

Policy Brief

The affordability of ICT services 2021

Summary

After years of steady decline, the share of income spent on telecommunication and Internet services increased globally in 2021. This is mainly the result of the global economic downturn triggered by the COVID-19 pandemic. In many economies, the long-standing trend of gradually declining prices for such services was outweighed by a steep drop in average gross national income (GNI) levels in 2020.

The yawning gap in affordability between high-income economies and the rest of the world persisted: the share of income that entry-level fixed and mobile broadband represents for users in low- and middle-income economies is typically five to six times greater than in high-income economies, thus contributing to perpetuating the digital divide (see Box 1 for methodology). These developments highlight the digital vulnerability of poorer communities, where people face a hard choice between having connectivity, which has become an even greater necessity in the pandemic, and meeting other basic needs. The affordability target set by the United Nations Broadband Commission for Sustainable Development – to bring the cost of entry-level broadband services below 2 per cent of monthly GNI per capita by 2025 – remains elusive.

Apart from the price, the actual value for money associated with the benchmark baskets also differed greatly across economies. The most striking example is in the advertised speed included in the benchmark

fixed broadband plans: that gap between high-income economies and the rest of the world nearly doubled in 2021.






The COVID-19 pandemic brought about two main counteracting trends in 2021 that influenced affordability. On the one hand, as digital replaced many physical interactions and the global demand for data usage surged, operators and regulators worked to ensure that access was maintained with a variety of measures: boosting capacity, increasing zero-rated services, providing temporary subsidies and so on. On the other hand, the real economic impact of the pandemic on national income levels in 2020 made information and communication technology (ICT) services less affordable for many users.

The fact that the demand for broadband services increased in the past two years, even as they became less affordable, shows that Internet access is not a luxury but a necessity. The risk is that a significant portion of the world's population will be left behind: those who face a trade-off between purchasing Internet access and meeting other basic needs.

This brief, produced by the International Telecommunication Union (ITU) and the Alliance for Affordable Internet (A4AI), gives a high-level overview of the results from the 2021 price data collection exercise, focusing on changes in the affordability of five representative ICT price baskets listed in Box 1.

BOX 1: What are the five ICT price baskets covered in this brief?

The [Expert Group on Telecommunication/ICT Indicators](#) (EGTI) of ITU has defined five baskets of ICT services to benchmark the cheapest price plans for five categories of services across economies. The baskets are revised from time to time to adjust for changes in the global market for ICT services. The figure below provides a simplified overview of the baskets used in the 2021 data collection. Details on the data collection methodology¹ are available on the ITU website, while a summary of changes with respect to 2021 is given in Box 3.

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

For the global comparison, prices collected in local currency were converted to three different units: US dollars (USD), international dollars (adjusted for purchasing power differences, PPP\$), and a percentage of monthly GNI per capita (% GNI p.c.). The latter is the main measure of affordability, and hence the unit used primarily in this Policy Brief. The brief focuses on broad trends for high-level aggregates of economies: the regional grouping used by the [ITU Telecommunication Development Sector](#), the [M49 groups](#) of the United Nations, and the World Bank 2021 [income groups](#). Detailed data for nearly 200 economies worldwide for 2021 and previous years are available in the [online visualization app](#).

¹ ITU price data collection rules applied from May 2021 can be found at https://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/IPB_Rules_2022.pdf.

