

The affordability of ICT services 2020

With the spread of the COVID-19 pandemic in 2020, many countries around the world witnessed a protracted shift in schooling, business, and government activities from physical to digital interactions. However, while about 85 per cent of the world’s population live within areas covered by 4G networks, nearly half of them were still offline in 2020.¹ One of the reasons why many people do not access and use ICT services is the high cost of connectivity relative to income. This policy brief highlights the latest global and regional trends on affordability for a selection of price baskets (measured as the price of a basket relative to monthly income).

Global trends and affordability gaps

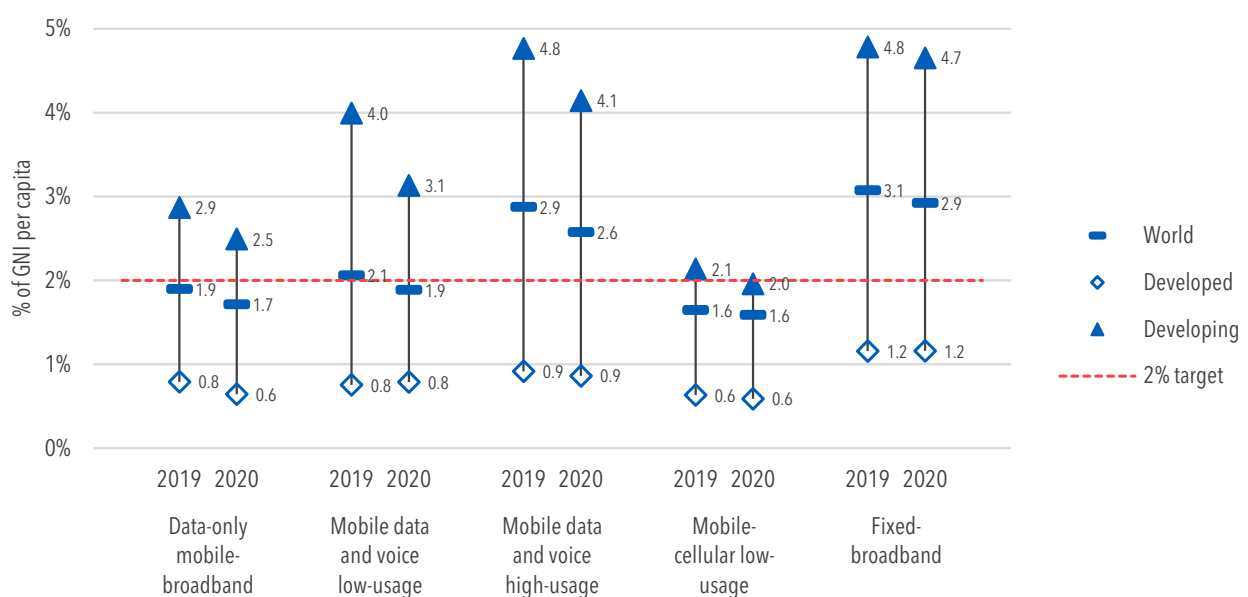
- The prices for all baskets monitored have continued a slow but steady drop (Figure 1). The worldwide median price for both mobile- and fixed-broadband services dropped by 0.2 percentage points over the past year to 1.7 and 2.9% of monthly GNI per capita, respectively). At the same time, 84 (45%) of the countries covered in the survey remain above

the 2 per cent affordability target of the [Broadband Commission on Sustainable Development](#) for the data-only mobile-broadband basket, whereas the fixed-broadband basket was unaffordable in 111 (56%) of the countries.

- A significant affordability gap remains between developed and developing countries, especially for baskets that include at least 1.5 GB of data. Nevertheless, developing countries have been the main drivers of a global price decline for all baskets. Expressed as a percentage of median GNI per capita, prices for low-usage and high-usage data and voice baskets have dropped most significantly in developing countries (from 4 to 3.1% and from 4.8% to 4.1%, respectively).
- ICT services in the majority of least developed countries (LDCs) remain prohibitively expensive. Despite the decline in the median price in the past year, the data-only mobile broadband basket was unaffordable in 39 out of 43 LDCs, while the fixed-broadband basket was unaffordable in 32 out of 33 LDCs for which data are available.
- The fixed-broadband basket remains the most expensive among those studied and has seen the least change in the past year. However, this does not take into account quality improvements, particularly in developed economies, where the median speed of entry-level connections increased from 30 to 40 Mbit/s in the past year. In developing countries, it only increased from 3 to 5 Mbit/s.

