



# Secondary education provision and impacts of low secondary uptake on wider societal outcomes

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## Question

1. What is the level of global secondary school attendance – relative to primary (preferably by region and disaggregated by gender and lower and upper secondary school)?
2. What the literature says about countries with low levels of secondary school attendance (with a primary focus on SSA) and how this impact on key areas such as demography, economy, civic participation and environment?
3. What would it cost / take to increase secondary education uptake?

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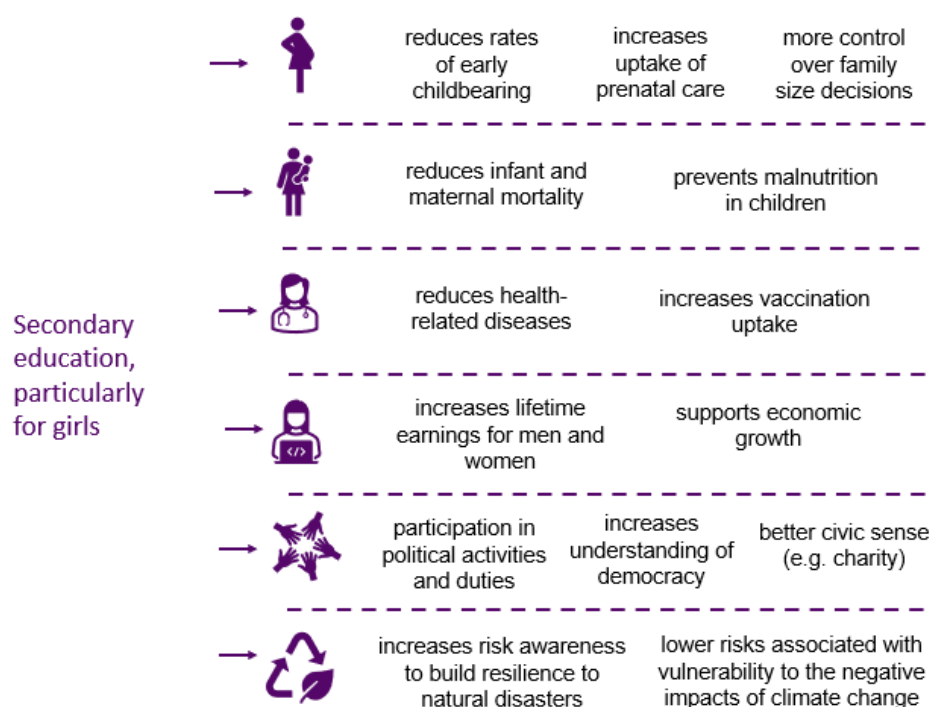
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# 1. Executive summary

This report explores the current uptake and completion of secondary education globally, with a particular focus on sub-Saharan Africa. The report also explores the wider societal benefits of increased secondary completion rates, and the financial considerations that are needed to increase uptake and completion. Using data from UIS (2022) and UNESCO WIDE (2022), the report identified disparities in net enrolment, attendance and completion between primary and both levels of secondary education, particularly upper secondary. In sub-Saharan African countries, achievements in net enrolment at primary level are rarely met with high enrolment levels at either lower or upper secondary level, with this difference even more stark when observing completion rates. Currently, both lower and upper secondary education is not a funding priority amongst many countries in sub-Saharan Africa. Of the 27 countries included in analysis, only one country (Mauritius) spent a higher proportion on secondary education compared to other levels (UIS, 2022). Some countries were found to spend a higher proportion of GDP on tertiary education compared to other education levels, with over double the amount spent on tertiary compared to both lower and upper secondary education combined in some instances (Ethiopia, Sierra Leone, South Sudan) (UIS, 2022).

The poor uptake at secondary level has wide social and economic implications, and it is argued that investing in secondary education is an essential component of economic growth. The below diagram outlines the different ways through which secondary education can benefit wider society and take pressure of health services whilst supporting economic growth.

Figure 1: the relationship between secondary education and social outcomes (Dollar and Gatti, 1999; UNESCO, 2014; Wodon et al, 2017; OECD, 2011; Kwauk and Braga, 2017; Werner et al, 2022; Muttarak and Lutz, 2014; Arbache et al, 2010)



Source: Author's own

Secondary education leads to improved outcomes across a broad range of social and economic measures. Economically, secondary education has the potential to grow the economy as a whole, in addition to increasing earnings on an individual level. In Dollar and Gatti's (Dollar & Gatti, 1999) study of 100 countries, they found that increasing the share of women who complete secondary education by just 1% increases economic growth by 0.3%. Although this appears to be an insignificant number, 0.3% across an entire economic would result in substantial gains. Educating women to secondary level has a range of health benefits both for women, and their children. Secondary education can reduce child mortality by half, increases the uptake of vaccinations, and can reduce the number of children who die of pneumonia each year (UNESCO, 2014). In relation to civic participation, individuals educated to secondary level and above are more likely to understand and favour democratic governments, and more likely to engage in civic activities such as volunteering or working with charities (Wodon et al, 2017; OECD, 2011; Winthrop, 2015). Secondary education also has the potential to build resilience amongst communities in facing the increasing challenges of climate shocks. Streissnig et al (2013, p.5) and Laplante et al (2010, p.12) identify secondary education, particularly for girls, as the most important determinant to reduce vulnerability to weather-related disasters and extreme weather. Kwauk and Braga (2017) found a strong positive association between average number of years' schooling for girls, and a country's ND-GAIN index, that measures resilience to climate disasters.

However, the challenge of meeting the needs of the population through secondary education provision is immense. Teacher shortages and high attrition rates place challenges on both primary and secondary education, with the shortage of teachers particularly stark at secondary level in STEM subjects (Tikly et al, 2017; Bangay, 2022). The low completion rates of secondary education amongst girls compounds this problem, in part leading to the teacher workforce being male dominated in sub-Saharan African countries (UIS, 2022). The financial challenges are also vast. The Education Commission estimated that US \$175 billion per year is needed between now and 2050 for Sub-Saharan African countries to reach near universal enrolment in lower and upper secondary education (Zubairi & Rose, 2019, p. 10). This is an increase of US \$150 billion per year compared to expenditure in 2015 (Ibid). The Mastercard Foundation have proposed various solutions to provide equitable financing to meet this challenge (Zubairi & Rose, 2019). These include utilising a growing number of alternate financing mechanisms (e.g., Education Outcomes Fund), increasing efficiencies in teacher deployment and utilization, reducing dropout and repetition, addressing the indirect costs of education that prevent learners from enrolling or continuing, and equity-based funding formulas, such as needs-based scholarships (Ibid). Others have noted the importance of good governance coupled with increased spending to ensure efficiency in use of funds (Sommer & Fallon, 2020). This includes tackling corruption and embedding accountability mechanisms into education financial structures.

Even with the increased funds, compromises need to be made. Lewin and Caillods (2001) explored the options for governments seeking to expand participation in secondary education through five categories: increasing allocation of public budgets to secondary schooling, shifting resources between educational levels, reducing unit costs and increasing internal efficiency, identifying new sources of support from community and private sources, and mobilizing external assistance for secondary education (Lewin & Caillods, 2001, p. 283). Funding secondary education will therefore involve trade-offs and important decisions over what aspects to prioritise, whilst at the same time ensuring that the progress with primary education is not jeopardised.

## 2. Secondary school enrolment and provision globally

### Net enrolment rates globally<sup>1</sup>

The lowest enrolment rates globally across all school levels are evident in sub-Saharan Africa (UIS, 2022). Chart 1 shows the difference in enrolment rate by region and level of schooling. North America and Western Europe are the only regions globally with net enrolment at upper secondary higher than 90%, with net enrolment in sub-Saharan African countries averaging 41.9%. Where some regions have high enrolment rates at lower secondary, this typically drops off by upper secondary. For example, Central Asia has a high net enrolment rate at lower secondary of 98.6%, with net enrolment dropping to 85.5% at upper secondary.

Chart 1: net enrolment rate by region



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<sup>1</sup> Enrolment rates have been used in reporting as a global comparator, as it was not possible to gather gender disaggregated data on attendance rates for all regions.

Most regions globally have achieved gender parity, or near parity, in all levels of education. Exceptions to this are sub-Saharan African and Arab states (where, on average, more boys are enrolled than girls at all levels of education).

Table 1: net enrolment rates by gender and region (%)

Source: UIS, 2022. Reproduced under Creative Commons Attribution-ShareAlike 3.0 IGO

	Primary			Lower secondary			Upper secondary		
	Average	Female	Male	Average	Female	Male	Average	Female	Male
<b>Sub-Saharan Africa</b>	80.5	78.4	82.5	63.3	61.9	64.6	41.9	38.5	45.3
<b>Arab States</b>	90.1	88.7	91.4	85.4	83.6	87.2	65.0	62.7	67.2
<b>World</b>	91.2	90.4	92.0	84.4	84.5	84.3	66.4	66.8	66.1
<b>South and West Asia</b>	91.6	91.2	91.8	84.0	85.2	82.9	58.1	58.6	57.7
<b>Small Island Developing States</b>	95.5	95.6	95.4	84.7	84.0	85.3	71.6	71.7	71.6
<b>Central Asia</b>	96.4	96.6	96.3	98.6	97.9	99.2	85.5	85.3	85.7
<b>Central and Eastern Europe</b>	96.7	96.8	96.7	97.4	97.3	97.5	88.2	88.1	88.4
<b>East Asia and the Pacific</b>	96.8	96.3	97.2	90.8	91.7	90.0	81.2	85.5	77.4
<b>Latin America and the Caribbean</b>	97.1	97.5	96.7	93.2	94.0	92.5	78.7	80.0	77.4
<b>North America and Western Europe</b>	99.0	99.3	98.7	98.8	99.0	98.7	94.8	94.4	95.2

### 3. Secondary school enrolment and provision in sub-Saharan Africa

#### Enrolment rates at different levels of education in sub-Saharan Africa

There have been great strides in universal primary education across sub-Saharan Africa, however, enrolment in secondary education has remained low. Chart 2 (pg. 8) shows the disparities in enrolment across primary, lower secondary and upper secondary in sub-Saharan African countries (UIS, 2022).<sup>2</sup> There was no correlation found between high enrolment rates at

<sup>2</sup> Only countries where it was possible to compare enrolment by level of education within the same academic year were included

primary level and enrolment rates at either level of secondary education. The below table outlines all countries with a net enrolment rate at primary level above 90%, with a comparison to net enrolment at lower and upper secondary. Whereas in some countries, net enrolment at lower secondary closely follows primary (see Mauritius, Seychelles, Ghana and Cabo Verde), for others with similarly high net enrolment at primary, lower secondary is substantially behind (see Madagascar, Côte d'Ivoire, Cameroon, Benin and Mozambique).

