

# ICT Price Basket Methodology (until 2017)

This methodology applies until the ICT price data collection for reference year 2017. Revised baskets were agreed in 2017 and have first been collected in 2018.

ITU price data are collected in the fourth quarter of each year. Except for data on mobile-broadband prices, which are collected by ITU directly from operators' websites, all data are collected through the ITU ICT Price Basket questionnaire, which is sent to the administrations and statistical contacts of all 193 ITU Member States. Through the questionnaire, contacts are requested to provide data for fixed-telephone, mobile-cellular, and fixed-broadband prices. For those countries that do not reply to the ITU ICT Price Basket Questionnaire and for the mobile-broadband services, prices are collected directly from operators' websites and/or through direct correspondence.

Prices are collected from the operator with the largest market share, as measured by the number of subscriptions. Insofar as, for many countries, it is not clear which Internet service provider (ISP) has the dominant market share, preference is given to prices offered by the (former) incumbent telecommunication operator. In some cases, especially when prices are not clearly advertised or described only in the local language, and when operators do not respond to queries, alternative operators are chosen.

All prices are converted into USD using the IMF's average annual rate of exchange, and into PPP\$ using World Bank conversion factors. Prices are also presented as a percentage of countries' monthly GNI per capita (p.c.) using GNI p.c. values from the World Bank (Atlas method) or the latest available year adjusted with the international inflation rates.

## THE MOBILE-CELLULAR SUB-BASKET

**The mobile-cellular sub-basket refers to the price of a standard basket of mobile monthly usage for 30 outgoing calls per month (on-net/off-net to a fixed line and for peak and off-peak times) in predetermined ratios, plus 100 SMS messages. It is calculated as a percentage of a country's average monthly GNI p.c. and is also presented in USD and PPP\$<sup>i</sup>. The mobile-cellular sub-basket is based on prepaid prices, although postpaid prices are used for countries where prepaid subscriptions make up less than two per cent of all mobile-cellular subscriptions.**

The mobile-cellular sub-basket is largely based on, but does not entirely follow, the 2009 methodology of the OECD low-user basket, which is the entry-level basket with the smallest number of calls included (OECD, 2010). Unlike the 2009 OECD methodology, which is based on the prices of the two largest mobile operators, the ITU mobile sub-basket uses only the largest mobile operator's prices. Nor does the ITU mobile-cellular sub-basket take account of calls to voicemail (which in the OECD basket represent four per cent of all calls) or non-recurring charges, such as the one-time charge for a SIM card. The basket gives the price of a standard basket of mobile monthly usage in USD determined by OECD for 30 outgoing calls per month in predetermined ratios, plus 100 SMS messages<sup>ii</sup>. The cost of national SMS is the charge to the consumer for sending a single SMS text message. Both on-net and off-net SMS prices are taken into account. The basket considers on-net and off-net calls as well as calls to a fixed telephone<sup>iii</sup> and, since the price of a call often depends on the time of day or week it is made, peak, off-peak and weekend periods are also taken into consideration. The call distribution is outlined in Table 1.1.

**Table 1.1: OECD mobile-cellular low-user call distribution (2009 methodology):**

	To fixed	On-net	Off-net	TOTAL	Call distribution by time of day (%)
Call distribution (%)	17.0	56.0	26.0	100.0	100.0
Calls	5.2	16.9	7.9	30.0	
Peak	2.4	7.8	3.6	13.8	46.0
Off-peak	1.5	4.9	2.3	8.7	29.0
Weekend	1.3	4.2	2.0	7.5	25.0
Duration (minutes per call)	2.0	1.6	1.7		
Duration (total minutes of calls)	10.4	27.0	13.4	50.9	N/A
Peak	4.8	12.4	6.2	23.4	46.0
Off-peak	3.0	7.8	3.9	14.8	29.0
Weekend	2.6	6.8	3.4	12.7	25.0
Calls	30 calls per month				
SMS	100 SMS per month (50 on-net, 50 off-net)				

Source: ITU, based on OECD (2010)

Prepaid prices are chosen because they are often the only payment method available to low-income users, who might not have a regular income and will thus not qualify for a postpaid subscription. Rather than reflecting the cheapest option available, the mobile-cellular sub-basket therefore corresponds to a basic, representative (low-usage) package available to all customers. In countries where no prepaid offers are available, the monthly fixed cost (minus the free minutes of calls included, if applicable) of a postpaid subscription is added to the basket. To make prices comparable, a number of rules are applied (see Box 1.1).

#### Box 1.1: Rules applied in collecting mobile-cellular prices

1. The prices of the operator with the largest market share (measured by the number of subscriptions) are used. If prices vary between different regions of the country, prices refer to those applied in the largest city (in terms of population) or in the capital city.
2. Prices should be collected in the currency they are advertised, including taxes. If prices are not advertised in local currency, a note should be added specifying the currency.