¹ Measuring Digital Development: Facts and Figures 2020 [<https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx>]

Figure 1: Basket prices, 2019-2020








Source: ITU and A4AI

Note: Median values for each basket are based on the number of economies for which 2019 and 2020 data were available: 183 economies in the case of the data-only mobile broadband basket; 179 and 182 economies for the data and voice low- and high-usage baskets, respectively; 190 economies for the mobile cellular low-usage basket; and 170 economies for the fixed-broadband basket.

About this brief

The International Telecommunication Union (ITU) and the Alliance for Affordable Internet (A4AI) have partnered to collect data and analyse global and regional trends in affordability and pricing for the set of ICT price baskets listed below, covering different technologies including mobile voice, and mobile and fixed broadband. The ITU Expert Group on Telecommunication/ICT Indicators defined these ICT price baskets for benchmarking the cheapest price plans for those five categories. Details on methodology are available on the ITU website¹.

The latest data were collected in June 2020, while the source for historical price data are previous ITU data collections. This brief focuses on ICT prices expressed as a percentage of monthly gross national income per capita (GNI per capita) to show 'affordability'. It provides an overview of the most recent developments in ICT prices for country groups defined according to multiple classifications: the regional grouping of the ITU Telecommunication Development Sector, the United Nations M49 classification by level of development, and the 2020 World Bank classification by income levels.² Country groups are benchmarked using the median price of baskets. The distribution of ICT prices in many world regions is highly skewed, with very high values observed in a few countries. Representing country group values by the median (rather than, for example, the average, which is intuitively easier to communicate) dampens the impact of outliers on differences across time and space. The brief dedicates particular attention to progress in reaching the targets of the UN Broadband Commission for Sustainable Development, according to which entry-level broadband services should not cost more than 2 per cent of monthly GNI per capita.

ICT Price Baskets		Minimum monthly allowance		
		Voice (min)	SMS (#)	Data
1	Data-only mobile-broadband basket 	-	-	1.5 GB
2	Mobile data and voice low-usage basket 	70	20	500 MB
3	Mobile data and voice high-usage basket 	140	70	1.5 GB
4	Mobile-cellular low-usage basket 	70	20	-
5	Fixed-broadband basket 	-	-	5 GB

¹ ITU price data collection rules, 2019 [https://www.itu.int/en/ITU-D/Statistics/Documents/ICT_Prices/ICT_Price_Basket_rules_E.pdf]

² The classifications are accessible on the websites of the ITU Telecommunication Development Bureau [<https://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx>], the Statistics Division of the Department of Economic and Social Affairs of the United Nations [<https://unstats.un.org/unsd/methodology/m49/>], and the World Bank [<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>].

- In relative terms, the biggest price decreases for all five baskets were seen in Africa, although median prices for the region remain well above world prices. In general, regional disparities are still less pronounced than the gap between countries of different income levels.

Data-only mobile broadband basket

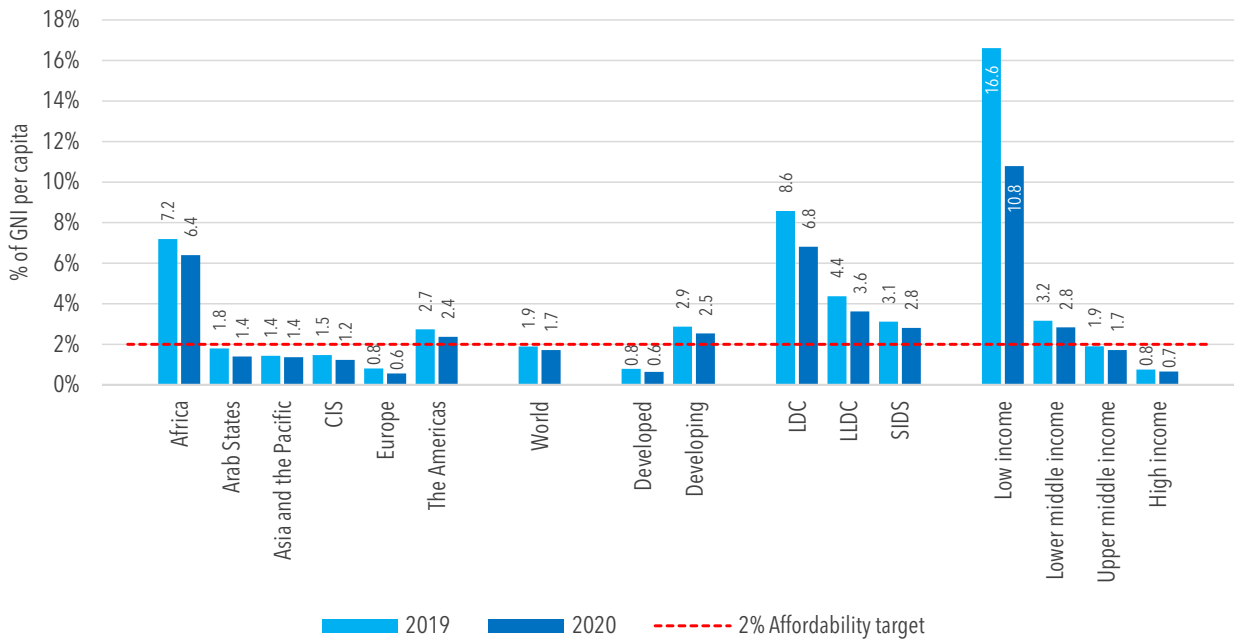
The median price of a data-only mobile broadband basket measured as a percentage of the national monthly income declined across all regions except in Asia and the Pacific, where it remained virtually unchanged. Thanks to this trend, the affordability of the data-only basket improved over 10 per cent globally, from 1.9 per cent in 2019 to 1.7 per cent in 2020. This means that the global median is 0.3 percentage points below the 2 per cent affordability target set by the Broadband Commission. Nonetheless, in many developing countries a data-only package with the minimum 1.5 GB of data still costs the consumer more than 2 per cent of monthly income. Such is the case notably in the landlocked developing countries (LLDCs), small island developing states (SIDS) and least developed countries, where the median price can exceed three times the 2 per cent affordability target.