Table 2: difference between net enrolment rates by level of education, sub-Saharan Africa (%)

	Net enrolment primary	Diff b/w primary and lower secondary	Net enrolment lower secondary	Diff b/w lower and upper secondary	Net enrolment upper secondary	Diff b/w primary and upper secondary
<b>Mozambique, 2015</b>	91.5	-34.6	56.9	-25.8	31.14	-60.4
<b>Togo, 2017</b>	92.6	-14	78.6	-34.7	43.9	-48.7
<b>Cabo Verde, 2019</b>	92.8	-5.3	87.5	-14.1	73.4	-19.4
<b>Benin, 2020</b>	93.3	-35.4	57.9	-21.6	36.3	-57
<b>Rwanda, 2019</b>	93.7	2.5	96.2	-46	50.2	-43.5
<b>Ghana, 2020</b>	94	-1.6	92.4	-17.3	75.1	-18.9
<b>Lesotho, 2017</b>	94.7	-12.1	82.6	-16.6	66	-28.7
<b>Cameroon, 2015</b>	95	-30.4	64.6	-18.7	45.9	-49.1
<b>Côte d'Ivoire, 2020</b>	96.4	-38.2	58.2	-15.3	42.9	-53.5
<b>Madagascar, 2019</b>	97.7	-27.7	70	-33.8	36.2	-61.5
<b>Malawi, 2019</b>	98.1	-17.1	81	-50	31	-67.1
<b>Sierra Leone, 2018</b>	98.4	-47.4	51	-16.5	34.5	-63.9
<b>Seychelles, 2020</b>	98.6	-1.5	97.1	-11.5	85.6	-13
<b>Mauritius, 2021</b>	99.7	-3	96.7	-18.6	78.1	-21.6

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Some countries have made great gains in primary enrolment in recent years, with lower secondary lagging behind, and figures not available for upper secondary. For example, The United Republic of Tanzania's primary net enrolment was 85.8% in 2016, and had increased to 95.4% by 2019 (The United Republic of Tanzania, 2019, p. 16). These gains are yet to be mirrored in lower secondary. The net enrolment rate for lower secondary remained at approximately 33% between 2016 and 2019 in Tanzania (ibid, p. 27). Over that period, that gap widened between girls' and boys' enrolment, from approximately 2.5% to approximately 5%, with more girls enrolled than boys at lower secondary (ibid). However, by upper secondary, it is noted that boys outnumber girls (ibid, p. 26).

When looking at net enrolment by gender, the greatest disparities are seen at upper secondary level (see Charts 3 to 5, pp.9-11). Of the 26 countries included in the analysis, boys' enrolment at

upper secondary was on average 3% higher than girls for upper secondary, 2.9% higher for primary, and 2% higher for secondary. However, there are substantial differences between different countries. Chad and South Sudan had the greatest gender disparities, with enrolment for boys persistently higher across all levels of education (see table 3). Other countries had a smaller gender gap at primary level, which widened as students progressed through each level of education (Togo and Côte d'Ivoire).

Table 3: gender disparities in net enrolment rates by level of education, sub-Saharan Africa (%)

		Chad (2019)	South Sudan (2015)	Togo (2017)	Côte d'Ivoire, (2020)	Benin (2020)
<b>Primary</b>	Male	82.7	42.4	95.5	99.7	96.1
	Female	65	32.7	89.7	93	90.4
	Difference	-17.7	-9.7	-5.8	-6.7	-5.7
<b>Lower Secondary</b>	Male	45.1	51	84.7	61.9	61.9
	Female	30.5	39.6	72.3	54.6	53.8
	Difference	-14.6	-11.4	-12.4	-7.3	-8.1
<b>Upper secondary</b>	Male	29.4	46.5	53.4	48.3	41.3
	Female	14.9	28.1	34.4	37.5	31.1
	Difference	-14.5	-18.4	-19	-10.8	-10.2

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In other countries, girls have consistently higher enrolment than boys across all levels of education.

Table 4: countries with higher female to male net enrolment rates by level of education, sub-Saharan Africa (%)

		Senegal (2020)	Mauritania (2019)	Comoros (2018)	Burundi (2021)	Lesotho (2016)
<b>Primary</b>	Male	70.3	75	81.7	88.2	93.9
	Female	80.5	78.8	81.8	91.6	95.4
	Difference	+10.2	+3.8	+0.1	+3.4	+1.5
<b>Lower Secondary</b>	Male	36.4	69.2	79.9	67	78.5
	Female	43.3	74.5	81.7	73.7	86.8
	Difference	+6.9	+5.3	+1.8	+6.7	+8.3
<b>Upper secondary</b>	Male	18.7	36.9	48.4	35.4	61.6
	Female	21.2	41.2	51.9	41	70.6
	Difference	+2.5	+4.3	+3.5	+5.6	+9

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Chart 2: enrolment by level of education and country in sub-Saharan Africa (UIS, 2022)

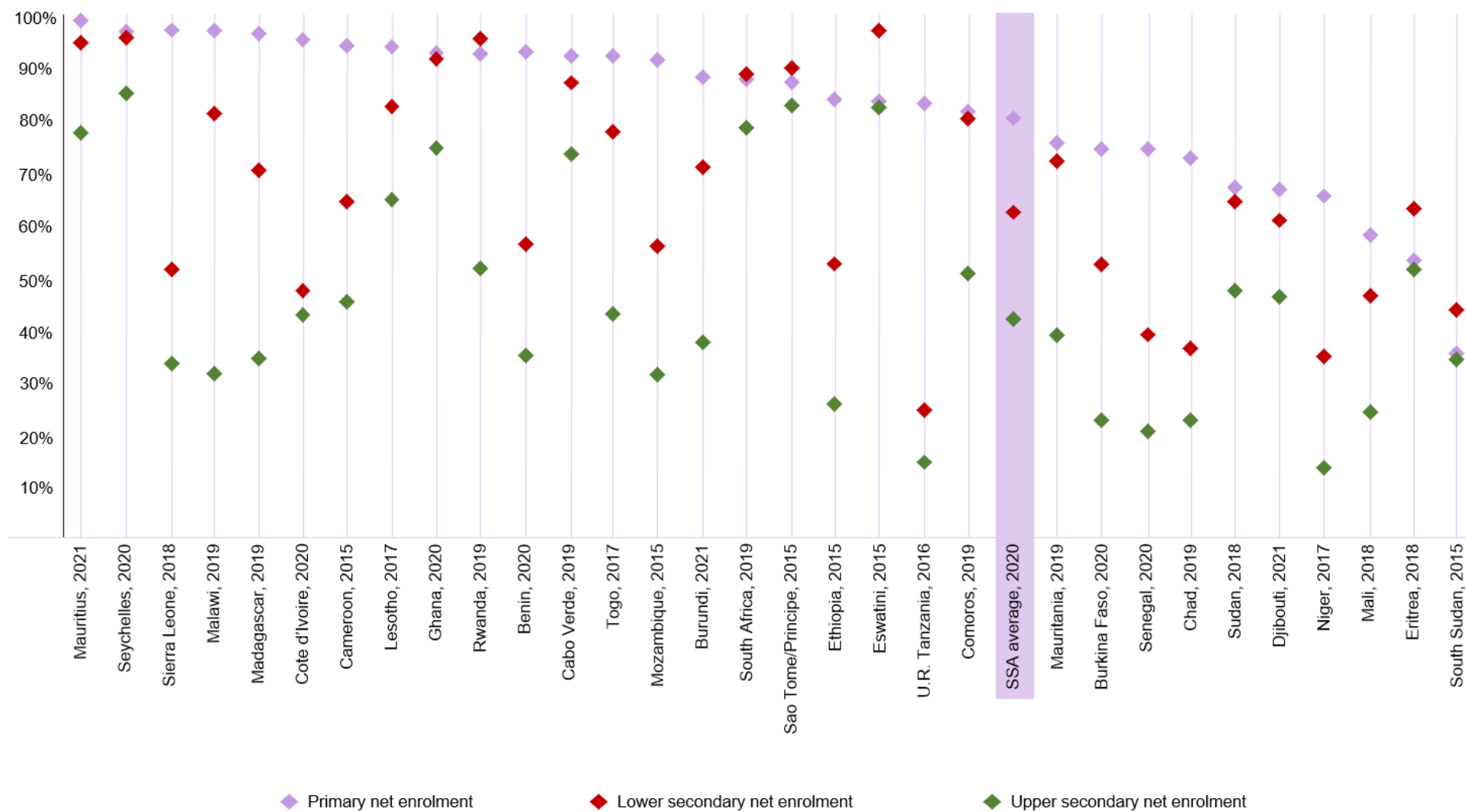




Chart 3: net enrolment by gender, primary education, sub-Saharan Africa (UIS, 2022)

