

# OECD BUNDLED COMMUNICATION PRICE BASKETS

---

OECD DIGITAL ECONOMY  
PAPERS

December 2020 **No. 300**

# Foreword

This report on “OECD Bundled Communication Price Baskets” was prepared by the Working Party on Communication Infrastructure and Services Policy (WPCISP). It provides the first methodology to undertake price benchmarking of bundled communication services agreed by OECD countries. This paper was approved and declassified by written procedure by the Committee on Digital Economy Policy on 19 October 2020 and was prepared for publication by the OECD Secretariat. Based on the consensus reached by WPCISP delegates, the report was drafted by Frederic Bourassa, Alexia Gonzalez Fanfalone and Verena Weber, members of the CISP unit within the OECD, and by Josie Sephton and Edouard Bouffenie (Strategy Analytics-Teligen). It was prepared under the supervision of Verena Weber.

*Note to Delegations:*

*This document is also available on O.N.E. under the reference code:*

*DSTI/CDEP/CISP(2019)7/FINAL*

*This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.*

© OECD 2020

---

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at <http://www.oecd.org/termsandconditions>.

---

# Table of contents

Foreword	2
OECD Bundled Communication Price Baskets	4
Introduction	4
Policy makers, academics and policy research think tanks around the world use the OECD communication baskets approach	4
The rationale behind OECD baskets for bundled communication services	5
An overview of bundled communication services across the OECD	5
Teligen Bundle Price Benchmarking system	7
Proposal for OECD baskets with the Teligen Bundle Price Benchmarking system	9
Considerations for the future	13
References	14
Annex A.	15
Addressing concerns raised in previous versions of the document	15
Timeline of report and comments received	15
The sample selected for the United States requiring the use of a postal code	15
Specific comments received by delegations and how they were addressed	16
Annex B.	31
Teligen's summary response to CISP meeting 7 <sup>th</sup> May 2019	31
End Notes	33
Tables	
Table A.1. Comments received on the DTSI/CDEP/CISP (2018)1/REV1 report after the May 2019 WPCISP	16
Table A.2. Comments received based on the interim version of September 2019	26
Figures	
Figure 1. Availability of bundle types by country	6
Figure 2. OECD Bundled Baskets	10

# OECD Bundled Communication Price Baskets

## Introduction

### ***Policy makers, academics and policy research think tanks around the world use the OECD communication baskets approach***

Affordable communication is key for an inclusive digital transformation. Prices of communication services are both a measure of affordability and an important factor in understanding the competitive dynamics of communication markets. The majority of OECD countries are therefore measuring affordability and monitoring prices.

Providing internationally comparable measures on prices of communication services has been a core task of the WPCISP for decades. While communication service plans are inherently complex (e.g. as regards bundles, usage patterns, promotional discounts), OECD price baskets are regarded by other international organisations, ICT think tanks, and academia as the gold standard and the methodology is frequently replicated and referenced around the world.

The OECD has made several advances in this area by providing a pricing methodology that incorporates usage baskets in order to compare prices of communication services across countries. The approach has always been an iterative process reflecting developments in communication markets and requiring comprehensive data collection of service plans. It is noteworthy that some telecommunication research organisations in developing regions have replicated the OECD pricing methodology of telecommunication services (see Research ICT Africa for African countries, Galperin (2009) for Latin American countries, and the TRA Bahrein and AREGNET for Telecommunications Retail Price Benchmarking Report for Arab Countries).<sup>1</sup>

Academics analysing communication mergers often use the OECD price baskets provided by Teligen (Genakos, Valletti and Verboven, 2018<sup>[1]</sup>) or replicate the OECD methodology (Aguzzoni et al., 2018<sup>[2]</sup>). In the paper by Genakos, Valletti and Verboven (2018), the authors highlight that the OECD price baskets have several advantages over the use of Average Revenue Per User (ARPU) as ARPU confounds several sources of the operator's revenue. These authors identify three main advantages of the OECD price baskets compared to ARPU: i) OECD price baskets relate to operator prices that consumers may use to compare between offers and make a choice; ii) OECD price baskets provide information on the best choices available to consumers across countries in time, and account for possible heterogeneity in the calling profiles of consumers; and iii) OECD price baskets include much of the relevant information from the market, such as inclusive minutes, quantity discounts, and so forth.<sup>2</sup>

### ***The rationale behind OECD baskets for bundled communication services***

The measurement of communication services prices is at the core of the mandate of the WPCISP, which has taken this exercise very seriously over the past decades. Teligen has been a partner of the OECD in the data collection process of the OECD's methodology of communication price baskets since 1995. Over the past two decades, OECD countries have agreed to revise the methodology of price baskets with the evolving nature of the communication sector. Currently, the price collections available using the OECD price basket methodology refer to individual communication services (i.e. mobile broadband baskets and fixed broadband baskets).

With the increase in convergence and the prevalence of communication bundles in the majority of OECD countries - as outlined in the next section- delegates from OECD countries urged the Secretariat in 2017 to begin work on a price basket methodology for bundled communication services. The first version of the methodology was discussed at the 58th session of the WPCISP in May 2018. Since then, OECD delegates have been in close communication with the Secretariat and Teligen to incorporate comments from the interim version and produce a final version of the methodology for discussion and approval during the CDEP week in November 2019. During this meeting (61<sup>st</sup> session), the WPCISP discussed the "Proposed OECD Bundled Communication Price Baskets" (DSTI/CDEP/CISP(2019)7), achieved consensus, and agreed to forward it to CDEP for declassification by the written procedure. The Committee then agreed to declassify the document under written procedure.