While the data plans on offer in some low-income economies remain beyond the budget of the average

earner, noteworthy progress has been made even there: between 2019 and 2020 the cost of mobile data has decreased by 5.8 percentage points, a 35 per cent drop. A similar trend can be seen in the least developed countries, where prices for mobile data have fallen from 8.6 per cent in 2019 to 6.8 per cent in 2020.

Among the economies covered in the 2019-2020 sample, the lowest prices (as a percentage of monthly income) for 1.5 GB of data were charged to consumers in Macao (China), Luxembourg, Hong Kong (China), Poland and Austria (starting with the cheapest first); in each case the cheapest available plan represents less than 0.3 per cent of the monthly average income. Moldova, Hungary, Iraq, Mali, Botswana, Morocco and Yemen, respectively, registered the biggest improvements in affordability: in all of these countries mobile data affordability improved by 60 per cent or more between 2019 and 2020. By contrast, data-only mobile broadband plans represented from 18 per cent to more than 32 per cent of the monthly average income in Chad, Malawi, Central African Republic, Guinea-Bissau and Democratic Republic of the Congo (in order of increasing percentage). A good number of countries achieved the Broadband Commission 2 per cent target in 2020, with nine countries reaching the target for the first time; but three others that had previously met the target no longer did so in 2020.

Figure 2: Data-only mobile-broadband basket prices



Source: ITU and A4AI

Note: By world region and level of development, expressed as a percentage of monthly GNI per capita, 2019-2020. Medians based on 183 economies for which data were available for the two years. Countries are benchmarked according to the price of an entry-level data-only basket, defined as the cheapest data-only mobile broadband subscription available domestically, with a minimum of 1.5 GB monthly data allowance and a technology of 3G or above.

Table 1: Economies meeting the 2% affordability target of the Broadband Commission for Sustainable Development

Data-only mobile broadband basket		Fixed-broadband basket	
Target achieved 2020	Target not achieved 2020	Target achieved 2020	Target not achieved 2020
106 (4 LDCs)	84 (39 LDCs)	67 (1 LDC)	111 (32 LDCs)
New entrants	Exiting economies	New entrants	Exiting economies
Moldova Morocco Botswana Nigeria Iraq Libya Maldives Nauru Mongolia	Curaçao Suriname Tonga	Mongolia Nepal (Republic of): LDC Indonesia	Brazil Saudi Arabia

Source: ITU and A4AI

Note: New entrants and exiting economies refers only to those economies for which data were available in both years, 2019 and 2020.

