



# POVERTY & EQUITY NOTES

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## Internet Access in Sub-Saharan Africa

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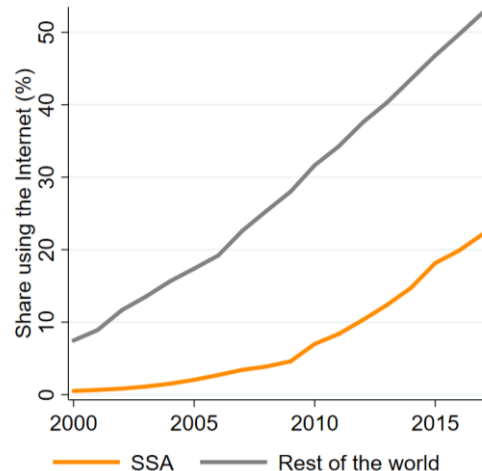
*Target 9.c of the Sustainable Development Goals calls for the achievement of universal and affordable internet access by 2020. This note analyzes Sub-Saharan Africa's progress towards this goal. It finds that (i) rates of internet access reported in household surveys differ markedly and are often lower than the prevailing estimates of internet use reported by the International Telecommunications Union, (ii) internet access in regions outside the capital city tends to be lagging and, (iii) lack of access to electricity is a key barrier constraining access to internet among poor Africans.*

Access to internet is essential for businesses, public institutions, and households to flourish in the modern economy. In the private and public sector, internet access can help spur productivity gains and deliver services more efficiently. For households, internet access can increase opportunities, build human capital, connect households to other parts of the country, and contribute to personal well-being. Yet Sub-Saharan Africa remains a long way from achieving universal internet access. According to the International Telecommunications Union (ITU), which tracks internet usage globally and across countries, only 1 in 5 in Sub-Saharan Africa used the internet in 2017. While internet access in Sub-Saharan Africa has grown rapidly in recent years, access rates remain well behind the rest of world (Figure 1a).

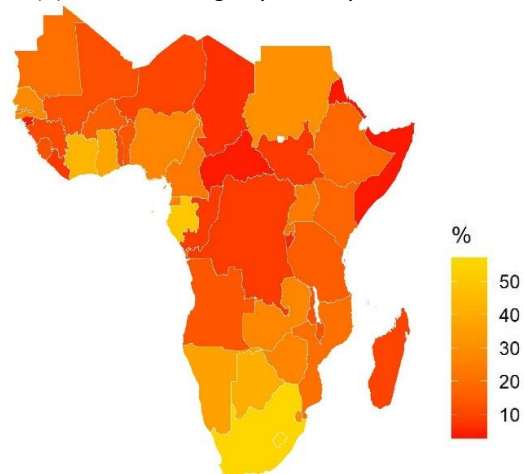
Internet usage differs markedly by country within Sub-Saharan Africa (Figure 1b). Whereas more than half the population uses the internet in South Africa, rates are closer to 30% in West Africa, and only around 10% in Central Africa. Internet usage is particularly low in landlocked countries, where the physical infrastructure necessary to provide infrastructure is costlier, and access is also more dependent on neighboring countries.

**Figure 1: Internet usage in Sub-Saharan Africa**

(a) Internet usage in SSA and the rest of the world



(b) Internet usage by country in SSA, 2017



Source: International Telecommunication Union (ITU), World Telecommunication/ICT Development Report and database.

To analyze the people and places that are lagging in the digital revolution in greater detail, microdata from household surveys are needed. SSAPOV, a database of harmonized nationally representative household surveys in Sub-Saharan Africa, contains harmonized data on internet access and many other variables. Although not all household surveys have questions on internet access, the ones that do can be utilized to better understand the types of households that lack access to internet. Since 2010, nearly half of the countries in Sub-Saharan Africa have conducted a household survey with comparable information on internet access, as shown in Table 1.