The approval during the November 2019 CDEP week marked an important milestone for two main reasons. First, the methodology sets a clear reference point for discussions on new price baskets for bundled communication services that are currently taking place in different international organisations and fora. Second, it allows using the methodology for the data collection process. Finally, this enables the OECD and CDEP to continue its global leadership role in this domain.

### **An overview of bundled communication services across the OECD**

Currently, in OECD countries, the majority of all broadband services are based on bundled offers. This may be anything from a double play offer such as broadband and telephone, up to quint (5) play, covering a mix of fixed and mobile services plus television (TV), and may encompass pre-established bundles as well as 'build your own' type offers, and composite offers where users add extra services to a base offer at a discounted price. Interdependent offers may also be considered as bundled offers, even though they may not be marketed as such. For example in some countries, TV services may require broadband (IPTV). All services that form part of the bundle will come from the same provider. However, there can be significant variations in terms of the mix of services across countries. Some countries have a limited number of bundled offers (or none), while other countries have services that are exclusively or almost exclusively all bundled. Figure 1 below shows whether various bundle types are offered in each of the OECD countries.

Figure 1. Availability of bundle types by country

# Countries	FBB-FV	FBB-TV	FBB-FV-TV	FBB-FV-MVD	FBB-FV-MVD-TV	FBB-FV-MVD-MBB-TV
	36	36	36	16	16	6
Australia						
Austria						
Belgium						
Canada						
Chile						
Colombia						
Czech Republic						
Denmark						
Estonia						
Finland						
France						
Germany						
Greece						
Hungary						
Iceland						
Ireland						
Israel						
Italy						
Japan						
Korea						
Latvia						
Lithuania						
Luxembourg						
Mexico						
Netherlands						
New Zealand						
Norway						
Poland						
Portugal						
Slovak Republic						
Slovenia						
Spain						
Sweden						
Switzerland						
Turkey						
United Kingdom						
United States						

 Bundled offer available (exact)

FBB: Fixed Broadband. FV: Fixed Voice. MVD: Mobile Voice/Data/SMS. MBB: Mobile Broadband (e.g. dongle). TV: Television

Note: 1) Israel is not included as Teligen is still in the process of analysing bundled pricing for Israel. 2) Based on basic bundles, with an exact service match.

Source: Strategy Analytics (Teligen)

In terms of prevalence, the most to the least prevalent bundles available (in terms of advertised offers based on data as of January 2019) are as follows:

- Fixed broadband (FBB) + Fixed voice (FV) + Television (TV) (36 out of the 36 countries considered)
- Fixed broadband and Fixed voice (36 out of the 36 countries considered)
- Fixed broadband + TV (36 out of the 36 countries considered)

- Fixed broadband + Fixed voice + Mobile voice and data (16 out of the 36 countries considered)
- Fixed broadband + Fixed voice + Mobile voice and data (MVD)+ TV (16 out of the 36 countries considered)
- Fixed broadband + Fixed voice + Mobile voice and data (MVD) + Mobile Broadband (i.e. dongle, not handset-based)+ TV (6 out of the 36 countries considered)

All countries offer double play (FBB and FV) and/or triple play (FBB/FV/TV), however, there is not a 'one size fits all' model, as there is significant variation across countries.

In the following, the report first provides an overview of the Teligen Bundle Price Benchmarking system, and thereafter presents the OECD bundled service baskets that were agreed upon by the WPCISP.

## Teligen Bundle Price Benchmarking system

The Teligen Bundle Price Benchmarking service is a benchmarking system specifically designed to compare offers from each of the main communication service providers (typically at least the main three) in OECD member and non-member countries (40 countries in total), across all permutations of services bundles including fixed broadband, fixed voice, mobile voice and data, mobile broadband (i.e. dongle-based), and pay-TV.

For each of the five services covered (namely fixed voice, fixed broadband, mobile voice and data, mobile broadband, pay-TV), the following parameters are relevant for selection and price:

- **Fixed voice (FV):** call volumes.
- **Fixed broadband (FBB):** speed, usage allowance, usage limitations, based to the extent possible on the OECD 2017 Fixed Broadband Price Benchmarking Baskets.
- **Mobile voice and data (MVD):** allowances for voice minutes, messages and data, data-usage limitations.
- **Mobile broadband (i.e. dongle, laptop, tablet, MBB):** data usage allowance, data usage limitations.
- **Television (TV):** inclusion of premium movie/sports channels, OTT services may also be included, (provided they are advertised as part of bundle of the communication operator), and Digital Video Recorder (DVR). TV services delivered over fixed broadband networks (including cable and IPTV) and satellite are considered. Other elements such as HD, TV apps, catch-up/time-shifting functionality, and 4K may be captured within the system but are not currently used (see the section on future work).

The premium movie package is defined as the premium cinema package, which offers the latest Hollywood blockbusters. The rationale behind this is that the movie package that offers the latest releases is generally more expensive than other cinema packages that broadcast older films. When several premium movie packages for a country or operator are listed (e.g. Starz, HBO, Showtime), the offers that will be considered would need to include at least one of these packages which are bundled with other communication services. The Premium Sports channel is defined as the channel, which broadcast top national league games of the most popular sport of the country. Football is often considered as the most popular sport but this varies according to countries where other sports are more popular such as American Football in the United States, Baseball in Japan, and so forth. Premium sports is included in the high usage and very high-usage bundles (Figure 2).

In order to keep the size of the price basket system manageable, and to have a system that can be feasibly updated on a regular basis (i.e. linked to the data collection burden), at this stage, direct usage prices (e.g. per minute) are not included for mobile voice. Direct usage patterns for fixed voice have been included and calculated based on feedback provided by countries regarding the current reality in their markets. This is

particularly important, as the inclusion of fixed voice in many bundled offers is very prevalent. Further, the bundled basket propositions are more closely aligned with existing OECD single service methodology as a result.