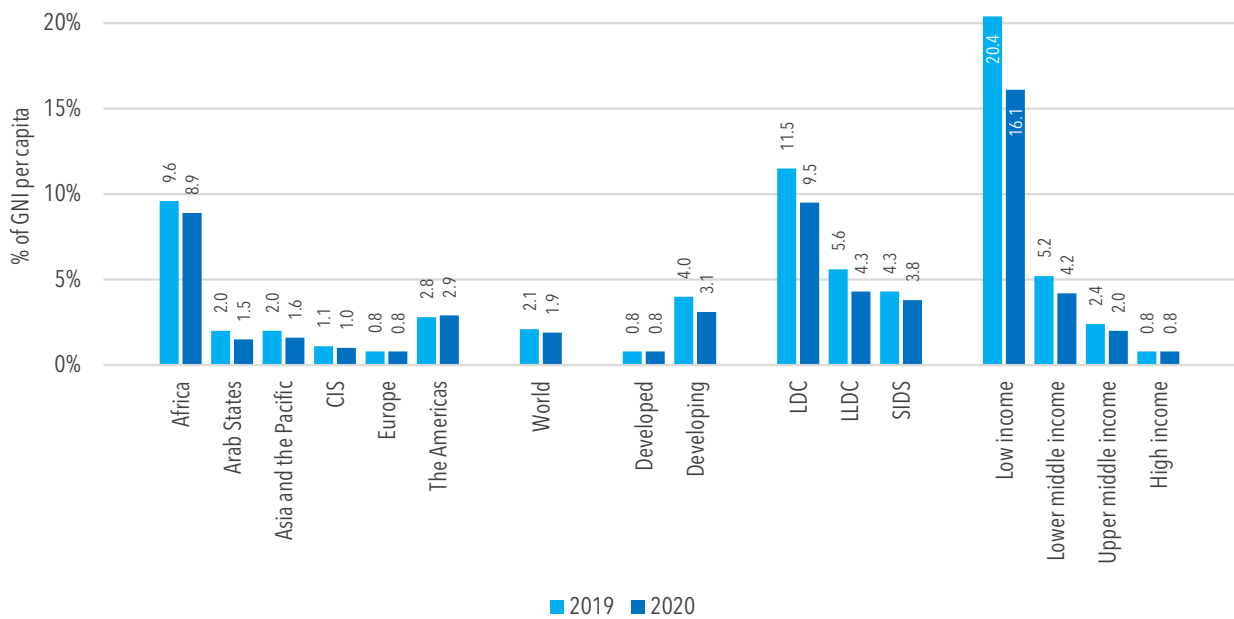
Mobile data and voice low-usage basket

Globally, between 2019 and 2020, prices of the data and voice low-usage basket decreased by more than 8 per cent. Except for the Americas, all other regions improved in their affordability of this basket. The biggest improvements were registered in the Arab States and

Asia-Pacific regions, where the affordability of their low-usage baskets improved by 25.1 per cent and 18.7 per cent, respectively.

Developing countries continue to lag behind their developed counterparts. Nonetheless, between 2019 and 2020, the affordability of the basket in developing countries improved by 21.5 per cent, reducing the gap from 3.2 percentage points in 2019 to 2.3 in 2020. On current trends, if the gap continues to shrink at

Figure 3: Mobile data and voice low-usage basket prices



Source: ITU and A4AI.

Note: By world regions and level of development as a percentage of monthly GNI per capita, 2019-2020. Medians based on 179 economies for which data were available for the two years. Countries are benchmarked according to the price of an entry-level low-usage basket, defined as the cheapest mobile data and voice basket subscription available domestically, with a minimum of 70 minutes, 20 SMS and 500 MB monthly data allowance and a technology of 3G or above.

a consistent annual rate of 18.3 per cent, it will have disappeared entirely in 12 years.²

In 2020, Luxembourg, Macao (China), Austria, Hong Kong (China) and Israel (in that order) had the most affordable data and voice low-usage baskets. Between 2019 and 2020, prices for the low-usage baskets fell by 66 per cent or more in Senegal, Papua New Guinea, Yemen, Botswana, Liberia and Djibouti. In contrast, Burundi, Democratic Republic of the Congo, Chad, Niger and Central African Republic offered the least affordable baskets (in order of increasing percentage). Access to a low-usage basket plan in these countries costs more than 30 per cent of the median monthly income.

Mobile data and voice high-usage basket

The trends in prices for the data and voice high-usage basket have closely followed the trends seen for low-usage. Globally, affordability levels of the high-usage basket improved by 10.5 per cent from 2019 to 2020. This rapid advance was mainly driven by significant