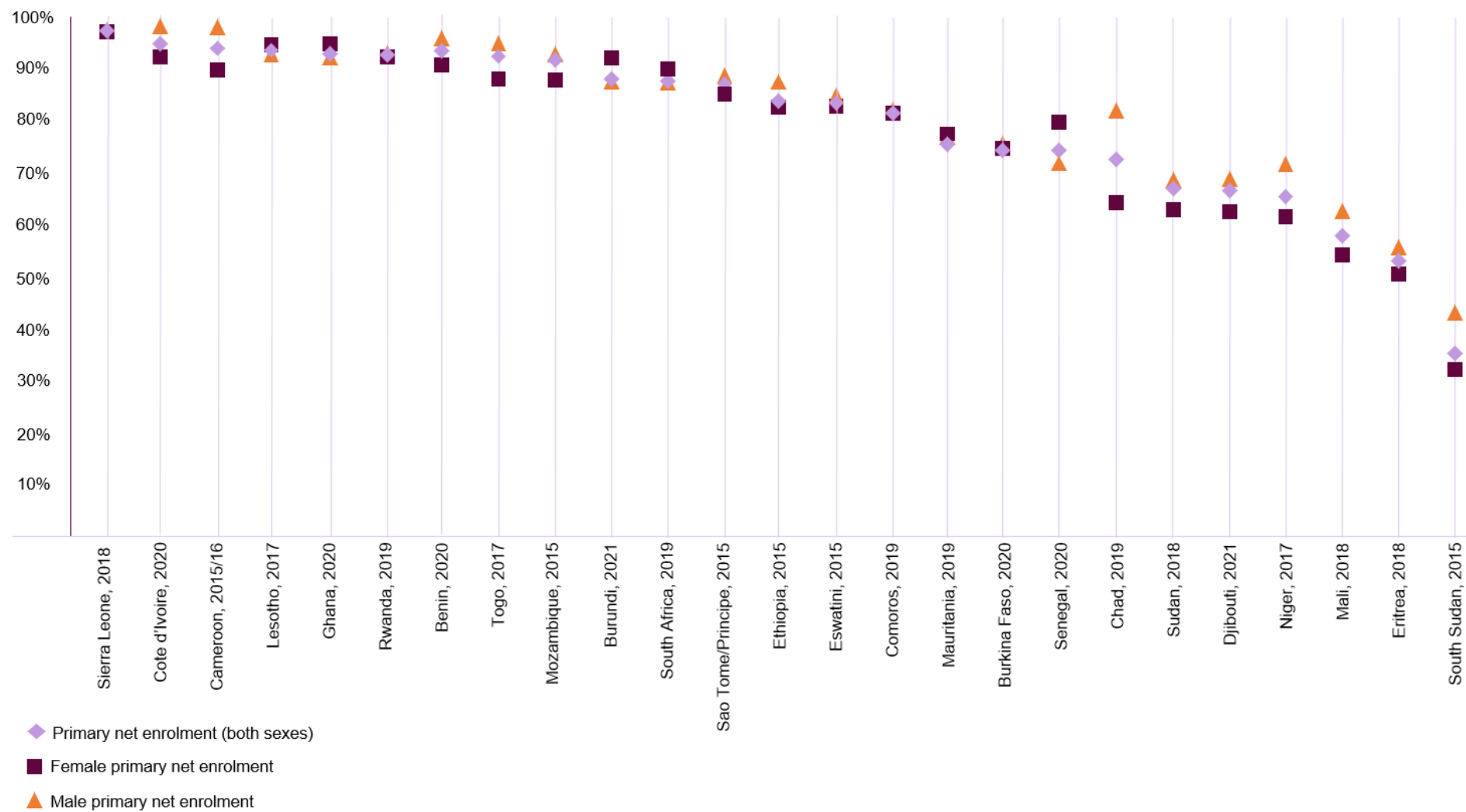


Chart 4: net enrolment by gender, lower secondary education, sub-Saharan Africa (UIS, 2022)

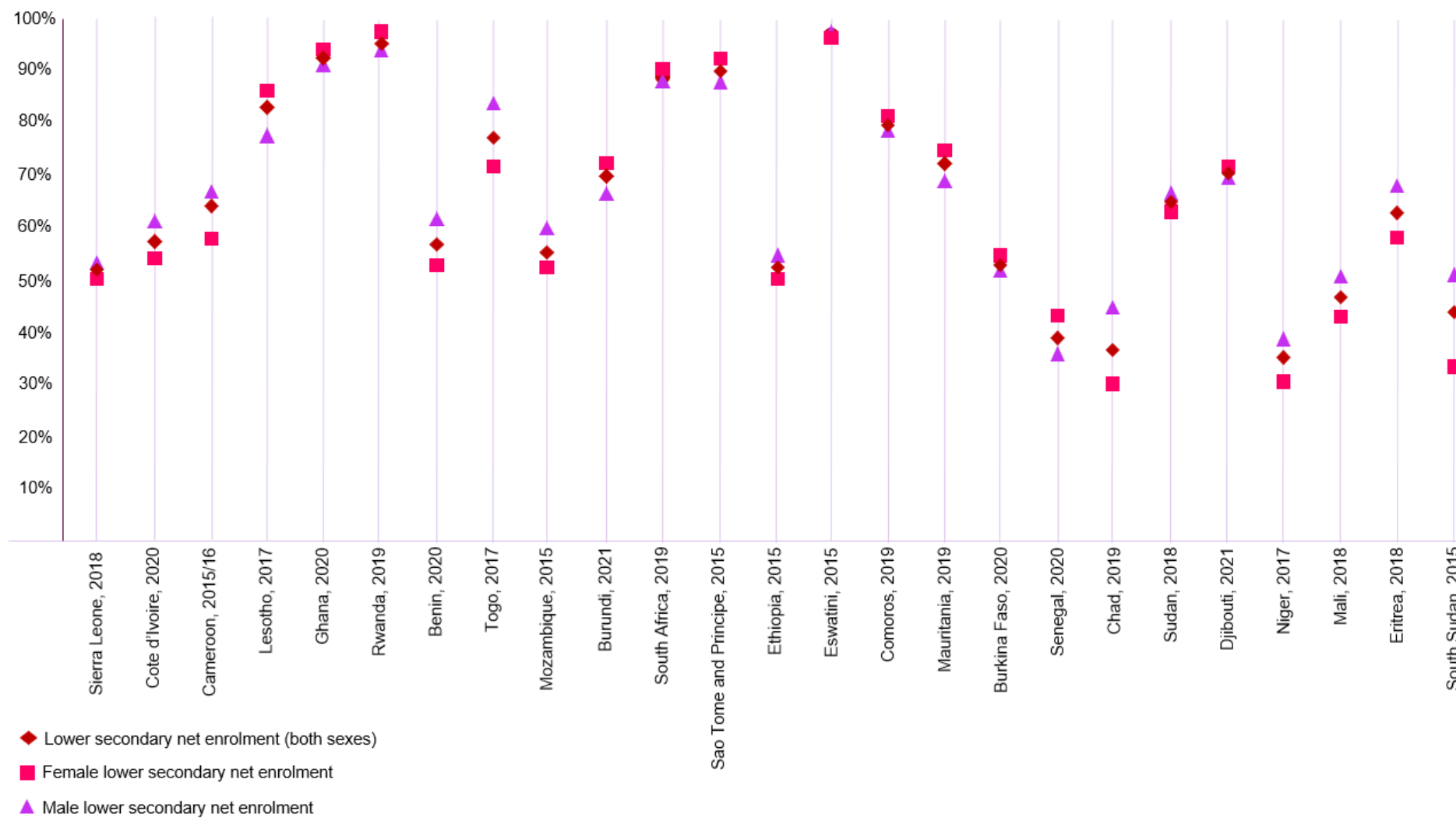
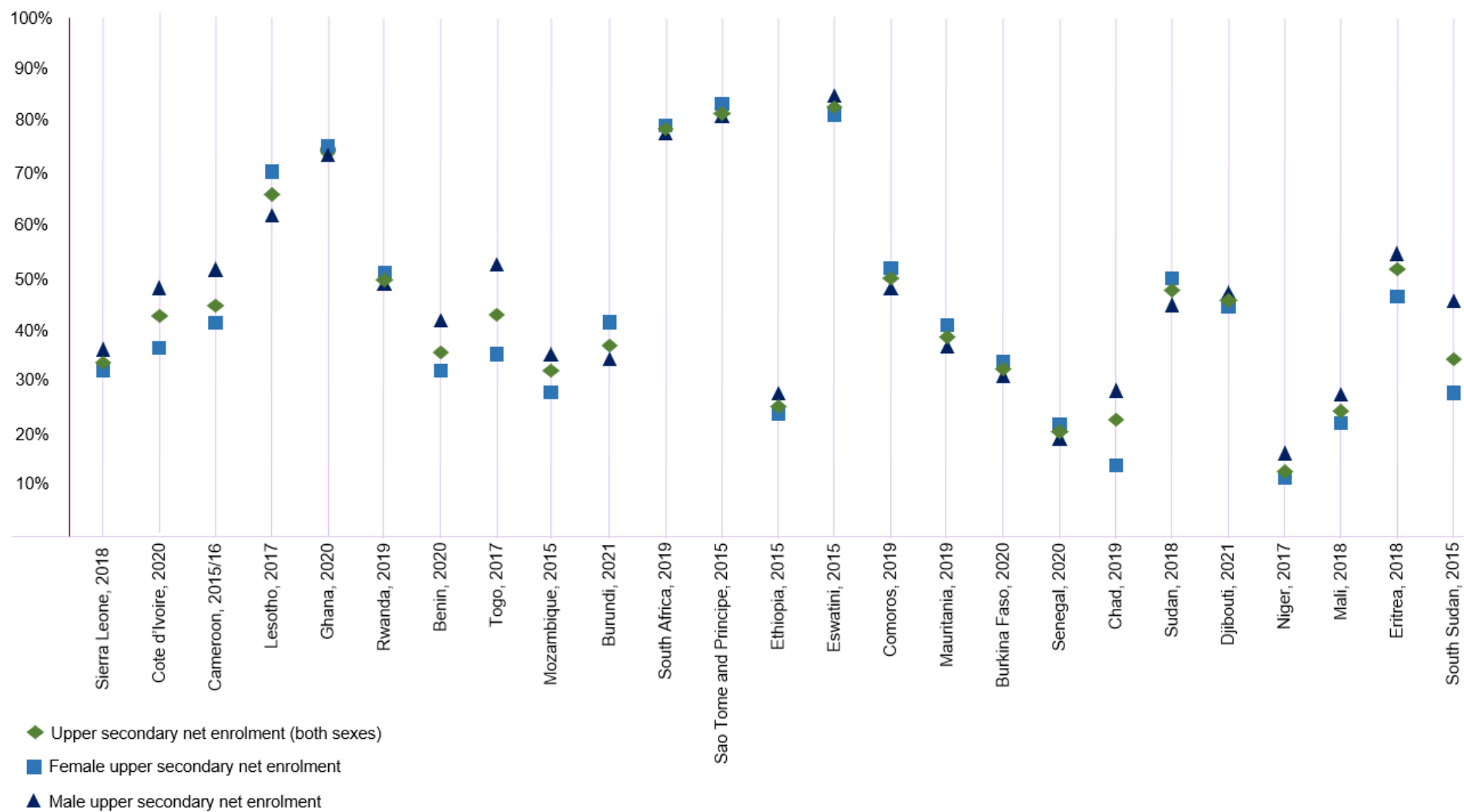