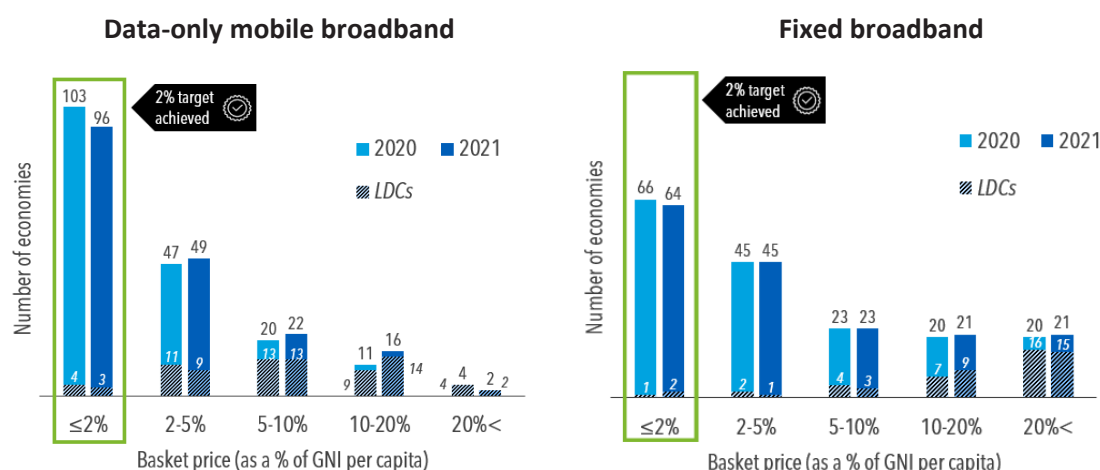
Progress towards the UN Broadband Commission target

In 2018, the UN Broadband Commission for Sustainable Development set its updated affordability target: to bring prices for entry-level broadband services below 2 per cent of monthly GNI per capita by 2025¹.

Among the economies for which data are available for both 2020 and 2021, fewer met the 2 per cent affordability target in 2021 than in 2020, across the different types of service. Thus, only 96 economies met the target with regard to the *data-only mobile* broadband basket in 2021 (7 less than the previous year), and only 64 economies met the target with respect to the *fixed* broadband basket (down by 2 from the previous year), as shown in Figure 1. This reverses the trend of declining prices for the *data-only mobile* broadband basket observed in previous years.

¹ See the Broadband Commission targets at <https://www.broadbandcommission.org/broadband-targets>.

Figure 1: Progress towards the UN Broadband Commission's target: number of economies by basket price class (expressed as % of GNI per capita)



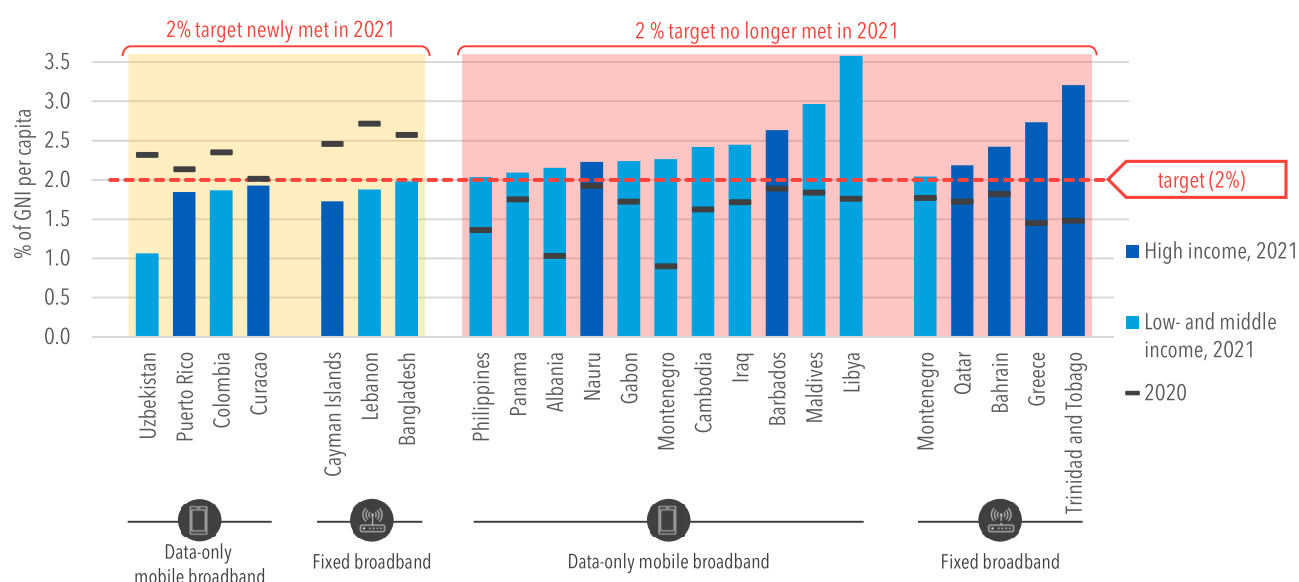
Note: The chart shows the distribution of economies by affordability class, defined by the price of the broadband basket in % GNI per capita. Only those economies that had basket data available for both years for mobile broadband (185 economies) and fixed broadband (174 economies) are considered. The LDC component in each class is shown hatched, with the number in italics. Source: ITU and A4AI.