The measure of internet access contained in SSAPOV is different from the measure tracked by the ITU. Whereas the former is concerned with internet access, the latter is concerned with internet usage. Internet users – as defined by the ITU – are individuals who have used the internet from any location in the last 3 months. This includes using an internet-enabled computer, mobile phone, video game console, digital TV, or other internet-connected device. In contrast, internet access as defined in SSAPOV implies that households have an internet connection within their homes. Although the two are positively correlated, as evident from Table 1, the differences between the two measures can be large. Furthermore, in some countries like Chad, access in SSAPOV substantially exceeds the usage rate according to the ITU. Aside from the different concepts the two measures are trying to capture, discrepancies such as these are also caused by differences in data sources. SSAPOV relies on nationally representative household surveys, while ITU’s methods are less transparent; the ITU either estimates usage rates themselves or obtains information from questionnaires filled out by NSOs or other national agencies, who in turn may obtain data from a variety of sources.

**Table 1: Household surveys with comparable data on internet access**

<i>Country</i>	<i>Survey year</i>	<i>Share of population with internet access in their home (SSAPOV)</i>	<i>Share of population using the internet (ITU)</i>
Benin	2015	2%	11%
Burkina Faso	2014	1%	9%
Burundi	2013	0%	1%
Cameroon	2014	5%	16%
Chad	2011	10%	2%
Comoros	2013	2%	7%
Congo, DR	2012	2%	2%
Ghana	2012	8%	11%
Kenya	2015	27%	17%
Madagascar	2012	1%	2%
Mauritania	2014	3%	11%
Mauritius	2017	56%	56%
Namibia	2015	15%	26%
Niger	2014	6%	1%
Rwanda	2016	17%	20%
Senegal	2011	4%	10%
Seychelles	2013	37%	50%
Sierra Leone	2011	1%	1%
South Africa	2010	7%	24%
Tanzania	2011	1%	3%
Uganda	2016	14%	22%

*Source:* SSAPOV database, Sub-Saharan Africa Team for Statistical Development, World Bank, Washington DC and International Telecommunication Union (ITU), World Telecommunication/ICT Development Report and database.

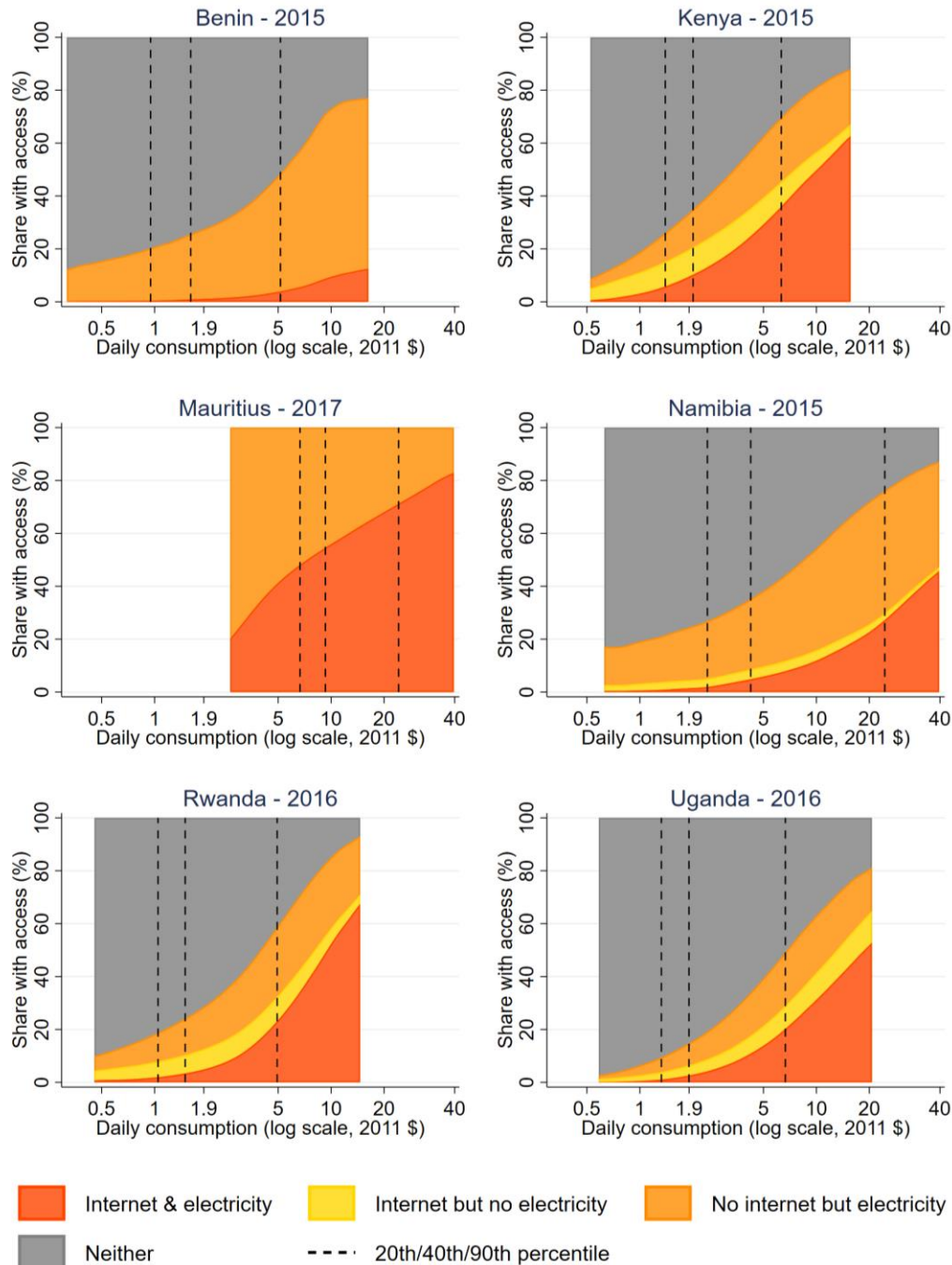
Because internet use is growing rapidly, we analyze six recent surveys carried out since 2015 with information on internet access: Benin (2015), Kenya (2015), Mauritius (2017), Namibia (2015), Rwanda (2016), and Uganda (2016). These countries both span Sub-Saharan Africa and represent low-income countries, lower-middle-income countries, and upper-middle-income countries.