The bundle parameters incorporate the following elements:

- Services included
- Connection charge
- One-time reward offers
- Monthly rental
- Promotional rental and period

The bundle will most often have one set of prices, but additional prices may also be specified for some or all services in the bundle.

The system includes a number of options, which allow results to be presented in different ways. The key variations include:

- Currency selection - results can be presented in any desired currency (for the countries included in the system), as well as in national currency.
- Excluding or including adjustment for PPPs (Purchasing Power Parities), where the PPP adjustment is made using OECD CPLs (Comparative Price Levels).<sup>3</sup> For results in national currency, no PPP adjustment is made.
- Results per month or per year.
- Exclusive or inclusive of VAT.<sup>4</sup>
- Exclusive or inclusive of promotional offers.
- Cheapest result per provider or per country. Where per provider results are selected, more than one result per provider will be shown (e.g. up to three cheapest per provider).
- Results showing exact bundles that match the basket, or bundles that include the basket requirement as a minimum (e.g. in this case, a triple play FBB-FV-TV bundle may be considered for a double play FBB-FV basket).

Some criteria are fixed, namely:

- Results are for residential offers only (business pricing has not been included, although this may be considered in the future).
- Non-recurring charges are included, and depreciated over a period of 36 months. Some countries proposed to reduce this period to 24 months as for example the European Union Telecommunication Law sets the maximum permitted for the initial contract length for phone or broadband products to be 24 months. This rule exists for the protection of consumer rights against abusive contracts from broadband operators. The baskets methodology, however, focuses on the consumer behaviour towards a fixed broadband subscription contract and the question of how to depreciate the initial nonrecurring (connection) costs of a fixed broadband subscription. It is suggested that 36 months is a reasonable period, given that depreciation periods of that length exist in a number of OECD countries. In addition, changing the period to 24 months would have the non-desirable effect of increasing observed price levels for all countries in all the basket configurations, and would lead to a break in the existing time series, which is needed for several OECD studies such as the OECD Digital Economy Outlook or country reviews.
- Specifically for fixed broadband, xDSL, cable, fibre and fixed-wireless technologies are considered (based on how operators advertise their services), however the baskets treat all technologies equally.

- Calculated usage costs for mobile voice services are not included. This refers to incremental per minute and per MB costs, for example. Rather, allowances and options that can be ordered simultaneously as part of the bundled offer will be taken into account, e.g. a mobile plan with an add-on allowance of 200 minutes to all networks.

The providers included for the Bundled Service analysis are based on the providers considered for the OECD Fixed Broadband Price Benchmarking service. This is because many bundled services include fixed broadband as a core service. The top three providers in each country will be included, with at least 70% combined market share.

In order to address the issue of mapping how representative the collected bundles are, subject to agreement by WPCISP delegates, it is proposed to include additional information on the penetration of a given bundle type for each country alongside the results (i.e. based on subscriber data collected within each OECD country, where available). This would enable a user to consider the results in the context of how heavily subscribed a particular bundle type is within the country. It will only be possible to include this information with the support of OECD member countries, and agreement will be required on how frequently the information is updated. It is proposed to do so annually. For those countries that would not be able to provide subscriber data, the complementary display information would be left blank. To make such an exercise worthwhile, Teligen suggests that information for at least half of all OECD member countries would be required. Irrespective, Teligen will continue to look for methodological improvements around this area. An alternative could be that the industry voluntarily agrees to collect subscribership data across all OECD countries. This would imply that all operators in OECD countries regularly report on the number of subscribers for their different bundles to their national authorities, who would then convey the information to the OECD. However, it should be noted that several delegations have already expressed that collection subscribership data per bundle type would be a difficult task to undertake.

The process for analysing price basket results entails: i) agreement on a methodology; ii) collecting data according to the methodology; and finally, iii) observation of the results. This report pertains to the first step regarding the methodology of the bundled price baskets. Because data collection only proceeds following agreement on the methodology, data sets are not currently available. However, the Secretariat notes concerns from two member countries regarding the accuracy and transparency of the “data collected”. To address concerns related to the future phase of data collection, ex-post checks of results will be available if a country identifies a significant discrepancy between the price basket results and the advertised offerings from operators.<sup>5</sup> Confidence in data collection and data entry is of paramount importance in this kind of exercise and Teligen will work closely with OECD members to ensure this.

## Proposal for OECD baskets with the Teligen Bundle Price Benchmarking system

Taking into account the five communication services that can be bundled, there are 30 potential bundle combinations. Beyond this, different usage levels need to be taken into account, and even with a very modest number of usage levels, the number of possible baskets becomes too large to be meaningful or practical from a benchmarking perspective.

When the types of bundles offered are examined, although there are differences across countries, there are a number of bundles that are more prevalent than others. Considering this, along with the feedback received from OECD delegates, Teligen proposes focusing on a subset of baskets for general analysis, covering the following five combinations of bundled services, all of which reflect feedback from OECD members during the different rounds of comments. It is possible that not all providers/countries would feature in all bundle types, but by focussing on the most prevalent types of bundles, this would ensure that as many countries as possible are included. The combinations are:

## 10 | OECD BUNDLED COMMUNICATION PRICE BASKETS

- FBB – FV
- FBB – TV
- FBB – FV – TV
- FBB – FV – MVD
- FBB – FV – MVD - TV

Other combinations may be of interest and are already contained within the Teligen benchmarking system (see Figure 1 for information). Nevertheless, at present there are insufficient offerings across the providers covered to warrant their inclusion within the baskets.

Based on an analysis of the structure of the bundles by Teligen, and taking into account the composition of the OECD 2017 baskets for standalone services, specifically for fixed broadband services, as well as feedback received from member countries, the following baskets are proposed. There are six baskets for each bundle type, to address basic, low, medium-low, medium-high, high and very high usage (Figure 2).