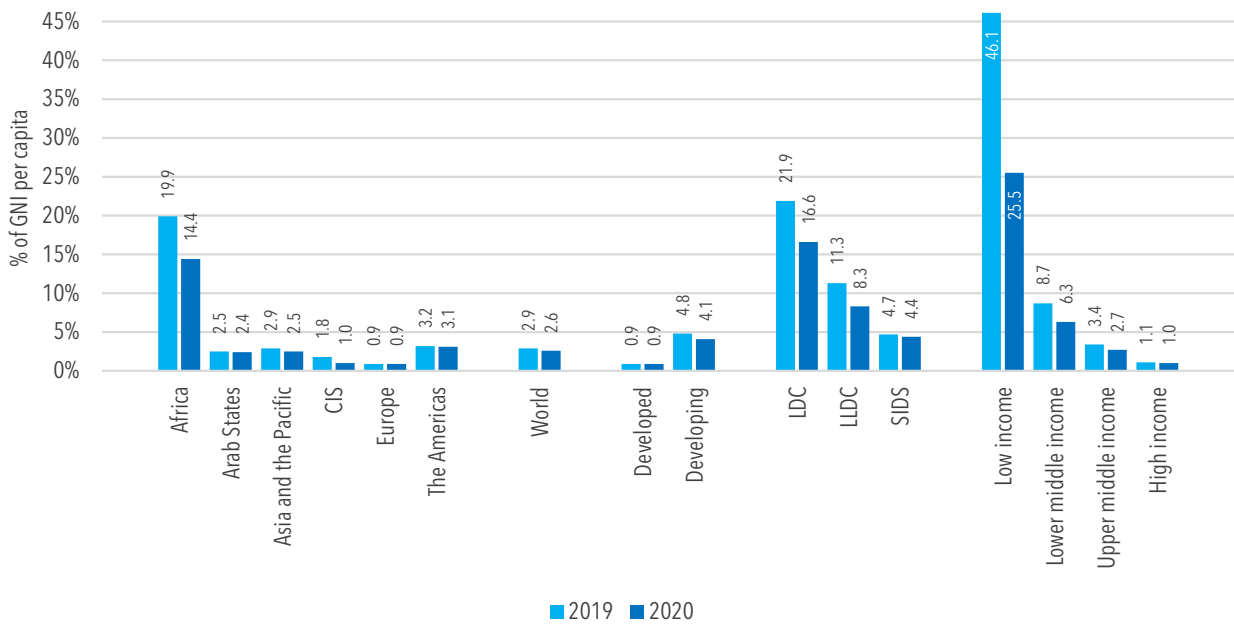
improvements in the Commonwealth of Independent States (CIS), where prices dropped by 47.2 per cent for the median country. Although to a lesser extent, prices also fell sharply in Africa (27.6%).

The gap between developed and developing countries also narrowed between 2019 and 2020 due to improvements in the affordability of high-usage baskets in developing countries: the median cost fell by 13 per cent, from 4.8 to 4.1 per cent of GNI. In contrast, there was virtually no change in the affordability levels of developed countries.

In 2020, the economies that offered the most affordable low-usage baskets were also the ones offering the most affordable high-usage baskets: Luxembourg, Macao (China), Austria, Hong Kong (China) and Israel (in that order), where the average earner would have to spend less than half a per cent of their income to access the high-usage basket. In addition, between 2019 and 2020 Senegal, Djibouti, Botswana and Mozambique all improved the affordability of their high-usage basket by more than 75 per cent. This is in stark contrast to those countries where high-usage baskets are the most unaffordable, where the average earner would have to spend two-thirds or more of their income to buy such a basket. These countries include Chad, Central African Republic, Burundi, Malawi and Democratic Republic of the Congo.

² Calculations made using the compound annual growth rate (CAGR) method with 2018-2020 as the reference period.

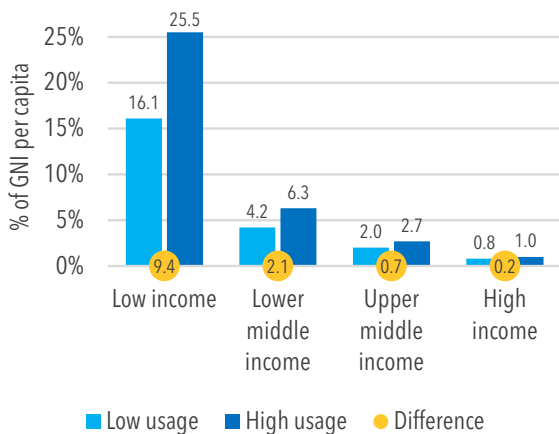
Figure 4: Mobile data and voice high-usage basket prices



Source: ITU and A4AI

Note: By world regions and level of development as a percentage of monthly GNI per capita, 2019-2020. Medians based on 182 economies for which data were available for the two years. Countries are benchmarked according to the price of an entry-level high-usage basket, defined as the cheapest data and voice basket subscription available domestically, with a minimum of 140 minutes, 70 SMS and 1.5 GB monthly data allowance and a technology of 3G or above.

Figure 5: Differences between the mobile data and voice high- and low-usage baskets, 2020



Source: ITU and A4AI

Note: Medians based on 188 economies for which data were available for both baskets in 2020.