Because the surveys in SSAPOV are the same ones that are used to measure poverty, they are well-suited to explore the digital divide between poorer

and wealthier households. Unsurprisingly, in all six countries internet access is substantially higher for better-off households with higher per capita consumption (Figure 2). What is more surprising is

the steep gradient. In Kenya, for example, less than 5% of the poorest decile had access to internet in 2015, while 2 in 3 of the wealthiest decile did.

**Figure 2: Internet and electricity access by consumption level**



Source: Benin Enquête Modulaire Intégrée sur les Conditions de Vie des Ménages (2015), Kenyan Integrated Household Budget Survey 2015-16, Mauritius Household Budget Survey (2017), Namibia National Household Income and Expenditure Survey, Rwanda Integrated Household Living Conditions Survey 5, Uganda National Household Survey (2016/17).

Note: Consumption levels below the 1st percentile and above the 99th percentile are not plotted. Electricity access in Mauritius is assumed to be universal. According to the Sustainable Energy for all initiative, about 99% of Mauritians have electricity access.

In most countries, electricity is a key constraint to internet access for poor households. The exception is Mauritius, which has near universal electricity access. For the bottom 40 percent of the other five countries, only between 3% and 21% of those that lack internet access have electricity access. The households that lack both internet and electricity face at least two large impediments to be connected, proper infrastructure and the resources to purchase a device with access to the internet.

A substantial portion of better-off households in all six countries report access to electricity but no internet. The share of the top 60% in this category ranges from 21% in Uganda to nearly 50% in Namibia. For these households, the barriers to internet adoption could include computer illiteracy and high costs of internet services, which potentially stem from ineffective competition policies, regulation, or the geographical location of households.

The latter can be analyzed by disaggregating internet access by location. Rural households, which on average are poorer in all six countries, also face lower rates of internet access. The urban-rural gap in access is widest for better-off households. In Kenya and Uganda, rural households at the 90th percentile of the national distribution have the same probability of having internet access as urban households living at the international poverty line. Rural households may face lower rates of internet access because their geographical location implies that building the

necessary infrastructure is less profitable for internet providers. When looking closer at the spatial distribution of internet access, in many countries, only the capital region has high levels of internet access while other regions tend to lag. The low rates of reported access outside the capital highlight the importance of expanding the availability of internet to secondary cities and towns.

To ensure that gains in internet access reach the poor going forward, it is fundamental to better understand what governments in Sub-Saharan Africa are doing to expand access to both electricity and internet, especially outside of capital cities. The World Bank can make an important contribution by documenting these efforts and systematically utilizing nationally representative household surveys to track their success in expanding access to the poor.

## ABOUT THE AUTHORS

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