed to achieve global goals first set in the 1960s and reiterated in 1990 and 2000 at world conferences.
- (2) LICs and LMICs characteristically spend less than OECD countries as a proportion of GDP (less than 4% compared to over 5% of GDP) and have much larger numbers of children to educate relative to working age adults.
- (3) LICs and LMICs spend more on education than OECD countries as a proportion of government expenditure – about 15% compared to 12%.

Ed as percentage of GDP	ED as percentage of Govt Exp	Govt exp percentage of GDP
<i>Low</i>	<i>Low</i>	<i>Low</i>
DRC 1.5	Somalia 4.3	Somalia 0.0
CAR 1.8	Angola 6.0	Madagascar 9.9
Angola 1.8	Nigeria 7.0	CAR 10.1
Guinea 1.8	Liberia 8.2	Sudan 10.3
Mauritania 1.9	CAR 9.8	Ethiopia 10.8
Liberia 2.3	Mauritania 10.2	Cameroon 11.7
Chad 2.4	Rwanda 10.8	Uganda 11.8
Uganda 2.6	Gambia, The 11.0	Mali 12.4
Gabon 2.8	Uganda 11.0	Togo 13.5
Gambia, The 2.9	Seychelles 11.1	Gabon 13.7
Madagascar 2.9	Guinea 12.4	
Guinea-Bissau 2.9	Niger 13.0	
Benin 3.0	Lesotho 13.1	
<i>Average</i> 2.4	9.8	10.4
<i>Middle</i>	<i>Middle</i>	<i>Middle</i>
Cameroon 3.1	DRC 14.0	Tanzania 14.6
Rwanda 3.4	Cameroon 14.1	Guinea-Bissau 14.6
Mali 3.4	Gabon 14.2	Côte d'Ivoire 14.9
Niger 3.5	Chad 14.2	Malawi 15.2
Tanzania 3.5	Malawi 14.6	Angola 15.6
Zimbabwe 3.6	Mali 14.6	Burkina Faso 17.2
Côte d'Ivoire 3.7	Cabo Verde 15.2	Ghana 18.1
Malawi 3.7	Zambia 15.3	Congo, Rep. 18.4
Congo, Rep. 3.9	Botswana 15.4	Rwanda 18.7
Seychelles 3.9	Madagascar 16.4	Zimbabwe 19.2
Ghana 4.0	Congo, Rep. 16.7	Senegal 19.8
Zambia 4.5	Côte d'Ivoire 17.4	Mozambique 19.9
Mauritius 4.7	STP 17.6	
Cabo Verde 4.7	Benin 17.7	
<i>Average</i> 3.8	15.5	17.2
<i>High</i>	<i>High</i>	<i>High</i>
Togo 5.0	Senegal 18.3	Zambia 20.1
Kenya 5.0	Ghana 18.6	Mauritius 23.5
Burundi 5.0	Mauritius 18.7	Zambia 20.1
Ethiopia 5.0	Burundi 18.9	Mauritius 23.5
Senegal 5.3	Kenya 19.0	Kenya 24.8
Eswatini 5.6	Zimbabwe 19.0	Botswana 26.5
Burkina Faso 5.8	Mozambique 19.0	Cabo Verde 28.4
STP 5.9	South Africa 19.6	Seychelles 32.0
Mozambique 6.2	Tanzania 20.5	Namibia 33.1
South Africa 6.5	Burkina Faso 22.0	South Africa 37.7
Botswana 6.9	Togo 22.0	Lesotho 39.9
Sierra Leone 7.4	Ethiopia 24.0	
Lesotho 7.8	Namibia 26.4	
Namibia 9.5	Sierra Leone 35.0	
<i>Average</i> 6.2	21.5	28.1

**Table 2.**  
Taxonomy of low, medium and high spending countries – Key variables

**Note(s):** These parameters for each country are derived independently in the World Bank datasets using country validated returns. As a result they are not always consistent in terms of  $X = S * E$

- (4) This translates into much less investment in real terms because total government expenditure in LICs and LMICs may be below 15% of GDP compared to over 35% of GDP in OECD countries.

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- (5) There is evidence that a “low financing trap” exists. Over the last two decades public investment in education, as measured by the proportion of GDP allocated and by education as a proportion of government spending, has not increased despite extensive lobbying by development partners. Systems are equilibrating around historic levels with little sign of an appetite to increase financial effort.
  - (6) A taxonomy of countries identifies three bands of effort for investment in education. Individual countries tend to remain in bands of expenditure on education and only the highest band countries are likely to be able to finance the ambitions of SDG 4 with domestic revenue.

This analysis of educational expenditure has shown that in SSA investment in education has remained remarkably stable as a proportion of GDP and as a proportion of government expenditure over long periods. Educational financing problems are closely coupled to public sector finance problems and the rate at which “fiscal states” are developing which can finance themselves from domestic revenue and prudent borrowing. Government spending as a proportion of GDP has also tended to plateau in LICs and LMICs.

The most recent SDG4 projections and commitments (UIS/GEMR, 2022, p. 93) anticipate no growth in the proportion of GDP allocated to education through to 2030 based on benchmarks agreed with national authorities with an average value remaining at around 4% of GDP. If this becomes a reality then SDG4 will simply not be realised because it will not be financed at a level sufficient to achieve its targets.