Figure 2. OECD Bundled Baskets

		Baskets	FBB		FV	MVD		Pay TV			
			Usage (GB)	Speed (Mbps Download)	Voice calls	Voice allowance (mins)	Data allowance (GB)	Nb of channels	Premium Movies	Premium Sports	DVR
1	2 play	FBB-FV (Basic usage)	15	2	20						
2		FBB-FV (Low usage)	60	25	20						
3		FBB-FV (Medium Low usage)	120	100	60						
4		FBB-FV (Medium High usage)	240	250	60						
5		FBB-FV (High usage)	360	600	140						
6		FBB-FV (Very High usage)	900	1000	140						
13	2 play	FBB-TV (Basic usage)	15	2				10	FALSE	FALSE	FALSE
14		FBB-TV (Low usage)	60	25				20	FALSE	FALSE	FALSE
15		FBB-TV (Medium Low usage)	120	100				30	TRUE	FALSE	FALSE
16		FBB-TV (Medium High usage)	240	250				40	TRUE	FALSE	FALSE
17		FBB-TV (High usage)	360	600				80	TRUE	TRUE	TRUE
18		FBB-TV (Very High usage)	900	1000				150	TRUE	TRUE	TRUE
7	3 play	FBB- FV- TV (Basic usage)	15	2	20			10	FALSE	FALSE	FALSE
8		FBB- FV- TV (Low usage)	60	25	20			20	FALSE	FALSE	FALSE
9		FBB- FV- TV (Medium Low usage)	120	100	60			30	TRUE	FALSE	FALSE
10		FBB- FV- TV (Medium High usage)	240	250	60			40	TRUE	FALSE	FALSE
11		FBB- FV- TV (High usage)	360	600	140			80	TRUE	TRUE	TRUE
12		FBB- FV- TV (Very High usage)	900	1000	140			150	TRUE	TRUE	TRUE
19	3 play	FBB-FV-MVD (Basic usage)	15	2	20	0*	0*				
20		FBB-FV-MVD (Low usage)	60	25	20	60	1				
21		FBB-FV-MVD (Medium Low usage)	120	100	60	200	5				
22		FBB-FV-MVD (Medium High usage)	240	250	60	200	10				
23		FBB-FV-MVD (High usage)	360	600	140	600	20				
24		FBB-FV-MVD (Very High usage)	900	1000	140	600	30				
25	4 play	FBB-FV-MVD-TV (Basic usage)	15	2	20	0*	0*	10	FALSE	FALSE	FALSE
26		FBB-FV-MVD-TV (Low usage)	60	25	20	60	1	20	FALSE	FALSE	FALSE
27		FBB-FV-MVD-TV (Medium Low usage)	120	100	60	200	5	30	TRUE	FALSE	FALSE
28		FBB-FV-MVD-TV (Medium High usage)	240	250	60	200	10	40	TRUE	FALSE	FALSE
29		FBB-FV-MVD-TV (High usage)	360	600	140	600	20	80	TRUE	TRUE	TRUE
30		FBB-FV-MVD-TV (Very High usage)	900	1000	140	600	30	150	TRUE	TRUE	TRUE

Note: \*The "0" means that there is a SIM card plan without any voice or data allowance. The current methodology for MVD is based on allowances, and thus, placing an MVD basket with 0's allows considering SIM plans without any allowances.

Source: Strategy Analytics (Teligen)

The following is a short description of how each service is handled within the proposed bundled baskets, for clarification purposes:

- **Fixed Broadband (FBB).** The speeds proposed specify the minimum speed that a service has to be advertised at (advertised download speed) for it to be eligible for consideration in the benchmarking analysis. Any advertised speed above this may be considered. Speeds start at 2 Mbps advertised download. This change was made to accommodate a country request. Going below this value, however, would go counter current market developments. Speeds go up to 1 000 Mbps advertised download. The usage levels (GB) specify the amount of data required by a user in a given month. As most fixed broadband offers offer unlimited or very high usage allowances, the usage levels specified are unlikely to have any significant impact on the calculations. That being said, slight adjustments were made for the high-usage and very-high usage baskets, taking account the comments received from member countries.
- **Fixed voice (FV).** The number of calls ranges from 20 to 140 calls per month, across the six baskets. The minute to call conversion follows the parameters of the previous OECD fixed voice basket methodology agreed upon in 2009 and slightly updated in 2017 (OECD, 2009<sup>[3]</sup>; OECD, 2017<sup>[4]</sup>). This is to reflect varying usage levels, and reflects the comments received by OECD countries. For many bundled services that include fixed voice, unlimited calls will be offered, so the fixed voice call levels will have limited impact on the results. The adjustments were made to reflect comments from delegations.
- **Mobile voice** levels take into account included call and data requirements. SMS has been set to zero (i.e. it will not have an effect in the results). This is to ensure that in those countries where an SMS allowance is not included, results for these countries will be taken into account. If there is interest, the number of SMS can, in any case, be displayed in the results, for information. Based on comments received from delegations in the last round, the mobile data allowance has been increased for the medium high, high usage and very high usage baskets. The amounts of GB have been carefully chosen to balance the need for an increased allowance, on the one hand, and to avoid that too many baskets would be excluded in an important number of countries, on the other hand. As the benchmarking system would display the packages with the minimum data allowance in each basket, it would not preclude the comparison of higher data allowances, or unlimited data offers. This feature of the system helps ‘futureproof’ the baskets against larger data allowances that may occur with the rollout of 5G.
- **The TV element** of the basket has a requirement for a minimum number of channels from 10, at the basic level, to 150 at the very high level. Based on feedback from OECD members, there are different opinions on how the issue of the number of channels should be handled. The Secretariat and Teligen are proposing inclusion of a minimum number of channels, depending on the level of the basket. It is important to note, however, that there can be a large variation across countries in terms of the number of channels available, and that a higher number of channels does not necessarily correspond to higher quality TV offerings. The Pay TV baskets consider whether a DVR (Digital Video Recorder) offering is required. While in some countries DVR is becoming less of a prominent characteristic of the Pay TV offers, it is still a common feature in a number of markets, hence the proposal to include this feature. As Pay TV offerings continue to evolve, this aspect can be reviewed in future. On-demand OTT services, such as Netflix, may be considered, provided they are available through the set-top box and that they are advertised in the telecommunication service bundle offering. The definitions of Premium Movies and Premium Sports are provided in the previous section of the document.