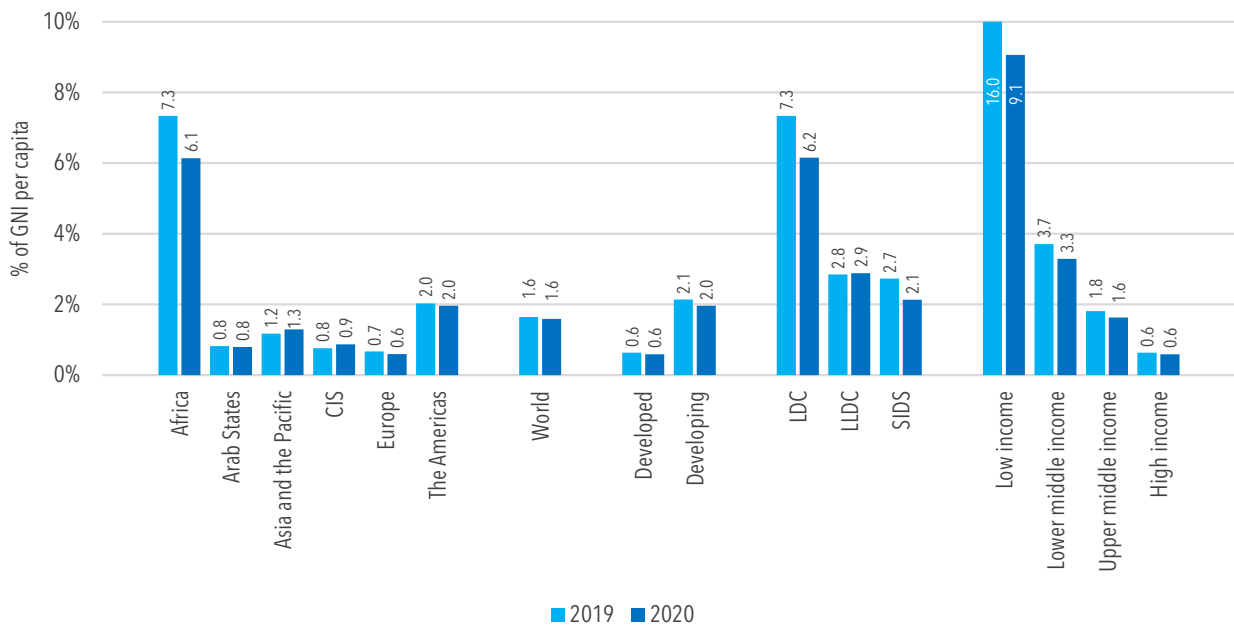
High-usage baskets are 8.2 percentage points more expensive than low-usage baskets in low-income countries (see Figure 5). In stark contrast, in high-income countries the two baskets are priced nearly the same. The negligible difference in price in high-income countries probably reflects the growing ubiquity of high-usage baskets in these countries, where they may have become affordable enough for nearly the entire population. As a possible consequence, the low-usage baskets have all but disappeared as an option to customers in up to 42 per cent of the high-income countries in our research.

Despite the considerable price gap that remains between the low and high-usage baskets in developing countries, the progress these countries have made towards closing it is very promising. Making high-usage baskets affordable in all countries should be a key policy goal. Low-usage baskets may be attractive as a starting access point, but they do not allow users to benefit fully from the many advantages that a more meaningful Internet connectivity offers. This is especially true because it is often the case that the more powerful and beneficial tools requiring the Internet are also the most data-intensive.

Mobile-cellular low usage basket

In 2020, the worldwide median price for an entry-level mobile cellular basket (with a monthly allowance of at least 70 minutes of voice calls and 20 SMS) was USD 9.6, equivalent to 1.6 per cent of monthly GNI per capita. At the global level, the median price for this basket appears to have levelled off. However, this masks two opposite trends in the market. The first is a price reduction occurring primarily in LDCs (from 7.3 to 6.2% of GNI per capita) and in low-income economies, which had an even more pronounced drop (from 16.0 to 9.1%). Despite this improvement, the basket continues to remain unaffordable to a large segment of the population in these economies: the basket costs more than 2 per cent of GNI per capita in 23 out of the 25 low-income economies – and in 38 out of the 44 LDCs – for which data are available. Nonetheless, the overall price drop has gradually narrowed the affordability gap across regions, as the median costs for this basket in Africa dropped from 7.3 per cent to 6.1 per cent of GNI per capita.

Figure 6: Mobile-cellular low usage basket prices



Source: ITU and A4AI

Note: By world regions and level of development, as a percentage of monthly GNI per capita, 2019-2020. Medians based on 190 economies for which data were available for the two years. The basket is defined as the cheapest mobile-cellular basket that offers at least 70 minutes of voice calls and 20 SMS messages.