Chart 5: net enrolment by gender, lower secondary education, sub-Saharan Africa (UIS, 2022)



## Attendance rates by level of education

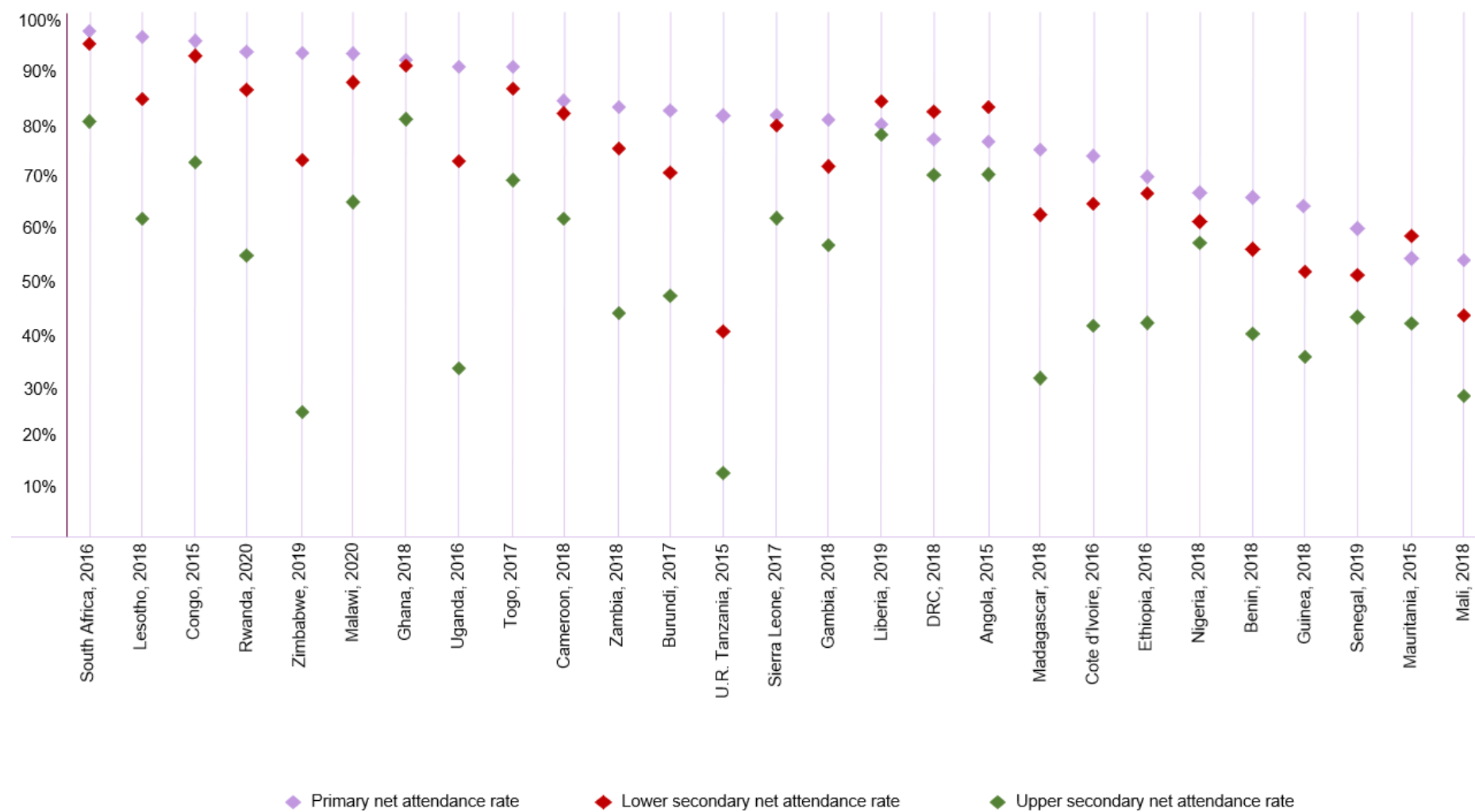
Another metric to determine uptake of different levels of education is net attendance rate. UIS (2022) define net attendance rate as “the total number of students of the official age group for a given level of education who are attending school at any level of education, expressed as a percentage of the corresponding population”. Attendance rates show similar patterns to net enrolment rates, with upper secondary particularly low in many sub-Saharan African countries. Chart 6 (pg.13) shows the net attendance rate for available countries in sub-Saharan Africa by level of education (UIS, 2022). The below table outlines net attendance rates, by level of education, for countries with an attendance rate of over 90% at primary level. As with net enrolment (section above) and completion rates (section below), high attendance at primary is not correlated with high attendance at lower or upper secondary. Ghana has the most consistent rates of all countries across all three levels of education, with a difference of 12% in attendance between primary and upper secondary.

Table 5: attendance rates by level of education, sub-Saharan Africa (%)

	Primary	Diff b/w primary and secondary	Lower secondary	Difference b/w lower and upper secondary	Upper secondary	Difference b/w upper secondary and primary
<b>Togo, 2017</b>	91.8	-3.9	87.9	-17.4	70.5	-21.4
<b>Uganda, 2016</b>	92	-18.6	73.4	-38.3	35	-57
<b>Ghana, 2018</b>	93.5	-0.5	92.9	-11.8	81.1	-12.4
<b>Malawi, 2020</b>	94.2	-5.2	89	-22.8	66.2	-27.9
<b>Zimbabwe, 2019</b>	94.8	-20.5	74.3	-46.4	27.9	-66.9
<b>Rwanda, 2020</b>	94.8	-7.3	87.5	-31.2	56.3	-38.5
<b>Congo, 2015</b>	96.8	-3.5	93.3	-18.4	75	-21.9
<b>Lesotho, 2018</b>	97.1	-11.3	85.8	-23.5	62.3	-34.9
<b>South Africa, 2016</b>	99	-3.5	95.4	-15.3	80.1	-18.8

Source: UIS, 2022. Reproduced under Creative Commons Attribution-ShareAlike 3.0 IGO

Chart 6: attendance rate by level of education and country in sub-Saharan Africa (UIS, 2022)



## Completion rates by level of education

When observing completion rates, the picture is bleaker, particularly for upper secondary completion, compared to net enrolment and attendance rates.<sup>3</sup> Similar to the enrolment and attendance rates, high completion rates at primary do not correlate with higher completion of lower or upper secondary (UNESCO WIDE, 2022). For example, South Africa (2016), has a 96% completion rate for primary education, an 88% completion rate for lower secondary, and only an 8% completion rate for upper secondary (Ibid). Conversely, other countries with a low primary completion rate have higher upper secondary completion rates than South Africa. For example, Uganda (2016) has a primary completion rate of 44%, a lower secondary completion rate of 26%, and an upper secondary completion rate of 18% (Ibid). Overall, even in contexts with higher net enrolment rates, completion rates are poor for both levels of secondary education. The below table outlines the differences between completion rates at different levels of education amongst countries with over 70% primary completion.

Table 6: Completion rate by country and level of education (countries with 70% primary completion or higher) (%)

	Primary	Diff b/w primary and lower secondary	Lower secondary	Diff b/w lower and upper secondary	Upper secondary	Diff b/w primary and upper
<b>South Africa, DHS, 2016</b>	96	-8	88	-80	8	-88
<b>S. Tome/ Principe, MICS, 2019</b>	90	-22	68	-60	8	-82
<b>Zimbabwe, MICS, 2019</b>	89	-35	54	-40	14	-75
<b>Namibia, NHIES, 2015</b>	87	-11	76	-46	30	-57
<b>Kenya, DHS, 2014</b>	84	-13	71	-29	42	-42
<b>D.R. Congo, MICS, 2018</b>	81	-12	69	-26	43	-38
<b>U.R. Tanzania, DHS, 2015</b>	80	-51	29	-21	8	-72
<b>Togo, MICS, 2017</b>	80	-33	47	-26	21	-59
<b>Congo, MICS, 2015</b>	80	-29	51	-28	23	-57

<sup>3</sup> Primary completion rate = percentage of (i) children and young people aged 3-5 years above primary school graduation age and (ii) young people aged 15-24 years, who have completed primary school. Lower secondary completion rate = percentage of (i) young people aged 3-5 years above lower secondary graduation age and (ii) young people aged 15-24 years, who have completed lower secondary. Upper secondary completion rate = percentage of (i) young people aged 3-5 years above upper secondary school graduation age and (ii) people aged 20-29 years, who have completed upper secondary. (UNESCO WIDE, 2022)

	Primary	Diff b/w primary and lower secondary	Lower secondary	Diff b/w lower and upper secondary	Upper secondary	Diff b/w primary and upper
<b>Lesotho, MICS, 2018</b>	80	-36	44	-12	32	-48
<b>Cameroon, DHS, 2018</b>	74	-26	48	-25	23	-51
<b>Zambia, DHS, 2018</b>	72	-21	51	-22	29	-43
<b>Nigeria, DHS, 2018</b>	71	-9	62	-13	49	-22
<b>Ghana, MICS, 2018</b>	71	-24	47	-17	30	-41
<b>Eswatini, MICS, 2014</b>	70	-19	51	-19	32	-38

Source: UNESCO World Inequality Database on Education (WIDE), 2022. Reproduced with permission

When looking at completion rates by gender, the greatest disparities are at lower and upper secondary levels (charts 7 to 10). Of the 33 countries included, only 1 had gender parity in completion rates at both levels of secondary education (Madagascar) (UNESCO WIDE, 2022). Of the remaining countries, only eight had higher completion rates amongst females compared to males at lower secondary (Ethiopia; Rwanda; Eswatini; Ghana; Kenya; Namibia; South Africa), and only five had higher upper secondary completion rates amongst females compared to males (Ethiopia; South Sudan; Eswatini; Lesotho; Namibia).