The prices of broadband baskets remained far above the 2 per cent target for most of the least developed countries (LDCs). Of the 18 economies where mobile broadband Internet access cost more than 10 per cent of GNI per capita, 16 were LDCs. Only 4 LDCs – Bangladesh, Bhutan, Myanmar and the Republic of Nepal – met the broadband target in 2021. Bangladesh with both data-only mobile and fixed broadband baskets, Bhutan and Myanmar thanks to the affordability of data-only mobile broadband, and the Republic of Nepal due to fixed broadband.

Cambodia, a country that met the target in 2020, no longer did so in 2021. Box 2 gives further details about the main reasons behind the changes in affordability.

While fewer countries met the 2 per cent target in 2021, there were some positive developments. The list of countries that met the broadband targets in 2021 included three low-and middle-income countries for which none of the baskets was under 2 per cent the previous year: Uzbekistan, Colombia and Lebanon (Figure 2).

Figure 2: Developments between 2020 and 2021 with regard to the Broadband Commission's affordability target: new entrants and exiting economies

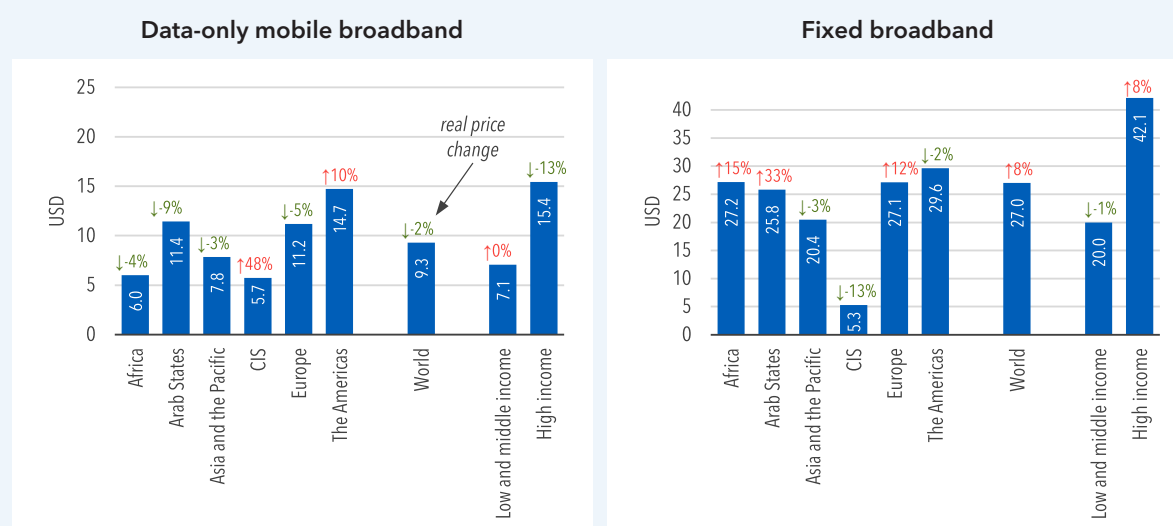


Note: Only those economies that had basket data available for both years for mobile broadband (185 economies) and fixed broadband (174) are considered. Economies are benchmarked according to the price of the entry-level data-only mobile broadband basket (defined as the cheapest data-only mobile broadband subscription available domestically, with a minimum of 1.5 GB monthly data allowance in 2020 and 2 GB in 2021, and a 3G technology or above) and 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). Source: ITU and A4AI.