By contrast, the second trend is triggered by operator strategy of consolidating the range of offers and phasing out entry-level voice-only plans in favour of combined voice/data plans with higher usage allowances but also higher price tags. As a result, median prices have increased slightly (by 0.1 percentage point) in the Asia-Pacific and the CIS regions. This trend warrants most attention as it is witnessed by LLDCs as well, where the median price for this cheapest of the baskets, already above the global median, increased further from 2.8 per cent to 2.9 per cent of GNI.

The economies where the entry-level mobile-cellular basket was most affordable, in order, were Hong Kong (China), Macao (China), Luxembourg, Austria and United Arab Emirates, in all of which the price of the basket did not exceed 0.1 per cent of GNI per capita. The five countries where the GNI per capita price for this basket dropped the most over the past year were Liberia, Mauritania, Côte d'Ivoire, Jordan and Benin. By contrast, the basket was most expensive in Niger, Burundi, Central African Republic, Malawi and Nicaragua, where it cost at least 21.7 per cent relative to per capita GNI.

Fixed-broadband basket

On a global scale, the median price for an entry-level fixed-broadband basket amounted to 2.9 per cent of monthly GNI per capita, which, despite a 0.2 percentage point drop from, remains almost a percentage point above the 2 per cent affordability target set by the Broadband Commission. Both the region and income levels have a major impact on the affordability of a fixed-broadband connection. While consumers in the Arab States and the Asia-Pacific regions face prices close to the world

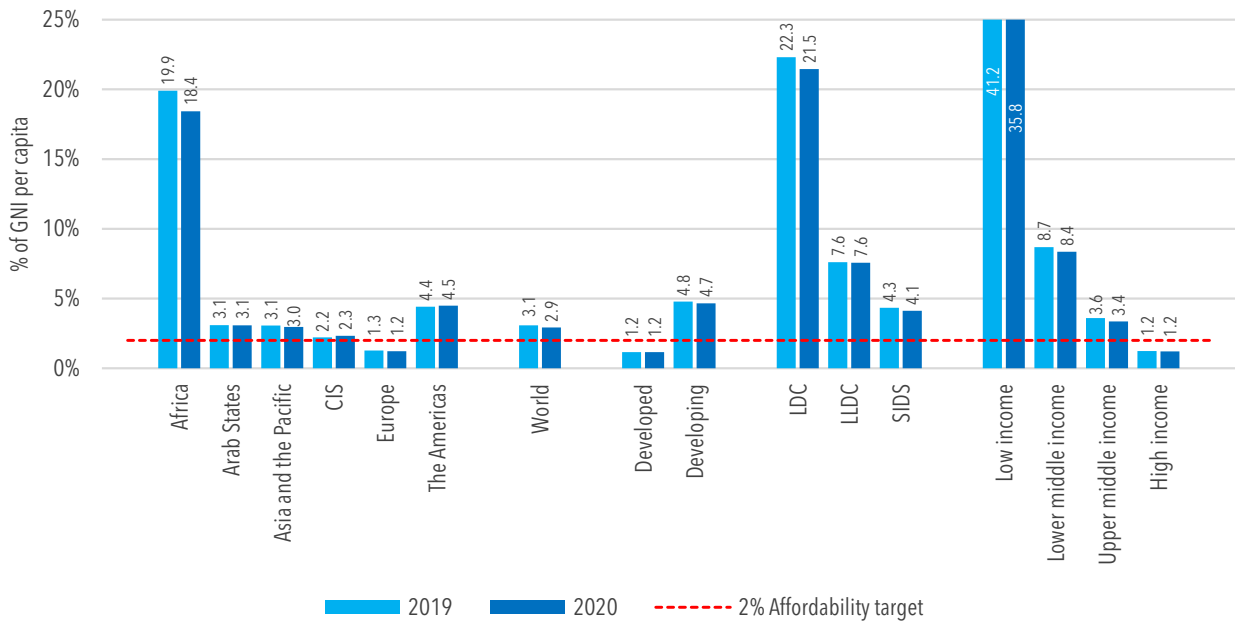
median, those in Africa and the Americas regions pay six and one-and-a-half times the world median, respectively. Europe remains the only region where consumers spend less than 2 per cent of their income on fixed-broadband Internet (1.2% of GNI per capita). Regional aggregations hide considerable heterogeneity, which becomes clear when economies are grouped according to their income levels. Fixed-broadband Internet is prohibitively expensive not just for low-income economies (where median costs amount to 35.8 per cent of the average monthly income), but also for many lower-middle-income economies (8.4% of GNI per capita). In 2020, entry-level fixed-broadband Internet was affordable in only 1 of the 33 LDCs for which data were available; in none of the 15 low-income economies; and in 4 of the 48 lower-middle-income economies for which data were available.

In 2020, the affordability gap between developed and developing countries remained virtually unchanged for fixed-broadband Internet.