Chart 7: completion rates by level of education, sub-Saharan Africa (UNESCO WIDE, 2022)

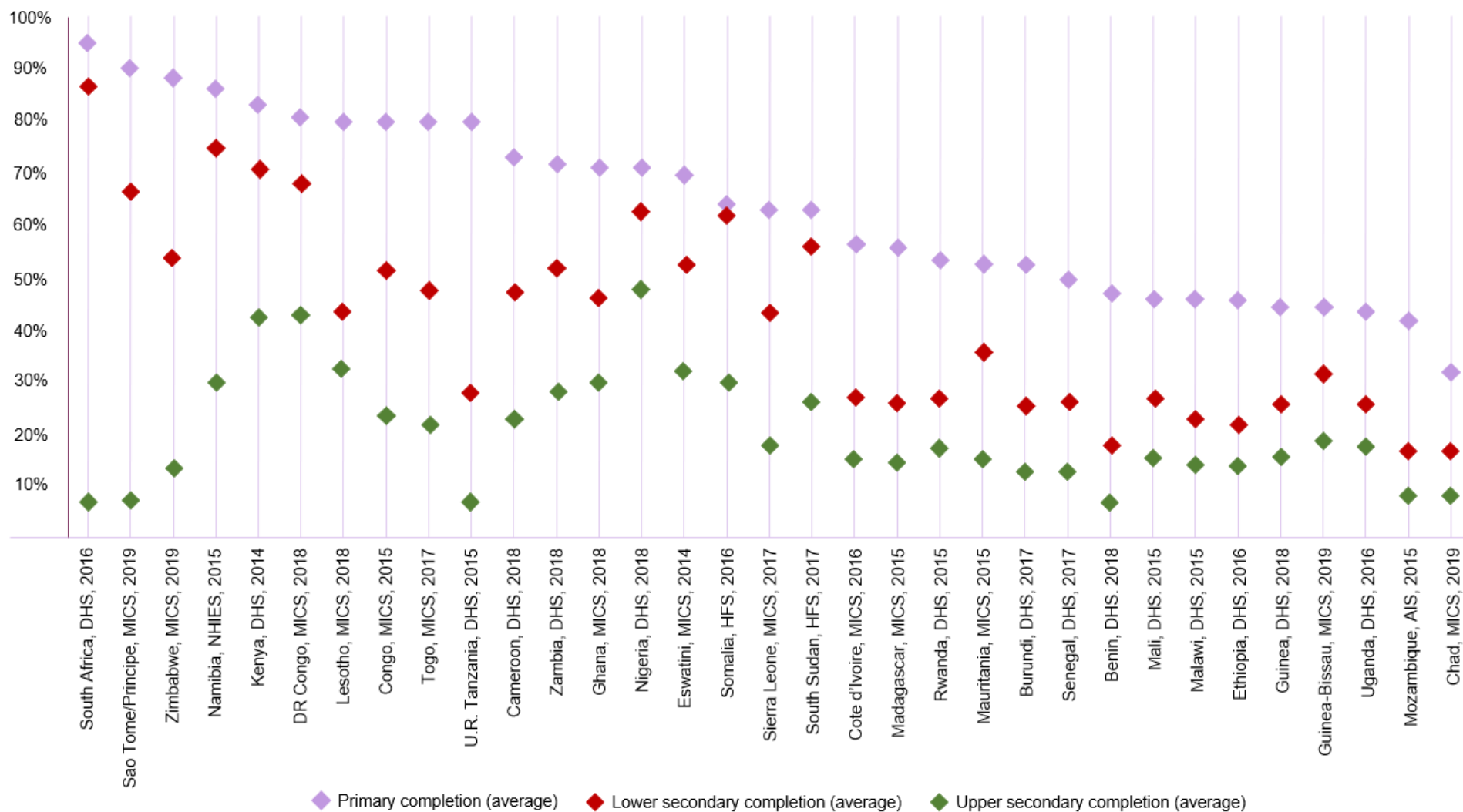




Chart 8: completion rates, primary completion rates by gender, sub-Saharan Africa (UNESCO WIDE, 2022)

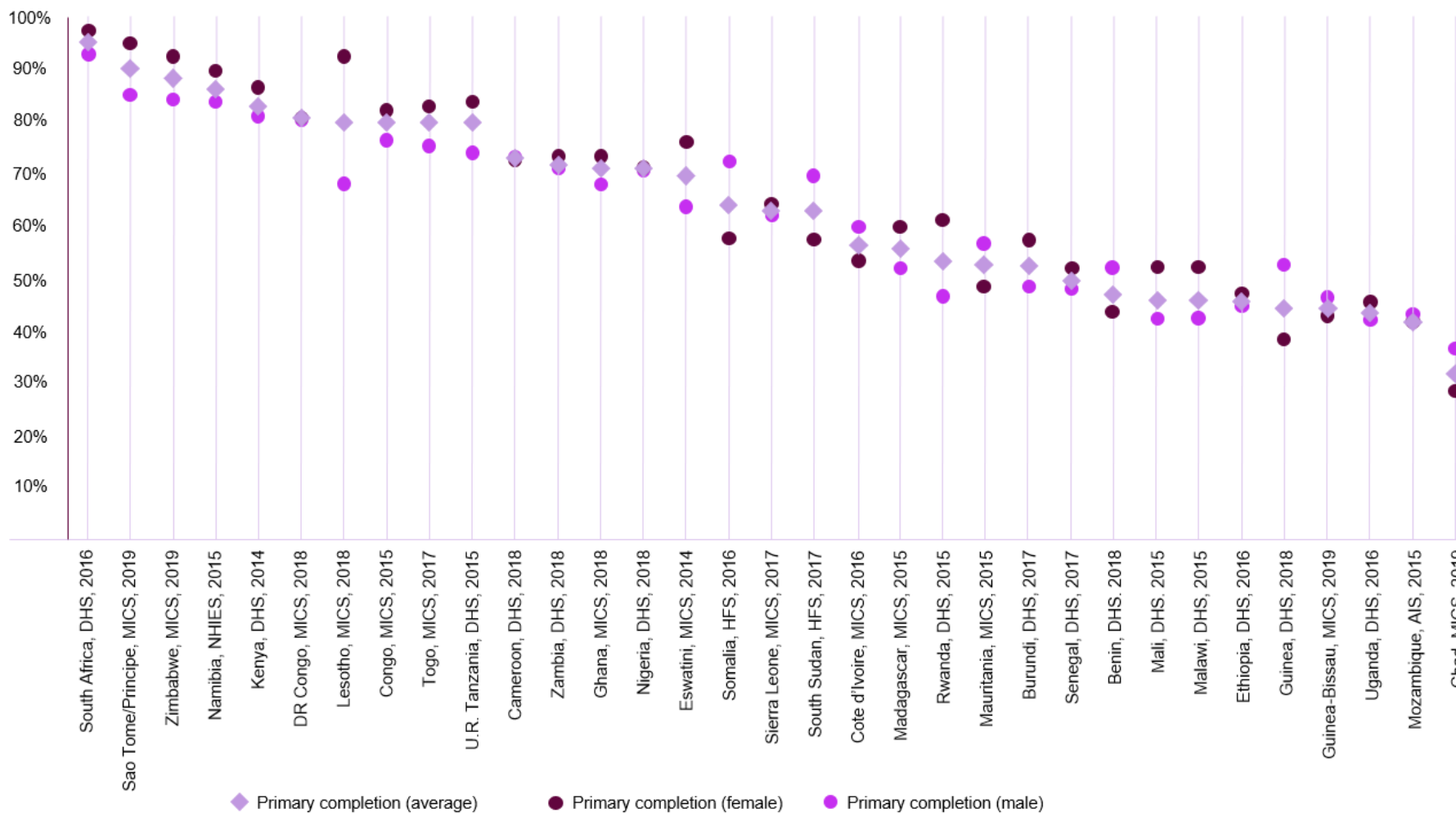


Chart 9: completion rates, lower secondary completion rates by gender, sub-Saharan Africa (UNESCO WIDE, 2022)