BOX 2: Why did the broadband baskets become less affordable in 2021?

Changes in affordability can result from changes in prices (the numerator) or in average national income (denominator). While prices for ICT services expressed in US dollars have become cheaper in many parts of the world, once adjusted for inflation they reveal considerable differences between regions and between baskets (Figure 3). For instance, for the data-only mobile broadband basket, the world median price (adjusted for income) decreased by 2 per cent from 2020 to 2021. However, high-income countries saw a drop of 13 per cent, while in low- and middle-income economies it remained virtually unchanged. During the same period, the median price of the fixed broadband basket increased by 8 per cent, driven mostly by price growth in high-income economies. The income-adjusted price increased because the slight fall in USD prices was outweighed by the steep drop in GNI. In addition, while operators around the world offered special promotions responding to specific demands during the pandemic, the data collected were prices for standard, non-promotional plans, to ensure global comparability. Thus, a key factor behind the erosion of affordability observed in 2021 was the decrease in GNI levels observed in 2020. (GNI values lag by one year due to data availability issues.) This highlights that the affordability of the entry-level broadband services that are the focus of the Broadband Commission is very sensitive to changes in income levels. By the same token, the setbacks experienced in attempts to reach the affordability target may well prove temporary in economies whose income bounces back to pre-crisis levels. Nevertheless, meeting the Broadband Commission target by 2025 will require stepping up efforts to enhance affordability, rather than just relying on a return to pre-pandemic levels.

Figure 3: Broadband basket prices in 2021 in USD, and changes compared to previous year, adjusted for inflation



Note: The chart shows the median price in USD of the data-only mobile broadband basket, based on a 1.5 GB allowance in 2020 and 2 GB in 2021, and the fixed broadband basket with a 5 GB allowance. Only those economies for which GNI-adjusted data could be obtained for both years for mobile broadband (185 economies) and fixed broadband (176) are considered. Inflation-adjusted real price changes from 2020 to 2021 are indicated above the bars.

Source: ITU and A4AI.

Main findings

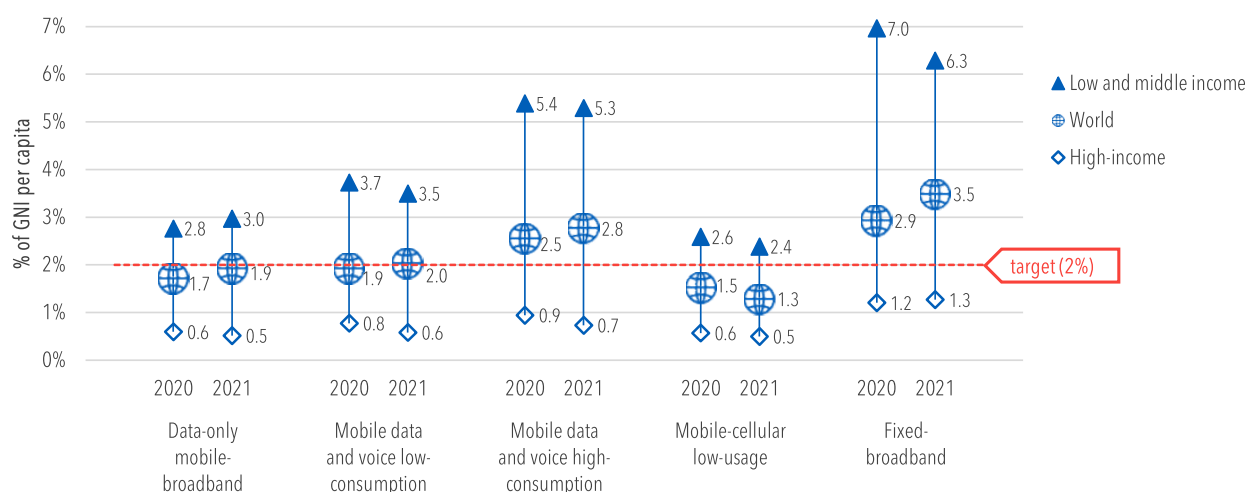
Overall, all four baskets that included data (fixed and mobile broadband) became less affordable in 2021. The gap between high-income economies and others (low- and middle-income) remained significant in 2021: relative to their income, consumers in low- and middle-income economies typically pay five to six times more for ICT services than do consumers in high-income economies. For the data-only mobile broadband basket and the mobile data and voice high-consumption basket, the gap widened in 2021. In the case of the fixed broadband basket, although it narrowed by 0.8 percentage points, the gap remains above 5 percentage points.