In public finance and politics there is often an assumption that taxation can be increased up to the point where feedback from those who pay taxes creates pressure to either improve and extend services or reduce taxes. This leads some to a kind of “political settlement analysis” which balances pressures from different interest groups and leads to a degree of stability in resource commitments reflecting the power and influence of different lobby groups to allocate more or less to education.

The data in this paper do show equilibration in the share of education as a proportion of GDP in SSA and a kind of low financing trap that means that LICs and LMICs as a whole have failed to increase spending on education despite much advocacy and many commitments (Lewin, 2021). The causality is very complex, has many interacting parts, and is likely to be country specific. However, the data are unambiguous – most countries have not responded to calls to increase budget allocations to education of 6% of GDP and 20% of government expenditure or more over the last two decades. Major pledging conferences have promised a new dawn with higher levels of financial commitment by states that has not materialised. Development partners are now allocating less in aggregate, not more, to educational assistance (Packer, 2021; UK Parliament, 2021; Moyo, 2010; Easterly, 2007) and critiques of aid speak to some of the possible reasons as do recent papers by Burnett (2019), Lewin (2020) and Beharry (2021).

Some have argued (Robinson, 2022) that in low income SSA there is less appetite to pay taxes in exchange for public services than in many other parts of the world. The problem according to this thesis is tax aversion is at least as much of a problem as tax avoidance. Fixing revenue systems, eliminating corruption, and ensuring accountability will not be sufficient if at the core many citizens do not wish to pay tax in return for services. It is at least possible that citizens are not enamoured of large states that provide poor quality public goods, and have a preference for small scale relational political economies that bargain and barter services for contributions. Another study is needed to verify these assertions and understand more about why it has proved impossible to change levels of investment in education over a long period.

International cooperation programmes cannot be based on the presumption that any pattern of allocation of resources to education is possible given enough political will. Nor can

it assume that global goals are necessarily shared by recipients and donors (Heyneman & Lee, 2016; Crawford, Hares, Minardi, & Sandefur, 2021; Akmal, Ali, Hares, & Sandefur, 2021). Enthusiasm to “get results” which depend on mobilising other people’s tax dollars is not an obviously viable strategy to nudge change. Nor are uncostered and over optimistic targets for financing a good basis for strategies that can be implemented in sustainable ways.

Unblocking low financing traps and seeking to catalyse shifts to new equilibria that consistently allocate more resources to education will be central to sustained educational development in low income countries.

Catalytic aid accelerates the rate of development without itself being much depleted or creating recurrent deficits needing fund replenishment. There are several dimensions to aid that is catalytic and sustainable. These include,

- (1) Seeking high gain low input interventions with the potential to shift long term levels of efficiency and effectiveness
- (2) Grants and loans that are time limited and linked to defined outcomes conditional on exit routes with future financing from domestic resources
- (3) Favouring catalytic inputs with long term and resilient gains over general subsidies to fill gaps in recurrent financing in the short term
- (4) Ensuring that external financing would have to demonstrate its unique comparative advantages and complement not substitute for domestic resources
- (5) Requiring sustainability to be judged over a time period long enough to determine if impact was robust or transient
- (6) Insisting that concessional financing demonstrates net zero emissions (or related measures) minimising adverse environmental impacts
- (7) Adopting discount rates that “value the future over the present” so that future well-being is not sacrificed for short term gains and the depletion of non-renewable resources.

In countries that have transitioned from LMICs to middle and higher income groups’ educational investment in most has been consistently at a high level. The most powerful driver has been increased domestic revenue yield coupled with real economic growth and commitment to expenditure to finance public goods (Al-Samarrai, Cerdan-Infantes, & Lehe, 2019). This has been linked to realistic goals setting embedded in country context and consistent with the Paris accords on aid effectiveness (Fredriksen, 2010; Lewin, 2015). Catalytic aid seeks to reduce debt and forward liabilities to levels that can be supported by emergent fiscal states that manage real economic growth and enhanced revenue generation.

In conclusion more analysis is needed to understand the reasons why countries occupy different positions on the core financing indicators. Political stability and economic prosperity are critical but so also are other factors that differ from country to country. In some cases high levels of debt repayment may be an underlying cause of low allocations (IMF, 2018; OECD, 2020). There is evidence of stability within bands of effort over time so that equilibrium levels are different in different countries. About 50% of LICs and LMICs did not change their allocations to education by more than 10% over the period 2000– 2019 suggesting that fluctuations were often short term around a central tendency (Lewin, 2019). The values and group averages suggest benchmarks related to the clustering of values of relative effort. These kind of benchmarks are only of use if they are mapped onto specific systems and their specific political economy of choices (Miller, Hart, & Hadley, 2021, p. 32). This can uncover how external assistance can complement domestic prioritisation.

New approaches to technical cooperation using external assistance are needed which recognise the need to escape from low financing traps. The data analysis shows that systems are equilibrating around historic levels of financing. This constrains progress towards national and international goals and only countries in the highest band of allocations are likely to be able to finance the ambitions of Sustainable Development Goal 4 (SDG4) from their own resources between now and 2030. Innovative approaches to external assistance are needed which recognise that domestic revenues are at the heart of sustainable financing and that greater efficiency and effectiveness are critical to sustainable solutions. Grant aid can be catalytic but can never fill gaps in recurrent expenditure. More debt is unlikely to yield long term development that is sustainable. The priority is to accelerate the development of fiscal states, which can finance public goods from domestic revenue and make good use of realistic levels of concessionary assistance.

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