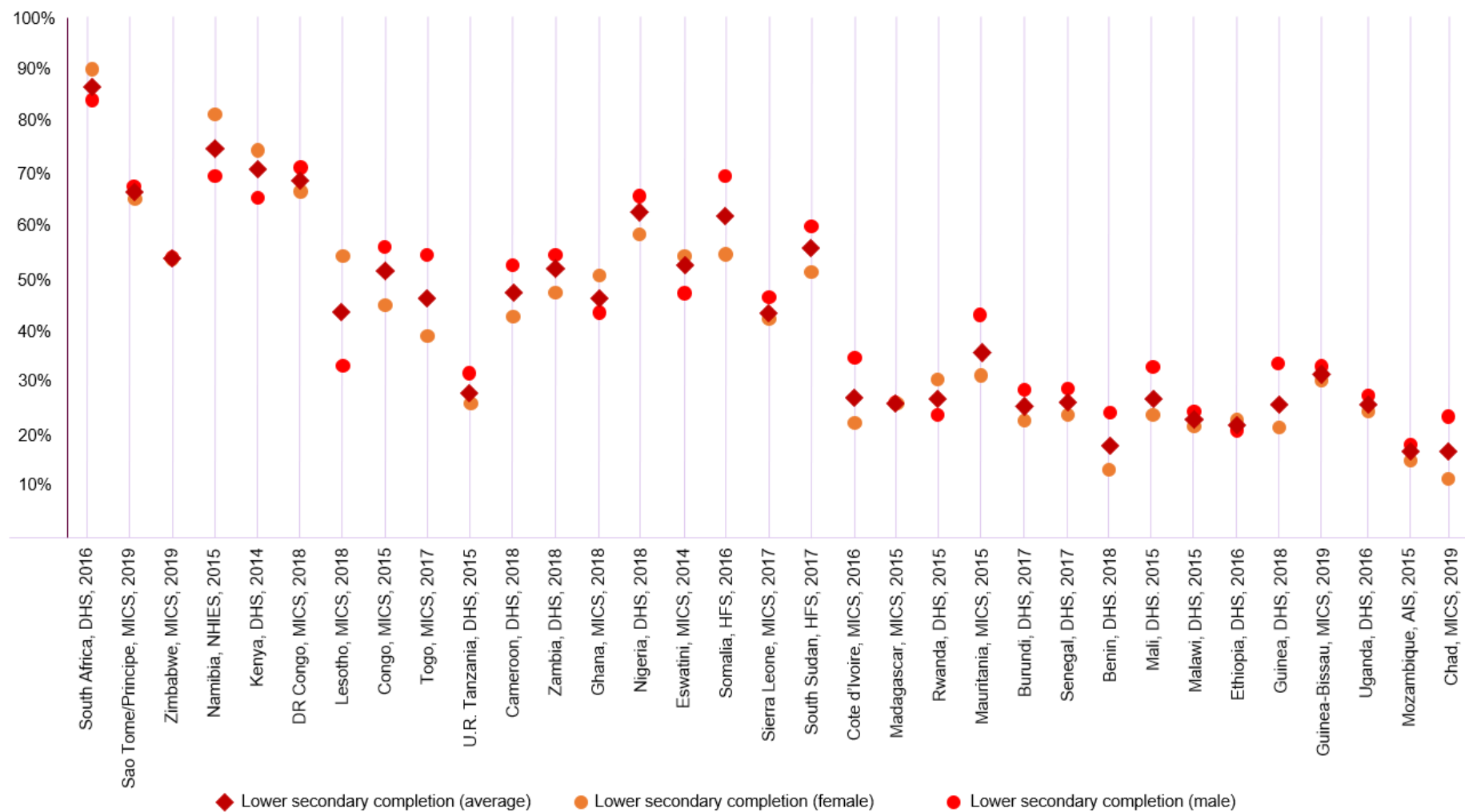
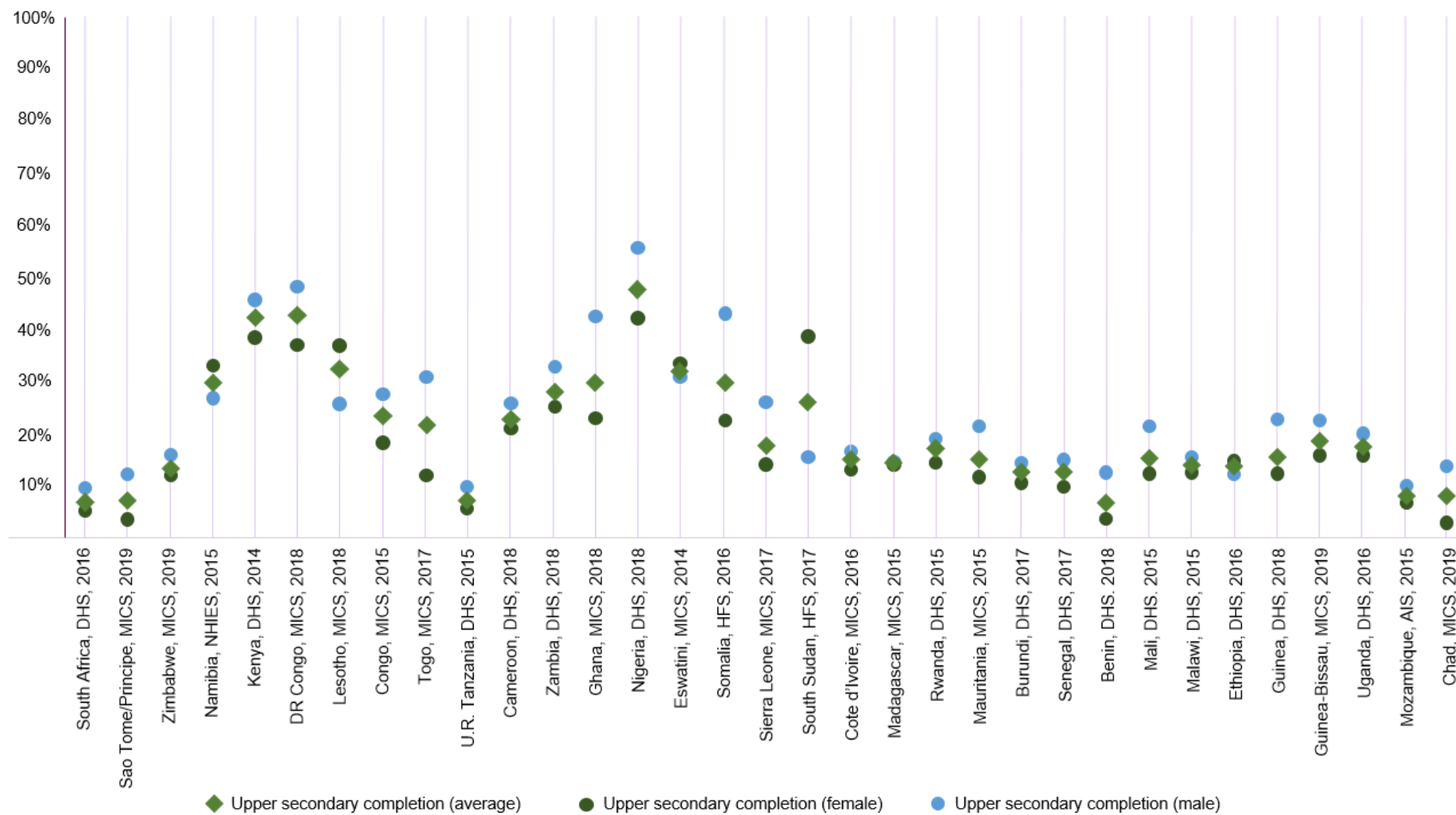


Chart 10: completion rates, upper secondary completion rates by gender, sub-Saharan Africa (UNESCO WIDE, 2022)



## 4. Impacts of secondary education

### Demography

There are strong, well-established linkages between demographic outcomes and education, particularly for girls. With increased years of schooling, demographic outcomes are shown to improve across a broad range of indicators. When more girls complete secondary education, HIV rates, child and mother mortality and family sizes all decrease (Psacharopoulos & Patrinos, 2018; Shen & Williamson, 2001; Sommer & Fallon, 2020). This section outlines some of the key demographic outcomes that have been associated with completion of secondary education, with a focus on studies from sub-Saharan Africa, in addition to drawing from global literature.

### Health outcomes

Education, particularly for women, is associated with improved health outcomes for adults and their children. A 58 country study commissioned by UNESCO found that universal primary education would reduce child mortality by 15%, with secondary reducing child mortality by 49% (UNESCO, 2014, p. 15). In sub-Saharan Africa, the under-five mortality rate is almost twice as high for children of mothers with no education compared to those who have completed secondary education (Ibid, p.15). The same report also notes that for every one additional year of maternal education, the pneumonia death rate amongst children can decrease by 14% (Ibid, p.15). Another study in Zimbabwe found that children born to mothers with a minimum of secondary education were 21% less likely to die compared to mothers who were younger and had not attended secondary education (Grépin & Bharadwaj, 2015). Maternal education also has an impact on vaccination status, particularly secondary education. For example, Gidado et al (2014) in their study in Zamfara state, northern Nigeria, found having a minimum of secondary education and possessing satisfactory knowledge about immunizations were significantly correlated with full immunization.

Amongst adults, Werner et al (2022), using data from Burkina Faso Demographic Health Surveys (2003-2017) found that each year of schooling was associated with a mortality reduction of up to 16%. This translated to an additional 1.9 years' life expectancy for men, and 5.1 years for women who completed secondary education compared to those who only completed primary (Ibid).

### Early marriage and fertility

Multiple studies have shown that secondary education reduces rates of child marriage and early childbearing. For every year of schooling a girl receives, she is less likely to marry and have children before she is 18 (Malala Fund, 2022). Girls who only complete primary education are just as likely to marry and have children before 18 than those who no education at all (Ibid). In 2014, it was reported that women in sub-Saharan Africa have an average of 5.4 live births (UNESCO, 2014, p. 18). Women with no education had more than this average, with 6.7 live births, with the number of births decreasing with higher education levels; 5.8 for women who completed primary education and 3.9 for women who completed secondary education (Ibid, p.18). Secondary education has also been found to increase the uptake of prenatal care. In Guliani et al's (2014) study on determinants for uptake of prenatal care, they found increased education leads to better uptake and more visits to prenatal clinics. Mothers with secondary education attended an average of 1.1 more prenatal clinic visit in Sub-Saharan Africa than

mothers with only primary education (ibid). Adedokun and Yaya (2020) found that secondary completion was associated with higher 'adequate' utilization of antenatal care, with the odds of adequate utilization of antenatal care increasing by a factor of 3.36 for women who completed secondary education or higher. Studies have also found a connection between maternal education and malnutrition. In a study of child malnutrition using DHS data in Malawi, Tanzania and Zimbabwe, Makoka (2013, p. 23) found that "the threshold level of maternal education in all three countries is beyond primary school level" and that "policies to ensure girls remain in school beyond the primary level, therefore, hold more promise in addressing child nutritional problems in the three countries".

Although any level of education can be an important driver for reducing early marriage, secondary education has been cited in multiple studies as being a critical factor. Education is cited to i) empower girls and offer more opportunities in the labour market, which in turns prevents them from moving into marital homes and away from school; and ii) lower levels of gender-based and intimate partner violence (Gyimah, 2008; Sebany et al., 2019; Smith et al., 2012; Wodon et al., 2017).