Data-only mobile broadband basket

Affordability of the entry-level mobile broadband basket is particularly relevant given that around 95 per cent of the world's population lives within range of at least a 3G mobile network.² Adjusted for GNI per capita, the world price of the basket increased by 0.2 percentage points in 2020, reaching 1.9 per cent in 2021, just below the affordability target set by the Broadband Commission. Affordability worsened slightly in two regions that had already failed to meet the target in 2020, Africa and the

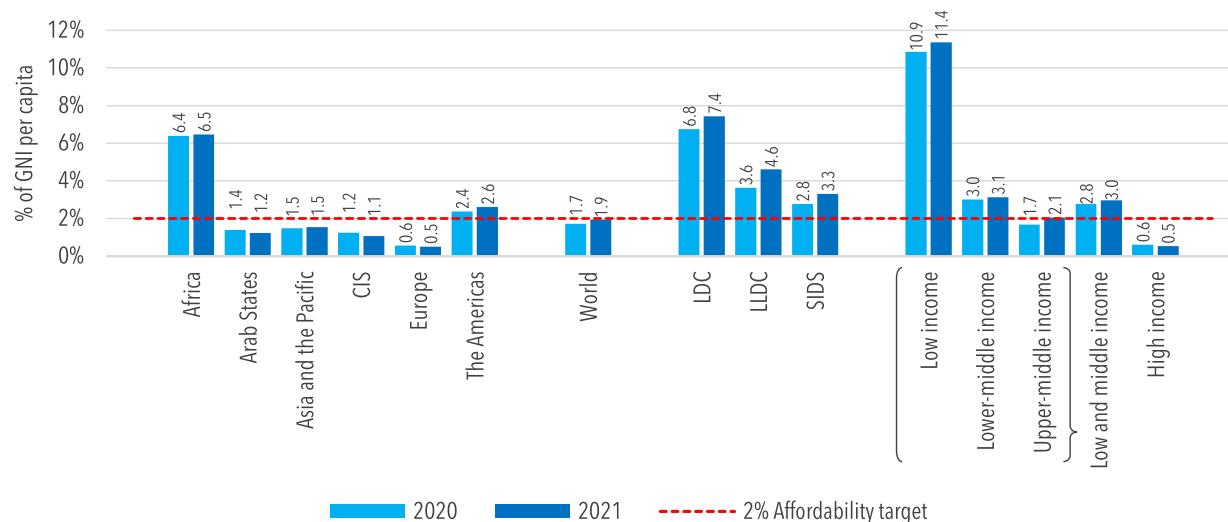
² ITU (2021) "Measuring digital development: Facts and figures 2021". Available at <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf>.