3. Prices refer to prepaid plans. Where the operator offers different packages with a certain number of calls and/or SMS messages included, the cheapest one on the basis of 30 calls and 100 SMS should be selected. If instead of a pay-per-use plan a package is selected for the whole basket (e.g. a bundle including 100 SMS, 60 minutes and 100MB) or for some of its elements (e.g. a package including 100 SMS), it should be indicated in the notes. In countries where prepaid subscriptions account for less than 2 per cent of the total subscription base, postpaid prices may be used. In this case, the monthly subscription fee, plus any free minutes, will be taken into consideration for the calculation of the mobile-cellular sub-basket.
4. If per-minute prices are only advertised in internal units rather than in national currency, the price of the top-up/refill charge is used to convert internal units into national currency. If there are different refill prices, then the “cheapest/smallest” refill card is used. If different refill charges exist depending on the validity period, the validity period for 30 days (or closest to 30 days) is used.
5. Prices refer to a regular (non-promotional) plan and exclude special or promotional offers, limited discounts or options such as special prices to certain numbers or restricted to new customers, or plans where calls can only be made during a limited number of (or on specific) days during the month.
6. If subscribers can chose “favourite” numbers (for family, friends, etc.) with a special price, this special price will not be taken into consideration, irrespective of the quantity of numbers involved.
7. Prices refer to outgoing local calls. If different rates apply for local and national calls, then the local rate is used. If different charges apply depending on the mobile operator called, the price of calls to the operator with the second largest market share (measured by the number of subscriptions) should be used, indicating in the notes the rates of calling to other mobile operators. If charges apply to incoming calls, these are not taken into consideration.
8. If prices vary between minutes (1st minute = price A, 2nd minute = price B, 3rd minute = price C), the sum of the different prices is divided by the number of different prices (for example: price per minute =  $(A+B+C)/3$ ).
9. If prices vary beyond three minutes, the average price per minute is calculated based on the first three minutes.
10. If there is a connection cost per call, then this is taken into consideration in the formula for the mobile-cellular sub-basket, based on 30 calls.
11. If there are different off-peak prices, then the one that is the cheapest before midnight is used. If the only off-peak period is after midnight, then this is not used. Instead, the peak price is used.
12. If there are different peak prices, the most expensive one during the daytime is used.
13. If there are different weekend prices, the price that applies Sundays during the daytime is used (or the equivalent day in countries where weekends are not on Sundays).

14. If there is no weekend price, the average peak and off-peak price that is valid during the week is used.
15. If peak and off-peak SMS prices exist, the average of both is used for on-net and off-net SMS.
16. If calls are charged by call or by hour (and not by the minute), the mobile-cellular sub-basket formula will be calculated on the basis of 30 calls or 50.9 minutes. Similarly, if calls are charged by call or by number of minutes for a specific network/time of the day, this will be taken into account for that particular network/time of the day.
17. If monthly, recurring charges exist, they are added to the sub-basket.

*Source:* ITU.

## THE FIXED-BROADBAND SUB-BASKET

**The fixed-broadband sub-basket refers to the price of a monthly subscription to an entry-level fixed-broadband plan. It is calculated as a percentage of a country's average monthly GNI p.c., and is also presented in USD and PPP\$. For comparability reasons, the fixed-broadband sub-basket is based on a monthly data usage of (a minimum of) 1 GB. For plans that limit the monthly amount of data transferred by including data volume caps below 1 GB, the cost for the additional bytes is added to the sub-basket. The minimum speed of a broadband connection is 256 kbit/s.**

Where several offers are available, preference is given to the cheapest available connection that offers a speed of at least 256 kbit/s and 1 GB of data volume. Where providers set a limit of less than 1 GB on the amount of data that can be transferred within a month, then the price per additional byte is added to the monthly price in order to calculate the cost of 1 GB of data per month. Preference is given to the most widely used fixed-broadband technology (DSL, fibre, cable, etc.). The sub-basket does not include the installation charges, modem prices or telephone-line rentals that are often required for a DSL service. The price represents the broadband entry plan in terms of the minimum speed of 256 kbit/s, but does not take into account special offers that are limited in time or to specific geographic areas. The plan does not necessarily represent the fastest or most cost-effective connection since the price for a higher-speed plan is often cheaper in relative terms (i.e. in terms of the price per Mbit/s) (see Box 1.2).

### **Box 1.2: Rules applied in collecting fixed-broadband Internet prices**

1. The prices of the operator with the largest market share (measured by the number of fixed-broadband subscriptions) should be used.
2. Prices should be collected in the currency they are advertised, including taxes. If prices are not advertised in local currency, a note should be added specifying the currency.