### **Economic outcomes**

Increasing completion rates of secondary education, particularly for girls, has been associated with economic growth. In Dollar and Gatti's (Dollar & Gatti, 1999) study of 100 countries, they found that increasing the share of women who complete secondary education by just 1% increases economic growth by 0.3%. Although this appears modest, 0.3% gains across a country's whole economy a substantial amount. Secondary education also supports economic outcomes on the individual level. The Malala Fund estimates that if every girl worldwide was to receive 12 years of free, safe, quality education, that lifetime earnings for women would double, from \$15 trillion to \$30 trillion (Malala Fund, 2022). In Wemer's (2022) study in Burkina Faso, they found that individuals with a minimum of secondary education held 26% more assets than those with primary education or less (Ibid). UNESCO have reported that achieving universal primary and secondary attainment in the adult population in low-income and lower-middle income countries would lift more than 420 million out of poverty. It also highlights that education provides people with the skills to help make them more productive and less vulnerable in the labour market and to wider risks (UNESCO, 2017, p. 11). Montenegro and Patrinos (2014) estimated that, in sub-Saharan Africa, one year of education could increase earnings by 13%.

Increasing completion rates for secondary education also has the potential to narrow wage gaps between men and women. Arbache et al's (2010) study of gender disparities in Africa's labour market found that men who completed primary school earned 24% more than women, with this gap narrowing to 16% for those who completed secondary education. Malala Fund and World Bank research (Malala Fund, 2022) recently argued that completion of primary education improves outcomes, but not enough. Although women with primary education earn 15% more than women with no education, women with secondary education earn almost twice as much as those who no education at all (i.e., nearly a 100% gain in earnings) (World Bank, 2018).

### **Civic participation and social and political outcomes**

A 2009 OECD survey found that adults aged 25 to 64 with higher levels of education were, on average, more satisfied with life, engaged in society and likely to report they are in good health; this was the case even accounting for differences in gender, age and income (OECD, 2011). In

the same study, the OECD found higher levels of educational attainment were associated with strong civic engagement, such as voting, volunteering, showing interpersonal trust and expressing political interest (OECD, 2011, p.193). Wodon et al (2017) found that universal secondary education for girls leads to gains in altruistic behaviours such as volunteering and donating to charity. King and Winthrop (2015) found that more educated girls gain both the skills and confidence needed to become policymakers, entrepreneurs or leaders.

Higher education levels are also reportedly associated with higher understanding of democracy. In a study of 12 sub-Saharan African countries, it was reported that 63% of individuals without formal schooling had an understanding of democracy, compared to 71% of individuals who had completed primary education and 85% of those who completed secondary education (UNESCO, 2014, p. 16). Alemán and Kim (2015) found that increasing levels of education amongst a population have a positive impact on levels of democracy, with this effect stronger in lower income contexts.

## Environment and climate change

Striessnig et al (2013, p. 5) and Laplante et al (2010, p. 12) identify secondary education, particularly for girls, as the most important factor to reduce vulnerability to weather-related disasters and extreme weather. Striessnig et al (2013, p.5) estimated that, by 2050, deaths due to extreme weather events in sub-Saharan Africa could be reduced by 60% if 70% of women aged between 20 and 39 years completed lower secondary school. Kwauk and Braga (2017) found a strong positive association between average number of years' schooling for girls and resilience to climate disasters (measured through a country's ND-GAIN index<sup>4</sup>). With every additional year of girls' schooling, a country could expect an improvement of 3.2 points on the index (Kwauk and Braga, 2017, p.19). Muttarak and Lutz identified the multiple ways in which increased education can be a key to reducing the vulnerability to natural disasters, with the below table summarising the key insights from their article (Muttarak & Lutz, 2014).

Table 7: mechanisms through which education can reduce vulnerability to natural disasters

Thematic area	Direct or indirect impact	Description
<b>Literacy and numeracy skills</b>	Direct	Abstract thinking obtained through formal education implies better understanding and ability to process risk information
<b>Problem-solving skills</b>	Direct	In an emergency situation, educated individuals may be more capable of responding to risk

<sup>4</sup> <https://gain.nd.edu/our-work/country-index/>

Thematic area	Direct or indirect impact	Description
<b>Acquisition of knowledge, values and priorities and capacity to plan</b>	Direct	Education could enhance the knowledge on disaster risks and how to respond to those risks
<b>Risk perception</b>	Direct	High risk awareness is associated with education. Studies have found highly educated people have greater awareness of earthquake risk and more likely to engage in disaster preparedness activities.
<b>Education improved socio-economic status</b>	Indirect	Allows individuals to have greater control over purchasing disaster insurance, living in lower risk areas, quality housing, implementing disaster preparedness measures and evacuating promptly in times of emergency
<b>Educated individuals have diversified communication linkages</b>	Indirect	Level of education is correlated with access to weather forecasts and warnings, in addition to other types of technology than can support early preparedness for hazards.

Source: Muttarak & Lutz, 2014. Reproduced under Creative Commons Attribution 4.0 International License

## 5. Financing and resourcing secondary education

### Teacher shortages

A substantial challenge in fulfilling the goals of universal primary and secondary education relates to the provision of teachers. As noted in a recent blog by Bangay (2022), in primary schools the task is mainly replacing teachers to account for attrition, whereas secondary education is mainly filling new posts. Rapid expansion of primary and secondary education leads to shortages and can result in a surge in unqualified teachers entering the workforce to meet demand. For example, UNESCO (2021) reported that in 2000, on average, 80% of primary teachers had the minimum required qualifications in sub-Saharan Africa, but by 2019, only 65% did. With secondary education requiring greater subject knowledge and specialisation, this issue is likely to be amplified as secondary education expands. A 2018 report by Tikly et al revealed that, at secondary level, the teacher shortage is most acute in STEM subjects. This was partly attributed to the high demand for teachers in a rapidly growing system that cannot meet its needs. They report that recruiting teachers for STEM is challenging for two reasons:

1. There is a shortage of people with sufficient knowledge
2. People who do have sufficient knowledge go into other, more attractive, careers (Tikly et al (2018, p.5)

Bangay (2022) further reported that even when there are the right number of teachers within the system, this does not necessarily lead to them being in the right place or being the right type of teacher. The issues with low completion of secondary education amongst girls directly links with shortages of female teachers. The below table outlines the percentage of female teachers at each level of the system in 21 sub-Saharan African countries. Kenya is the only country where 50% of teachers at lower secondary level are female, with all other countries reporting less than 50% of teachers at this level to be female. No country reports 50% or more of teachers to be female at upper secondary level, with the highest proportion (again in Kenya) being 37.6%. On average across these 21 countries, only 40% of teachers at primary level are female, 24.6% at lower secondary, and 20.9% at upper secondary.

Table 8: proportion of female teachers by level of education, sub-Saharan Africa (%)

	Primary	Lower secondary	Upper secondary
<b>Angola, 2016</b>	47.2	32.1	22.0
<b>Burundi, 2019</b>	50.3	31.4	21.4
<b>Cabo Verde, 2019</b>	71.0	48.9	48.8
<b>Chad, 2018</b>	18.6	7.1	9.3
<b>Comoros, 2018</b>	29.5	14.9	19.7
<b>Congo, 2018</b>	37.7	10.3	9.0
<b>Djibouti, 2021</b>	32.7	25.9	26.2
<b>Eritrea, 2018</b>	39.0	23.2	25.0
<b>Ethiopia, 2020</b>	41.1	23.0	11.4
<b>Gambia, 2021</b>	41.3	26.3	13.3
<b>Ghana, 2020</b>	44.5	27.6	23.5
<b>Kenya, 2015</b>	50.2	50.5	37.6
<b>Liberia, 2017</b>	18.5	6.7	5.4
<b>Mali, 2017</b>	31.1	13.1	14.1
<b>Mozambique, 2020</b>	46.8	24.9	19.4
<b>Niger, 2018</b>	52.7	23.5	19.2
<b>Nigeria, 2018</b>	53.8	43.8	47.8
<b>Sao Tome and Principe, 2016</b>	55.3	33.3	30.9
<b>Senegal, 2020</b>	32.2	20.1	16.5



	Primary	Lower secondary	Upper secondary
<b>Sierra Leone, 2020</b>	30.8	15.9	8.2
<b>South Sudan, 2015</b>	14.8	14.9	11.4

Source: UIS, 2022. Source: UIS, 2022. Reproduced under Creative Commons Attribution-ShareAlike 3.0 IGO