Figure 4: Overview of basket prices, 2020-2021



Note: Median values per basket. Only those economies for which data were available for both years for mobile baskets (185 economies) and fixed broadband basket (176) are considered.
Source: ITU and A4AI.

Figure 5: Data-only mobile broadband basket prices



Notes: By world region and level of development, expressed as a percentage of monthly GNI per capita, 2020-2021. Medians based on the 185 economies for which data were available for both years. Economies 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 3G technology or above and a minimum monthly data allowance of 1.5 GB for 2020 and 2 GB for 2021.
Source: ITU and A4AI.

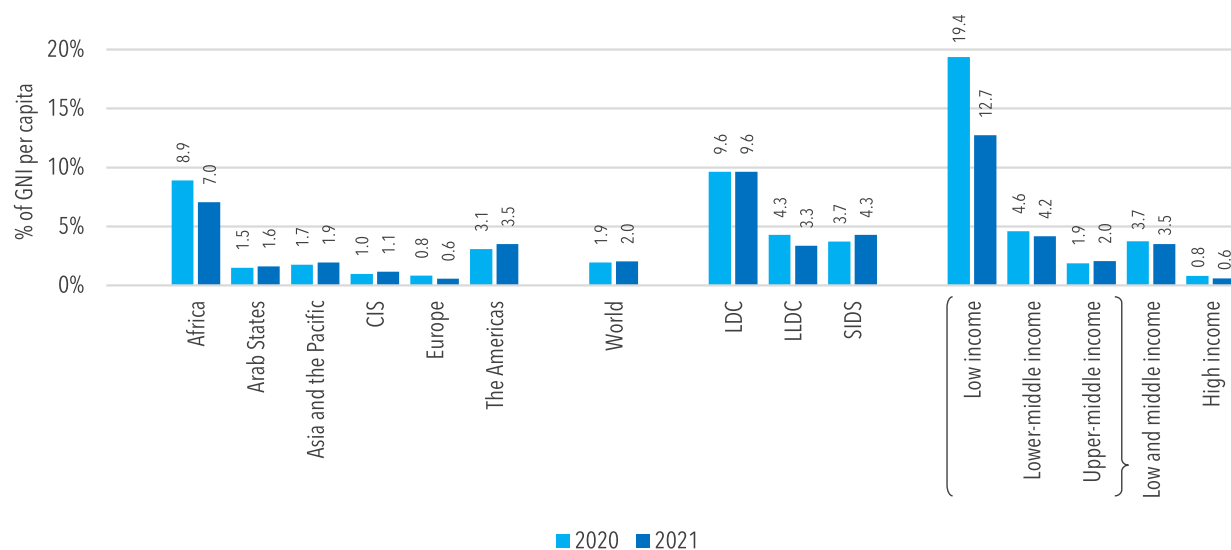
Americas, with Africa being far above the 2 per cent target (Figure 5).

The gap in affordability is at its most striking between countries with different income levels. Affordability worsened in all income groups, except the high-income economies. Low-income economies continue to face prohibitive prices for the benchmark of two gigabytes (2GB) of mobile data, with the median income-adjusted price in these countries four times as expensive as it was in the lower-middle-income economies and six times the global median price. The gap also increased between low- and middle-income economies on the one hand and high-income economies on the other: in 2020, 2 GB of mobile data was five times as expensive for the former as it was for the latter; and rose to six times in 2021. The use of median values, of course, says nothing about the magnitude of

actual price variations. While there is a huge difference in affordability levels within the group of low-income economies (3.4 per cent of GNI per capita in Sudan versus 41 per cent in the Central African Republic), it is telling that the cheapest price within the group is still higher than the most expensive in the high-income economies (3.1 per cent of GNI per capita in Antigua). In LDCs, landlocked developing countries (LLDCs) and small island developing States (SIDS), affordability worsened between 2020 and 2021, especially in LLDCs where the price increased by a full percentage point.