A drop in relative costs in Africa (from 19.9 to 18.4% of GNI per capita) and low-income economies (from 41.2 to 35.8%) has been partly offset by slight increases in the median relative costs in the CIS and Americas regions (from 2.2 to 2.3% and from 4.4 to 4.6%, respectively). There has been little improvement in the affordability of this basket for consumers living in LDCs and LLDCs.

The economies where entry-level fixed-broadband Internet was the most affordable in 2020 were Liechtenstein, Kuwait, Macao (China), China, and the United Arab Emirates (in order of increasing percentage), with costs of less than 0.6 per cent of GNI per capita. The biggest improvements in the affordability of this basket were observed in Yemen, Rwanda, Papua New Guinea, Moldova and Turkey (drops of 50% or more). At the other end of the scale, only the most affluent consumers could afford fixed-broadband

Figure 7: Fixed-broadband basket prices



Source: ITU and A4AI

Notes: By world regions and level of development as a percentage of monthly GNI per capita, 2019-2020. Medians based on 170 economies for which data were available for the two years. Countries are benchmarked according to the price of an entry-level fixed-broadband basket, defined as the cheapest fixed Internet subscription available domestically, with a minimum of 5 GB monthly data allowance and an advertised download speed of at least 256 kbit/s.

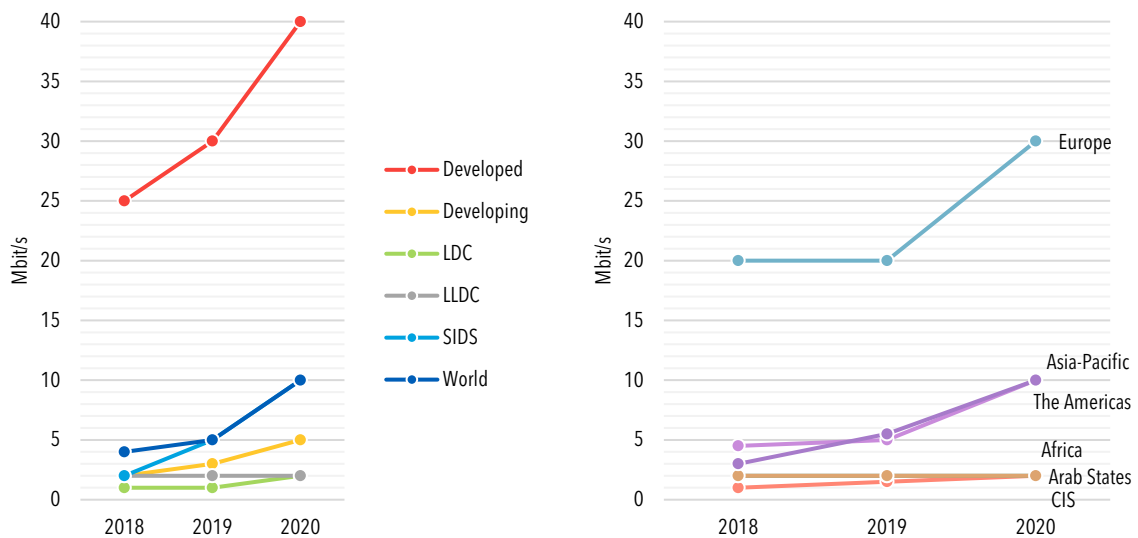
Internet in Madagascar, Niger, Malawi, Haiti, and Guinea-Bissau, where the relative price amounted to 69 per cent or more of monthly GNI per capita.

in network infrastructure. The global median speed for entry-level fixed broadband Internet in 2020 reached 10 Mbit/s, which is double the speed of 2019. However, consumers in developing countries, especially LDCs and LLDCs, did not benefit significantly, with speeds typically below 5 Mbit/s. Evidently, the gap between developed and developing countries in terms of value for money is growing, considering the striking quality improvements in developed economies (median of entry-level speeds reaching 40 Mbit/s in 2020) and the low GNI per capita rates.

Improvements in fixed-broadband speeds

The past years have also witnessed improvements in the value for money across the world as a result of investments

Figure 8: Changes in median download speeds (Mbit/s) for entry-level fixed broadband baskets



Source: ITU and A4AI

Note: Medians based on available speed data for 2018-2020.

More data to explore

The figures presented in this brief offer only a first, high-level overview of the global affordability trends based on the 2020 ICT Price Baskets. The [online country tables and data visualization accompanying this report](#) offers detailed additional statistics on the baskets, with prices not only in GNI per capita, but also in USD and international dollars at purchasing power parity.

For further information please contact indicators@itu.int and a4ai@webfoundation.org.

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