3. Only residential, single user prices should be collected. If prices vary between different regions of the country, prices applying to the largest city (in terms of population) should be provided. If that information is not available, prices applying to the capital city should be reported. The selected city should be mentioned in a note in the monthly subscription indicator.
4. From all fixed-broadband plans meeting the above-mentioned criteria, the cheapest one on the basis of a 1 GB monthly usage and an advertised download speed of at least 256 kbit/s should be selected. If there is a price distinction between residential and business tariffs, the residential tariff should be used.
5. If the plan selected has no limit for the monthly data usage, the cap should be set at 0 and a note added to that indicator specifying “unlimited”.
6. In case operators propose different commitment periods, the 12-month plan (or the one closest to this commitment period) should be used. If the plan selected requires a longer commitment (i.e. over 12 months), it should be indicated in the note of the monthly subscription. Furthermore, if there are different prices (for example, a discounted price for the first year, and a higher price as of the 13th month), then the price after the discount period should be selected (e.g. the price as of the 13th month). The discounted price charged during the initial period should be indicated in a note under the monthly subscription charge. The reason is that the initial price paid is considered a limited/discounted price, while the other one is the regular price.
7. Prices should be collected for the fixed (wired)-broadband technology with the greatest number of subscriptions in the country (DSL, cable, etc.).
8. The same price plan should be used for collecting all the data specified. For example, given Plan A is selected for the fixed-broadband service, according to the criteria mentioned above, the elements in Plan A apply to the monthly subscription, to the price of the excess charge, volume of data that can be downloaded, etc.
9. Prices should be collected for regular (non-promotional) plan and should not include promotional offers or limited or restricted discounts (for example, only to students, or to already existing customers, etc.).
10. With convergence, operators are increasingly providing multiple (bundled) services such as voice telephony, Internet access and television reception over their networks. They often bundle these offers into a single subscription. This can present a challenge for price data collection, since it may not be possible to isolate the prices for one service. It is preferable to use prices for a specific service (i.e. unbundled); if this is not possible, then the additional services that are included in the price plan should be specified in a note.

The cost of a fixed-telephone line should be excluded, if it can be used for other services as well. If a monthly rental for the physical line is not required (e.g. naked DSL), this should be mentioned in a note. If a monthly rental of a fixed-telephone line is required, this should also be explained in a note.

*Source:* ITU.

## MOBILE-BROADBAND PRICES

ITU has been collecting mobile-broadband prices through its annual ICT Price Basket Questionnaire since 2012, for the first time.<sup>iv</sup> The collection of mobile-broadband price data from ITU Member States was agreed upon by EGTI<sup>v</sup>; in 2012, and revised by it in 2013 in light of the lessons learned from the first data collection exercise. The revised methodology was endorsed by the eleventh World Telecommunication/ICT Indicators Symposium held in December 2013 in Mexico City, and was applied in the 2014 data collection.

To capture the price of different data packages, covering prepaid and postpaid services, and supported by different devices (handset and computer), mobile-broadband prices are collected for two different data thresholds, based on a set of rules (see Box 1.3).

For plans that are limited in terms of validity (less than 30 days), the price of the additional days is calculated and added to the base package in order to obtain the final price. Two possibilities exist, depending on the operator, for extending a plan that is limited in terms of data allowance (or validity). The customer either (i) continues to use the service and pays an excess usage charge for additional data,<sup>vi</sup> or (ii) purchases an additional (add-on) package. Thus, for some countries, prices reflect the base package plus an excess usage charge (e.g. a base package including 400 MB plus the price for 100 MB of excess usage for a monthly usage of 500 MB), or a multiplication of the base package price (e.g. twice the price of a 250 MB plan for a monthly usage of 500 MB).

The plans selected represent the least expensive offers that include the minimum amount of data for each respective mobile-broadband plan. The guiding idea is to base each plan on what customers would and could purchase given the data allowance and validity of each respective plan.

### Box 1.3: Rules applied in collecting mobile-broadband prices<sup>vii</sup>

1. Prices should be collected based on one of the following technologies: UMTS, HSDPA+/HSDPA, CDMA2000 and IEEE 802.16e. Prices applying to WiFi or hotspots should be excluded.
2. Prices should be collected in the currency they are advertised, including taxes. If prices are not advertised in local currency, a note should be added specifying the currency.
3. Only residential, single-user prices should be collected. If prices vary between different regions of the country, prices applying to the largest city (in terms of population) or to the capital city should be provided.
4. Prices should be collected for both: a) handset-based mobile-broadband subscriptions and b) computer-based mobile-broadband subscriptions.
5. Mobile-broadband prices should be collected from the operator with the largest market share measured by the number of mobile-broadband subscriptions. If this information is not available, mobile-broadband prices should be collected from the mobile-cellular operator with the largest market share (measured by the number of mobile-cellular subscriptions) in the country.
6. Different operators can be chosen, for different mobile-broadband services if: a) there are differing market leaders for specific segments (postpaid, prepaid, computer-based, handset-based); b) there is no offer available for a specific sub-basket.