In terms of the results of the bundled baskets, the following will apply:

- Results will be for residential offers only.
- Both recurring and non-recurring charges will be included. Non-recurring charges will be depreciated over a period of 36 months, for a further explanation, please see the previous section.
- Promotional offers, such as offers of reduced rental for a set number of months, will be included.
- Basket results will show bundle prices, with inclusion of end user costs for fixed voice. Usage costs for mobile voice and data services will not be included. Rather, allowances and options that can be ordered simultaneously as part of the bundled offer, such as unlimited mobile calls options, will be taken into account.
- The minimum, rather than the exact services will be considered. For example, if the basket requirement is for a triple play service offering (e.g. FBB/FV/TV), additional services (such as MVD) may also be considered and will feature in the results if they are the least expensive offer. This is in line with the OECD price basket methodology in use and important for the production of time series. The approach guarantees that the most affordable offers in the different basket categories are shown. This is an important point, as in some countries, bundles with few services have limited availability and may be more expensive than bundles with more services. Rational users would opt for the cheapest service available that at least meets their requirements. This may involve taking an additional (unused) service, if this is the least expensive or only option available. Following the request by delegations, price basket results for each country will also display the simple average of the lowest-priced eligible offer of the three operators considered per country.
- Results will be based on services marketed as bundled offers, but will also include build-your-own bundles, which are prevalent in some countries, as well as composite offering, e.g. a bundle of services with another service bolted on. Interdependent services will also be included, even though they may not be marketed as bundled offers. All services must come from the same provider.
- The bundled price baskets is the first analysis of its kind. As with any other price comparison methodology, once the data collection process takes place, empirical findings have some limitations, and the data collected may present caveats (e.g. challenges related to the weighting the results per bundle penetration or related to determining the geographical scope of offers). Regarding the geographical scope of offers, in many OECD countries, with the exception of a few countries, bundles are offered at a national level. For the few countries where this is not the case, detailed information on how data will be collected to account for the geographical scope is intended to be presented. For the United States, this is presented in Annex A. With respect to properly weighting results, the main limitation to undertake this exercise is the lack of information on subscribership per bundle. Several delegations have expressed that this type of information is extremely difficult to collect at a national level.
- Countries will be informed in advance when price basket comparison results are intended to be published (e.g. flagship publications such as the Digital Economy Outlook). The Secretariat will enable a mechanism on an ad-hoc basis (i.e. when requested by countries to address specific concerns on results) of a pre-publication examination of the data via a simultaneous video conference with Teligen. The ultimate objective of the OECD Secretariat and Teligen is to have accurate and robust data in the benchmarking system.

The proposed methodology for the OECD bundled communication price baskets will be revised periodically to reflect developments in communication markets across the OECD. The intervals of the baskets methodology revision should be reasonable, and should balance the value of historical comparability of the results with the benefits of capturing new trends in commercial offers. The Secretariat proposes to review this initial methodology for bundles after three years.

## Considerations for the future

The WPCISP has worked for over two years on the development of a first methodology of price baskets for bundled communication services. Significant progress was made during numerous rounds of discussions and through the provision of written comments by delegations.

As for the other existing baskets for stand-alone services, the development of the baskets for bundled communication services is an iterative process. The methodology proposed represents an approach that takes into account the diversity of national offerings while still allowing for meaningful cross-country comparison.

The following issues raised by delegations in the commenting process do not have a majority view. However, they may be considered for further iterations and improvements of the price baskets:

- Family plans for MVD (i.e. multiple SIMs): Multi SIM - additional SIM data allowance could be considered in the future for MVD.
- Considering that the next generation of mobile broadband services, 5G, will become more pervasive in all OECD countries in the upcoming years, for the next review of the bundled communication price baskets, consideration could be given to increasing mobile data allowances (GB) for MVD baskets, with the potential inclusion of a basket with unlimited data allowance.
- 5G, 10 Gbps residential offers which are emerging across a few OECD countries, 4K and 8K may influence markets and substitution among services (e.g. between fixed and mobile voice services) could be studied in the future.
- Number of simultaneous video streams: The TV element of the baskets does not take into account the number of simultaneous video streams that a subscriber's household may watch. This is not always detailed and/or advertised by providers, so it would not be possible to produce a consistent result if this were to be taken into account. This may be considered in the future, depending on the criticality of this within a bundled offer across the different OECD countries, and subject to sufficient information being available from operators.
- Video streaming: there are differing views among member countries on whether or not to include streaming in the price baskets. The way the data is collected would allow including those streaming offers that are sold by communication operators and available through set-top boxes.
- Number of HD channels: The number of HD channels is currently not taken into account, as this is not always detailed and/or advertised by providers. Trials across some countries have shown that there are instances where operators do not indicate channels as being HD channels, even if the actual channel quality is HD.
- Series and documentaries: One delegation offered different views of whether or not to include series in the bundles. Given the complexity of defining premium series at this stage, and considering comments received, this category will not be considered for the moment.