Among the economies covered in the 2021 sample, the lowest prices for 2 GB of mobile data were those paid in Liechtenstein, Hong Kong (China), Macao (China), Luxembourg and Singapore, where they made up less than 0.2 per cent of monthly average GNI per capita.

Figure 6: Mobile data and voice low-consumption basket prices



Note: Medians based on the 185 economies for which data were available for the two years. Economies 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 3G technology or above. Source: ITU and A4AI.

Mobile data and voice baskets

Users around the world expect that a mobile broadband subscription will include traditional voice communications in addition to SMS messaging and Internet access (the latter often used for over-the-top (OTT) communication services). Given the differences in consumption practices between economies at different income levels, a low-consumption basket and a high-consumption basket have been defined. The low-consumption basket is based on the entry-level mobile-cellular basket allowance, 70 minutes of calls and 20 SMS messages, plus 500 MB of data usage. The high-consumption basket includes 140 minutes, 70 SMS and a data allowance at the same level as for the data-only mobile broadband basket, which is 2 GB as of 2021.³

Operators often market such services as bundles. However, the data collection rule for the baskets was to select the cheapest option from the representative operator that meets the basket allowance requirements. In some cases, this was a bundle, while in others it was a combination of a base plan with one or more add-ons.

In the case of the **mobile data and voice low-consumption basket**, the world median price in 2021 increased slightly, reaching 2 per cent of monthly GNI per capita. Affordability improved between 2020 and 2021 in all income groups, except the upper-middle income economies. Low-income economies saw the steepest GNI per capita price drop: almost 5 percentage points, reaching 12.7 per cent. This was primarily due to significant reductions in the most expensive basket prices in Africa. Regional disparities nevertheless persist: the median price of the basket in Africa was 7 per cent of monthly GNI per capita, even after the improvement of nearly 2 percentage points. The benchmark plan was 12

times as expensive in Africa as in Europe, the cheapest region. Consumers in the Americas faced relatively higher prices, with a deteriorating trend. After a 0.4 percentage point increase, in 2021 the price for the basket reached 3.5 per cent of monthly GNI per capita. In the remaining regions, the median basket price was at or below 2 per cent of GNI per capita. In SIDS, the basket became less affordable, increasing to 4.3 per cent of monthly GNI per capita, whereas consumers in LLDCs saw a 1 percentage point improvement.

The basket was most affordable in Luxembourg, Liechtenstein, Hong Kong (China), Macao (China), Israel, and Austria (in that order), ranging from 0.13 to 0.24 per cent of GNI per capita.

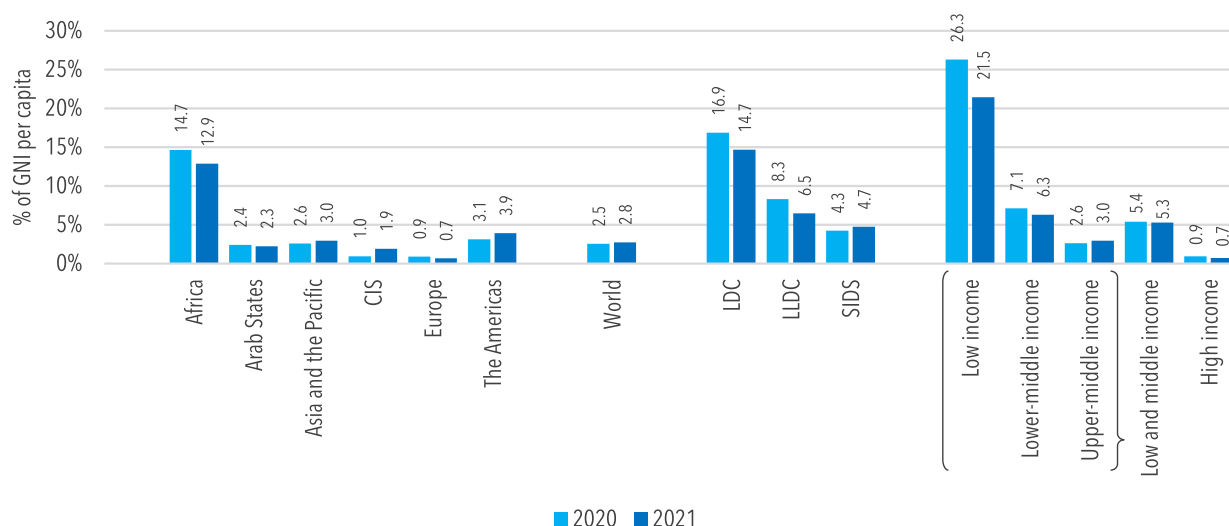
The median price of the **mobile data and voice high-consumption basket** decreased in all income groups except upper-middle-income economies. While the median for this group only increased by 0.4 percentage points, 15 upper-middle-income economies saw steep price increases, over 3 percentage points in some cases. The price increases in about a third of the economies monitored raised the world median from 2.5 to 2.8 per cent of monthly GNI per capita in 2021.