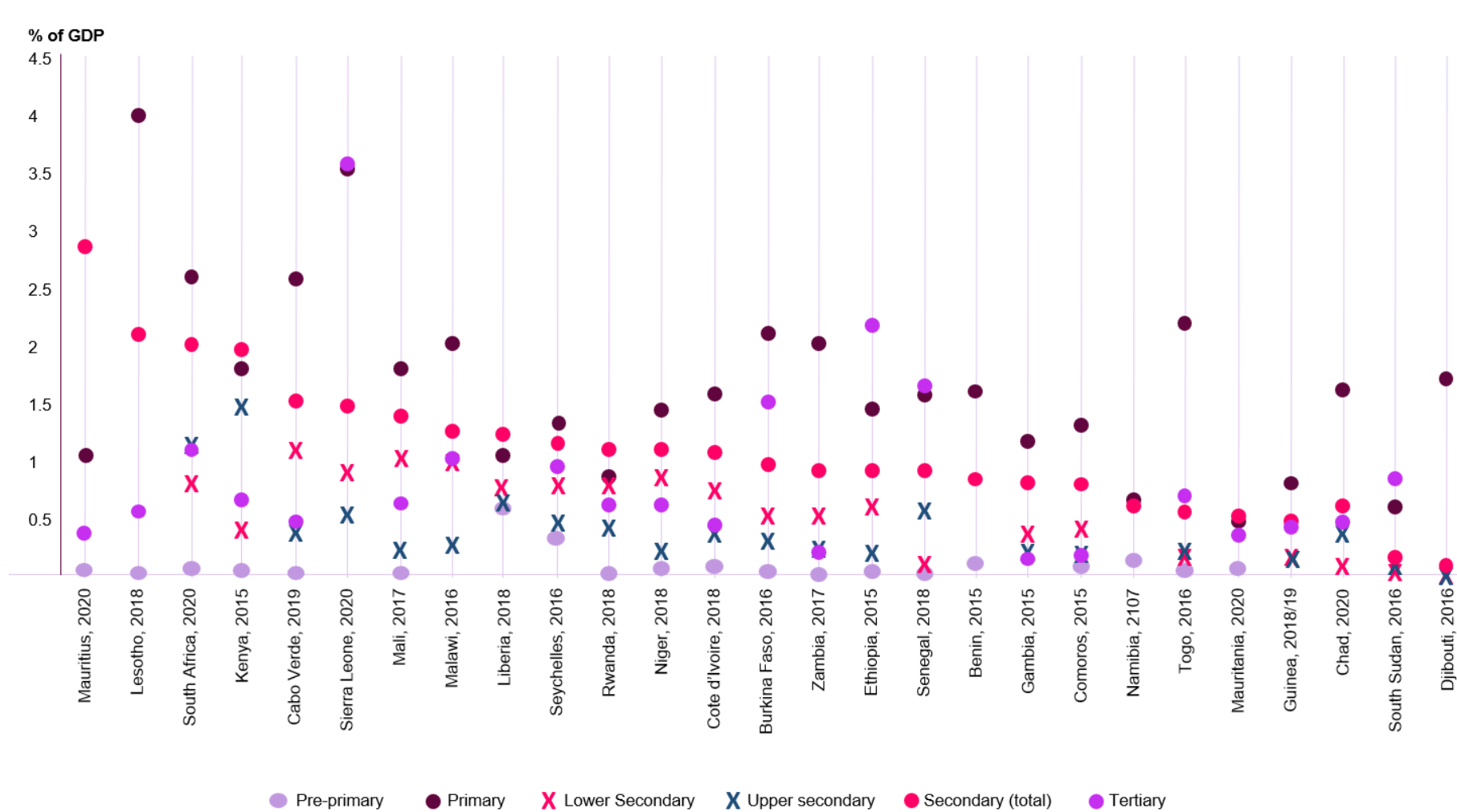
## Expenditure by level of education

The below chart (Chart 11) outlines the current expenditure, as a percentage of GDP, on education in countries in sub-Saharan Africa.<sup>5</sup> Mauritius was the only country where a greater proportion per GDP is spent on secondary compared to other levels of education. For the majority of countries, primary education receives the greatest proportion of expenditure, although tertiary was the highest in Sierra Leone, Ethiopia, and Senegal. Whilst UNESCO (2021) recommend at least 15-20% of GDP be spent on education, the countries included in this analysis fall substantially short of this, with an average across the 27 countries of 3.7% of GDP spent on all levels of education (UIS, 2022).

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<sup>5</sup> Data is only included for countries where a comparison was possible across multiple levels of education in the same academic year to enable comparison in expenditure.

Chart 11: expenditure on education by level and country, as a proportion of GDP (%) (UIS, 2022)



## Considerations for resourcing secondary education

The Education Commission estimated that US \$175 billion per year is needed between now and 2050 for Sub-Saharan African countries to reach near universal enrolment in lower and upper secondary education (Zubairi & Rose, 2019, p. 10). This is an increase of US \$150 billion per year compared to expenditure in 2015 (Ibid). Mastercard Foundation has outlined the need for financing with equity, setting out the different approaches to school financing. This includes (Ibid, p.10):

1. Utilising a growing number of alternative and innovative financing mechanisms, such as the Education Outcomes Fund, the International Finance Facility for Education and the Africa Education Fund.
2. Increase efficiencies in education through improving teacher deployment and utilization, reducing unit costs of secondary education delivery, addressing high repetition and improving education system management.
3. Addressing the indirect costs of education. Despite many countries moving towards fee-free lower secondary education, a large proportion of the poorest students do not complete primary education, therefore cannot attend lower secondary. Other indirect costs, such as books and school uniform, also continue to place barriers to accessing primary and secondary education.
4. Equity-based funding formulas, targeted needs-based scholarships and cash transfers for the poor can remove barriers to secondary education.

Other authors have highlighted that an increase in funding alone will not result in gains in enrolment or education quality. It is argued that any investments made in education must be coupled with strong governance to ensure accountability and efficiency in spending. Sommer and Fallon (2020) explored the relationship between governance and national state spending on girls' education. They revealed that education expenditures interacted with governance to significantly increase girls' secondary enrolment in comparison to boys (Sommer & Fallon, 2020, p. 222). This indicates that increased spending needs to be coupled with strong governance measures to see results. Increased spending alone, without strong governance, was not found to result in gains in enrolment. Likewise, the authors also found that increased governance alone, without being coupled with an increase in national financial commitments, did not result in gains in enrolment. Governance metrics included in the study were:

1. Control of corruption
2. Rule of law
3. Government effectiveness
4. Regulatory quality

Lewin and Caillods (2001) explored the options for governments seeking to expand participation in secondary education through five categories: increasing allocation of public budgets to secondary schooling, shifting resources between educational levels, reducing unit costs and increasing internal efficiency, identifying new sources of support from community and private sources, and mobilizing external assistance for secondary education (Lewin & Caillods, 2001, p. 283). Ultimately, financing secondary education involves decisions around compromise.

The below table outlines the considerations and trade-offs that can be considered in education financing.

Table 9: options for financing the expansion of secondary education

Description	Constraints/considerations
<b>Option 1 Increase overall allocations to the education sector</b>	
<p>Analysis found that countries with low gross enrolment rates at secondary level (GER2) (below 40%) were spending on average 4% of GNP on education, and approximately 18% of government expenditure. Countries with higher GER2 allocating approximately 5-6%.</p>	<p>The financial support for education is constrained by amounts the state can levy through taxes on economic activity and by the share of public resources that can be devoted to education. Education to be balanced with other social services. Debt servicing also drains substantial portions of revenue in low-income contexts.</p>
<b>Option 2 Shift resources from other levels within the education sector</b>	
<p>Additional resources for secondary could be mobilized through a redistribution of resources. The unit-cost differentials between primary, secondary and tertiary are greater in low GER2 countries.</p>	<p>See below considerations for reducing unit cost of secondary education.</p>
<b>Option 3 Reducing the unit costs at secondary level, increasing efficiency, reducing capital costs, alternate delivery models</b>	
<p><u>Structural issues</u> Consider adapting the different cycles of schooling (e.g., extending primary education which has a lower cost unit, or extending lower-secondary years).</p> <p><u>Increasing pupil/teacher ratios (PTR)</u> Increasing the PTR is an option in some systems but not others. One approach could be to identify contexts where the class size is large and thought to be functioning effectively, which would provide contextually appropriate indicators for appropriate class sizes.</p> <p><u>Improving teacher utilisation</u> Specialised teachers who are paid a salary may only work for a small number of teaching hours per day. Schools may be too small to allow full teaching loads across a broad range of subject specialisms. Training of teachers to teach multiple secondary school subjects and the development of materials to be used</p>	<p><u>Structural issues</u> Teachers at primary level are less specialised, and may not be able to effectively teach subjects at the appropriate level, particularly for STEM.</p> <p><u>Increasing pupil/teacher ratio</u> This could increase teacher workload and also becomes a school management issue.</p>

Description	Constraints/considerations
<p>by non-specialists should be two ways that can increase efficiency.</p> <p><u>Reducing average teaching costs</u> Limiting non-salary costs, increasing school size and hiring more lower-paid individuals in supportive roles can reduce overall costs.</p> <p><u>Increasing efficiency and ensuring effective school management</u> High levels of repetition inflate enrolment and lead to increased costs without necessarily leading to improvement in student outcomes. High levels of repetition should be viewed as a curriculum problem, with students taught material in ways that result in them failing to meet promotion criteria. School leadership and administrative officers need to become more resource-sensitive and accountable. Improved management can reduce teacher absenteeism to increase efficiency, and ensure funds are spent appropriately.</p> <p><u>Reducing capital costs</u> The design of secondary schools, on average, takes more space and requires more facilities than primary education. Building secondary schools is often considered as a high capital cost that is unaffordable. In some contexts, adding buildings to well-constructed primary schools may be an option. Economies can be made through sharing facilities with existing sites. Double shifting schools can also enable considerable savings.</p> <p><u>Alternate delivery models</u> Remote education may be an option in contexts where the capital and other costs of schooling are too high.</p>	<p><u>Reducing average teaching costs</u> Increasing school size, and closing smaller schools, will have implications on enrolment if children have to travel longer distances, particularly girls.</p> <p><u>Reducing capital costs</u> Double shift might be less advantageous for children in second shifts as they are tired in the afternoons, or may need to leave early to arrive home before darkness.</p> <p><u>Alternate delivery models</u> Access to remote learning can be a challenge, particularly if dependent on technology.</p>
<b>Option 4 cost recovery and community contributions</b>	
<p>Another option is to consider the encouragement of non-government organisations to contribute to costs and other resources. This may increase accountability, and also provide high rates of private returns. The most common mechanism for cost recovery is charging school fees.</p>	<p>Payment of fees is likely to suppress enrolment, negating the intended impact of increased secondary enrolment, particularly for girls</p>
<b>Option 5 call on external assistance</b>	

Description	Constraints/considerations
The final possibility listed is seeking external assistance in expanding secondary education provision. Sector-wide approaches have long been favoured for support in the education sector.	

Source: Lewin and Caillods, 2001, pp. 290-332. Reproduced with permission. IIEP © UNESCO

In responding to teacher shortages, the Teacher Task Force recommends that governments and partners (UNESCO, 2021):

- Develop holistic teacher policies that are well-costed. This is particularly important in contexts with teacher shortages. This will enable countries to identify where teachers are needed most, such as more disadvantaged areas and where trade-offs are required.
- Ensure teachers are paid a living wage and increase education budgets.
- Increase international funding with a focus on teacher training.
- Improve teacher preparation, support and working conditions to reduce attrition.
- Collect more national and international data that can be used for comparative purposes.

UNESCO (2021) emphasise the importance of ultimately increasing education budget and ensuring that teachers are paid a living wage. Lowering teacher wages, when they are already low, particularly accounting for inflation, is therefore warned against.

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- List all contributors who responded with any useful information, even if it was just some literature suggestions
- Include only their name and the organisation they are affiliated with. Do not include their email address.
- If nobody at all contributed, then leave this section out of the report
- The expert appendix, if you have one, should only include substantial comments; don't bother including the whole email message sent by someone who only provided links to some papers.

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## About this report

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