Overall, the TV element of the basket is arguably the most difficult element to define, not least because it is a new element of the baskets. The proposals made, while they may not fully address the requirements of all members, have been designed to be as all-encompassing as possible, and are based on the Secretariat's and Teligen's work in this area over several years. The proposals for TV represent an initial approach. However, the Secretariat and Teligen will continue to work on the methodology in the meantime, and propose to review it periodically.

# References

- Aguzzoni, L. et al. (2018), “Ex-post Analysis of Mobile Telecom Mergers: The Case of Austria and The Netherlands”, *De Economist*, Vol. 166, pp. 63-87, <http://dx.doi.org/10.1007/s10645-017-9308-5>. [2]
- Galperin, H. and C. Ruzzier (2013), “Price elasticity of demand for broadband: Evidence from Latin America and the Caribbean”, *Telecommunications Policy*, Vol. 37/6-7, pp. 429-438, <http://dx.doi.org/10.1016/j.telpol.2012.06.007>. [6]
- Genakos, C., T. Valletti and F. Verboven (2018), “Evaluating market consolidation in mobile communications”, *Economic Policy*, Vol. 33/93, pp. 45-100, <http://dx.doi.org/10.1093/epolic/eix020>. [1]
- OECD (2017), *Revised OECD Telecommunication Baskets*, [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/CDEP/CISP\(2017\)4/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/CDEP/CISP(2017)4/FINAL&docLanguage=En). [4]
- OECD (2009), *Revision of the Methodology for Constructing Telecommunication Price Baskets*, [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=dsti/iccp/cisp\(2009\)14/final](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=dsti/iccp/cisp(2009)14/final). [3]
- Research ICT Africa (2020), *Research ICT Africa Mobile Pricing (RAMP): Voice SMS Basket*, [https://researchictafrica.net/ramp\\_indices\\_portal/](https://researchictafrica.net/ramp_indices_portal/). [5]
- Teligen (2020), *Benchmarking Methodology for the 2019 Telecoms Price Benchmarking Study for Arab Countries*, Produced for TRA Bahrain and AREGNET, [https://tra-website-prod-01.s3-me-south-1.amazonaws.com/Media/Documents/Market-indicators/20200126135906870\\_u1hw55tf\\_pxd.pdf](https://tra-website-prod-01.s3-me-south-1.amazonaws.com/Media/Documents/Market-indicators/20200126135906870_u1hw55tf_pxd.pdf). [7]

# Annex A.

## Addressing concerns raised in previous versions of the document

### *Timeline of report and comments received*

A first version of this report, which provided an overview of the Teligen Bundle Price Benchmarking system and proposed a set of bundled service baskets, was discussed at the 58th session of the WPCISP on May 2018. At that point, the OECD Secretariat received comments on the report from eight OECD countries, one non-OECD country, and three comments from other delegations.

At the 60th session of the WPCISP on May 2019, the Working Party held a special session on bundled communication price baskets, bringing together experts from delegations, including stakeholder groups to discuss how OECD- approved bundled service baskets could complement the already existing price baskets. The new version of the report discussed was DSTI/CDEP/CISP(2018)1/REV1. The OECD Secretariat received 11 comments from OECD member countries and the European Union, and 4 comments from other delegations on this REV1 version. To address in full all comments received, the OECD Secretariat and Teligen held a one-day Workshop on 18 June 2019. An overview of the comments addressed can be found below (Table A.1).

Given the importance of the subject, and with the common understanding that agreeing on a set price baskets is an iterative process, the Secretariat offered to prepare an “interim version” based on the comments received during the special session and after the meeting. This was shared with delegates at the end of September 2019. For the interim version of the report, the OECD Secretariat received 13 comments from OECD member countries and the European Union, two comments from non-OECD member countries, and one from other delegations. A summary of the comments received can be found below (Table A.2). To incorporate all comments received in September/October 2019, a new version of the report was drafted (DSTI/CDEP/CISP(2019)7), which served as the basis for discussion during the November 2019 WPCISP meeting.

The DSTI/CDEP/CISP(2019)7/REV1 version of the report further incorporated the comments received during and after the 61<sup>st</sup> Session of the WPCISP in November 2019 by 11 OECD member countries and three delegations. During the November 2019 meetings, the WPCISP reached consensus and the Committee on Digital Economy Policy (CDEP) agreed to declassification by the written procedure. The REV1 was posted on ONE for three weeks and was then considered declassified on 19 October 2020.

### *The sample selected for the United States requiring the use of a postal code*

The main driver for the selection of postal codes in the United States by Teligen is the availability of a range of offers with the selected operators. The final aim is to capture fixed broadband/bundles plans available to new customers in a representative manner. Teligen has been using a selection of different addresses for the different providers in order to access detailed information of those plans.

To capture the plans in the United States, the Secretariat and Teligen engaged in discussion with the Bureau of Labour and Statistics (BLS) and the Bureau of Economic Research (BEA) in the United States during the summer of 2019. The Bureau of Labour and Statistics (BLS) stated that 85% of their sample of telecommunication prices used for the Consumer Price Index (CPI), is using a similar procedure, and is collected online through the Telephone Point of Purchase Survey (TPOPS). They follow a set of guidelines for the [geographic sample](#) used. In short, the BLS uses four regions for the CPI. To improve the representativeness of the OECD telecommunication baskets for the particular case of the United States,

Teligen has agreed to select one city in each region that has the highest population sample weight in the BLS sample. Concretely, from “region 1”, New York (NY); from “region 2”, Chicago (IL); from “region 3”, San Antonio (TX); and from “region 4”, Los Angeles (CA).