Although the median price paid for this basket in low-income economies fell by nearly 5 percentage points, it remains unaffordable at 21.5 per cent of monthly GNI per capita. Even in the cheapest economy in this group (Sudan) the basket remained above 7 per cent of GNI per capita, far above the price in the most expensive high-income economy (Nauru, at 4.9 per cent of GNI per capita).

Similarly, despite significant affordability improvements, in LDCs the basket cost 14.7 per cent of monthly GNI per capita. This hides significant variation, from 2 per cent in Bangladesh to 56.9 per cent in Burundi. While affordability in the Arab States and Europe has continued with slight improvements in 2021, it significantly worsened in Asia and the Pacific, the Commonwealth of Independent States

³ Following market trends, EGTI agreed in 2020 to increase the 1.5 GB data allowance used between 2018 and 2020 to 2 GB. See also Box 3 below.

Figure 7: Mobile data and voice high-consumption basket prices



Note: Medians based on the 185 economies for which data were available for the two years. Economies 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 (for 2020) and 2 GB (for 2021) monthly data allowance and a 3G technology or above.
Source: ITU and A4AI.

(CIS) and the Americas, as well as in SIDS. A positive development was the decrease in the highest prices in all four of these groups.

The economies which had the lowest prices for the high-consumption basket were the same as for the low-consumption basket: Liechtenstein, Luxembourg, Macao (China), Israel, and Austria (in that order), with prices ranging between 0.13 and 0.24 per cent of GNI per capita.

Even as the price of the two data and voice baskets decreased in low-income economies, in terms of affordability a big gap separates the high and the low-consumption baskets (Figure 8). To enjoy the higher allowance thresholds of the high-consumption basket (twice as many minutes, over three times as many SMSs and four times as much Internet data), consumers in low-income economies must pay around 70 per cent more (almost 9 percentage points). In high-income economies, the high-consumption premium is a mere 0.1 percentage point.

Mobile-cellular low-usage basket

Regional differences persist: while consumers in Africa saw a significant drop, from 6.1 to 4.6 per cent of GNI per capita, prices increased in the Arab States, CIS countries and the Americas. The price hike is most worrisome for this latter region: the median increased from 2 to 2.2 per cent of monthly GNI per capita. The main reason behind this trend is a combination of more costly plans and lower GNI.

In the LDCs, prices dropped from 6.6 to 5.6 per cent of monthly GNI per capita, while they remained stable at 2.9 per cent in LLDCs. Consumers in SIDS faced a rather sharp increase, from 2.0 to 3.1 per cent of monthly GNI per capita.

The basket was most affordable in Hong Kong (China), Macao (China), Austria, United Arab Emirates, Luxembourg, and Liechtenstein (in that order), ranging between 0.05 and 0.13 per cent of GNI per capita.

Fixed broadband basket

Of the five baskets monitored, the fixed broadband (5 GB) basket exhibited the largest price increase between

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