7. Prices should be collected for prepaid and postpaid services, for both handset and computer-based plans. If there are several plans, the plan satisfying the indicated data volume requirement should be used.
8. Where operators propose different commitment periods for postpaid mobile-broadband plans, the 12-month plan (or the closest to this commitment period) should be selected. A note should be added in case only longer commitment periods are offered.
9. Price data should be collected for the cheapest plan, with a data volume allowance of a minimum of:
  - i. 1GB for USB/dongle (computer-based) subscription
  - ii. 500MB for the handset-based subscription

The selected plan should not necessarily be the one with the cap closest to 500 MB or 1 GB, but include a minimum of 500 MB/1 GB. This means, for example, if an operator offers a 300 MB and an 800 MB plan, the 800 MB plan or twice the 300 MB plan (if the package can be purchased twice for a monthly capacity of 600 MB) should be selected for the 500 MB sub-sub-basket. The cheapest option should be selected.

Data volumes should refer to both upload and download data volumes. If prices are linked to “hours of use” and not to data volumes this information should be added in a separate note. Note: ITU will not be able to include these cases in a comparison.

10. The validity period considered for the basket is 30 days or four weeks. If a plan with a validity of 15 days is selected, it will be taken twice to cover the whole period. Likewise, if a plan with a validity of a day or a week is selected, it will be taken as many times as necessary to cover a period of four weeks. The cheapest plan on the basis of a validity period of 30 days or four weeks should be selected.
11. Preference should be given to packages (including a certain data volume). Pay-as-you-go offers should be used when they are the cheapest option for a given basket or the only option available. If operators charge different pay-as-you-go rates depending on the time of the day (peak/off-peak), then the average of both should be recorded. Nighttime data allowances will not be considered.
12. Even if the plan is advertised as “unlimited”, the fine print should be carefully read since most often there are limits in the data volumes, either applied by throttling (limiting the speed) or by cutting the service.
13. Non-recurrent fees, such as installation/set-up fees are not collected.
14. Preference should be given to the cheapest available package even if this is bundled with other services (with voice services, for example). If the plan chosen includes other services besides mobile-broadband access, these should be specified in a note.
15. Prices refer to a regular (non-promotional) plan and exclude promotional offers and limited discounts or special user groups (for example, existing clients). Special prices that apply to a certain type of phone (iPhone/Blackberry, iPad) should be excluded. Allowances during the night are not included.

*Source:* ITU.

*Reference:*

OECD (2010), Revision of the methodology for constructing telecommunication price baskets, Working Party on Communication Infrastructure and Services Policy, March 2010. Available at: [http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=dsti/iccp/cisp\(2009\)14/final&doclanguange=en](http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=dsti/iccp/cisp(2009)14/final&doclanguange=en) .

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<sup>i</sup> On-net refers to a call made to the same mobile network, while off-net and fixed-line refer to calls made to other (competing) mobile networks and to a fixed-telephone line, respectively.

<sup>ii</sup> See OECD (2010).

<sup>iii</sup> On-net refers to a call made to the same mobile network, while off-net and fixed-line refer to calls made to other (competing) mobile networks and to a fixed-telephone line, respectively.

<sup>iv</sup> Data for fixed-telephone, mobile-cellular and fixed-broadband have been collected since 2008 through the ITU ICT Price Basket Questionnaire, which is sent out annually to all ITU Member States/national statistical contacts.

<sup>v</sup> EGTI was created in May 2009 with the mandate to revise the list of ITU supply-side indicators (i.e. data collected from operators), as well as to discuss outstanding methodological issues and new indicators. EGTI is open to all ITU members and experts in the field of ICT statistics and data collection. It works through an online discussion forum (<http://www.itu.int/ITU-D/ict/ExpertGroup/default.asp>) and face-to-face meetings. EGTI reports to the World Telecommunication/ICT Indicators Symposium (WTIS).

<sup>vi</sup> Some operators throttle speeds after the data allowance included in the base package has been reached. Customers can then pay an excess usage charge in order to continue to have full-speed connections. In some cases, even throttled speeds are still considered broadband (i.e. equal to or greater than 256 kbit/s, according to ITU's definition).

<sup>vii</sup> These rules were presented to EGTI in September 2012. In the 2013 revision, EGTI agreed that ITU should collect prepaid and postpaid prices, for both handset- and computer-based services, with the following volume allowances: 1 GB for computer-based and 500 MB for handset-based usage. The EGTI proposals to measure mobile-broadband prices were endorsed by the eleventh World Telecommunication/ICT Indicators Symposium held in December 2013 in Mexico City.