### *Specific comments received by delegations and how they were addressed*

Table A.1 provides a detailed account of the comments received after the May 2019 WPCISP meeting, and how they were addressed in changes reflected in the “interim” version of the report circulated in September 2019. In addition, in October 2019, OECD delegations sent comments to be included, and Table A.2 provides an overview of those comments.

**Table A.1. Comments received on the DTSI/CDEP/CISP (2018)1/REV1 report after the May 2019 WPCISP**

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
Belgium	Are premium channels considered only as part of a bundle, or are add on options also considered?	Already taken into account in the current approach.	No change required.
	All services increase incrementally, but is this realistic? In particular, the use of the FV (420 calls) baskets is too high.	Agreed -it is not realistic to increase FV incrementally with higher FBB speeds. Proposal of using a flat rate of fixed voice calls across all baskets for the interim version.	Addressed.
	Threshold speed: is it “up to” or the minimum?	It is the minimum speed	No change required.
Canada	Canada is comfortable with trying again to measure bundled price baskets	Agreed and noted	No change required
	Canada’s view is that price comparisons can be done and be useful even without considering all aspects of a service such as differences in quality or additional features and services. Canada considers there is merit to measuring and comparing the price to receive a minimum threshold of service as the OECD has done for years with other services such as fixed and mobile broadband.	Agreed and noted	No change required
	In mobile, voice and SMS are often unlimited in plans with data. In 2017, 99% of Canadian mobile subscribers had a plan that included unlimited SMS and 62% had unlimited voice minutes.	Agreed and noted	Addressed. (SMS have been excluded).
Czech Republic	Inclusion of SMS in baskets	Noted	Noted. However, SMS have been excluded based on general agreement.
European Union	Proposal is welcome. Bundling fixed and mobile services will become increasingly relevant. The Household Approach: cheapest offer in the market (not only by one single operator). Collect fixed and mobile stand-alone (not converged) offers. Good approach to encourage Gigabit speeds in price analysis. •Good approach for (low, medium, high, very high) baskets. Fixed voice pattern equivalent for all bundled	Noted and agreed	Addressed to the extent possible. Concerning the household approach, it may be considered going forward but it is an extremely complex issue to undertake in a cross-country benchmarking exercise.

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
	baskets. SMS should not be considered in the comparison. Good combination of baskets and services. Contract duration either 36 or 24 month		
Germany	Error on page 4 (point 2) of the proposals - replication of FBB and TV category (second reference should be FV and TV).	Noted, corrected	Addressed.
	Request for information to be included in the proposal (basket table) on how to interpret the table (e.g. that all the numbers a "minimum thresholds" and e.g. that a 3p-lay bundle which fulfils the prerequisites of a 2-play bundle should also be counted among the 2-play offers)	Noted, and the clarification will be included in the next version of the report.	Addressed.
	The TV bundles might be too specific for basket 20. In order to receive information that is more accurate, we propose to allow more flexibility here, especially with respect to premium speed bundles. Otherwise, too many 4-play offers will be left out of the scope. This could be achieved by checking whether a 4play offer checks green on one of the columns under "TV" (including OTT streaming if added)	Noted.	Addressed. The baskets including TV have been revised.
Japan	Bundle price measuring will be increasingly important for policymaking and regulation. International comparison will be helpful if measured precisely, rationally and transparently, with variations as much as possible	Agreed	Noted. No action required
	Mobile price measuring has just covered largest two operators. It is welcomed to cover three operators.	For the bundle benchmarking, it is proposed to use the largest 3 providers (based on FBB market share as proxy), to achieve at least 70% combined market share. This mirrors the approach used for the OECD FBB baskets	Addressed. Proposal now references supplier selection with three largest providers based on FBB market share as proxy, and at least 70% combined market share.
	Possibility of checking data.	Screenshots are available for ex post checks of basket results.	Addressed. Screenshots are taken at point of data capture, and pdfs are captured. Ex- post checks available for the results of the baskets.
	5G, 10Gbps, 4K and 8K will influence markets. Assumptions like family member number and substitution can be studied. Thus, review will be necessary in a couple of years	Agreed to future review	No action required. For future review
	According to the list of combination patterns (Fig1), difference between numbers of "FBB-FV-MVD" and "FBB-FV-MVD-TV" is small. Both combinations should be measured in order to simulate user behaviour such as watching online video instead of TV	Agreed. Interesting area for consideration	No action required. For future review
	According to proposed bundle (Fig2), a TV offer needs to include DVR. Is DVR required?	DVRs still feature in a number of markets, hence proposals include DVR. TV offerings are evolving, so this will be reviewed in	No action required. For future review

18 | OECD BUNDLED COMMUNICATION PRICE BASKETS

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
		future.	
	Family rather than individuals consume FBB. Appropriate assumption on family members can further be studied	Household concept may be considered for future.	No action required. For future review.
	When two or more services are advertised and sold by a same entity, are they considered as bundles?	Yes, providing they attract a discount over purchasing the services on a standalone basis.	Addressed. Bundled service definition in proposal document has been reviewed, for clarification.
	Maintain 36 month depreciation period	Agreed	No action required.
Korea	FV MV substitution and multi SIM issues	There is a possibility to consider treating MV as FV proxy, however, at present, in many countries, FBB-MV bundles do not exist extensively. Concerning FV/MV substitution, this is something for future consideration. Multi SIM - additional SIM data allowance can be considered for MBB.	For future consideration
	One time promotions and rental need to be excluded from the study	Included in other OECD standalone baskets and in the proposed baskets of bundled services. For clarification: credit notes with the same operator should be included. However, gift cards to be used with a third party (Amazon voucher or Shopping Mall card ) should be excluded	Addressed. This is consistent with other OECD baskets already approved by delegates.
Lithuania	Incomplete table that shows bundle types against country.	Noted.	Addressed. Table has been reviewed and updated.
Mexico	Is there a possibility to add additional tax, apart from standard VAT?	In the case of specific VAT telecommunication taxes, the baskets are flexible to adjust the VAT level according to the national level of sector specific taxes, if countries make the information available to Teligen, and that the exercise is not too complex to integrate.	Addressed.
	FBB-TV basket is also offered by 3 key providers - Cablecom, Cablemas or Cablevision - but not included in system.	We will review market share data, and possibly include another provider in Mexico or replace smallest of existing ones. (For Mexico, none of those providers was included as too small)	For future consideration. Teligen agreed to extend to three providers, instead of two.
	Packaged offers in Mexico start at 3 Mbps for small providers (and 10 Mbps for Telmex).	These are not advertised on website so cannot include them. Offers include 5 Mbps minimum for TV. This is may be relevant for the operators that were not included.	Addressed. Minimum speed of baskets set at 5 Mbps.
	Issue of more basic baskets: not well covered in the proposals.	Finite number of baskets possible. Advertised offers will be included.	Addressed. The number of baskets has been extended to include additional bundle

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
			categories, and additional FBB speeds.
	Minimum proposed speed of 5 Mbps would leave out many offers	If offer includes advertised speeds $\geq$ 5 Mbps, then it is included. For the Mexican providers part of the benchmarking exercise (who offer bundles), the offers start at 5 Mbps.	Addressed in the final version (see next Table).
Spain	Include a FBB-FV-MV set of baskets (no TV) as it is a pure telco bundle, without the distortions of the pay TV component.	Agreed.	Addressed. A set of FBB-FV-MV baskets has now been included
	Inclusion of flanker brands	Agree that flanker brands should be included, similar to other OECD services. As flanker brands are not always easy to identify, Teligen welcomes input from OECD Member countries on such brands.	For future consideration
	Household approach, with comparison against single service offers (where no relevant bundles are available).	This is a complex exercise, and requires much more extensive data collection. It also brings into question the extent to which different permutations and combinations of bundles that should be considered (i.e. not just standalone services). Teligen has performed this type of extended benchmarking for individual countries, and the process is extremely complex. In due course, Teligen would like to explore how the Household approach can be better employed within the baskets and in an international price benchmarking system.	For future consideration
	The difference between the "basic" baskets is not very clear (baskets 1, 6, 11, 16)	The proposed baskets have been reviewed, and hopefully will provide a clearer, more consistent approach	Addressed. The proposed baskets have been reviewed, and hopefully will provide a clearer, more consistent approach
	Comment for the long term: panel data on average household spend for telecom services could be very relevant and interesting complement to the basket approach	Agreed, and Teligen would welcome this information. Depending on the availability of such information, this could be treated in a similar way to the take up of bundles information.	No action required. For future consideration.
Sweden	Increase data allowance for MVD to 20GB for the very high basket	Agreed. That data allowances are increasing drastically.	Addressed. The levels of data for mobile voice/data have been revised.
	Do baskets take into account converged offers (e.g. cost free upgrade for one service when two subscribed to), as well as pure double- triple play etc.?	Yes they do. However if the upgrade is limited in time (i.e. get 100mbps speed for the first 3 months and then back to 50 Mbps), it will not	No change required.

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
		be reflected. The upgrade benefit must be permanent.	
	Our experience is that operators are reluctant to share information regarding data on number of subscribers that have signed up for different price plans. This means that it is not possible to do a weighted average for what consumers pay in general for communication services.	Noted and agreed.	No change required.
	Fixed voice has become less of an issue in Sweden, and particular when VOIP are included in bundles, around 25% of subscriptions are not used in Sweden. However, we fully understand that it could look different in other markets and think proposed combination of services seems to be reasonable.	Noted and agreed	No change required
	Please clarify assumptions of bundled baskets	Can include clarification in proposal document, e.g. as introduction	Addressed. Proposal amended with additional text to improve descriptions of aims and assumptions
	In the Swedish market, providers are fragmented. Regional plans, in reality cheaper.	This is also the case for FBB. Teligen can only track a limited number of operators - unless the exercise becomes completely customised. If this is a serious issue for Sweden, Teligen could replace one of the existing operators and replace it with a significant regional player.	Addressed. Proposal to review and confirm Swedish operators and with Swedish regulator if a regional player should replace an existing operator.
	Limited bundles in Sweden. Users opt for OTT much more.	The OTT issue is something we see more and more. The TV section of the baskets including Pay TV has been revised. A new category, Series and Documentaries, has been included, so that there are 4 TV categories: Basic TV, Series & Documentaries, Premium Movies, Premium Movies and Sports. It is proposed to allow the use of OTT as an alternative to "Series & Documentaries", when the OTT service is available through the set-top box/telco offering. Regarding the limited bundle availability, this is addressed in part by proposed percentage take up information.	Addressed. Regarding the TV issues, proposals have now been revised to incorporate OTT offers when they are included in an operator bundle, and are classified as a "Series and Entertainment", (i.e. a new classification, alongside Premium Movies and Premium Sports).
	Public radio and TV fee and TV licence issue.	Understand that this can be an issue; however, there is no ideal solution. Given the difficulty in obtaining this in some countries (e.g. in those countries where the cost is included as part of a wider general tax levied by	No action required.

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
		governments), it is proposed to exclude the cost of the licence fee. However, there is a possibility of including information on licence fee when it is publicly stated.	
	Are prices based on new subscribers?	Yes	Addressed. Clarified in the revised document.
	Tenant owner subscriptions?	This is also the case for FBB. Unsure of suggestion and welcome input. Applicable to 20% of population only, and no publicly available data.	No action proposed. As these are limited time offers, the proposal is to exclude these.
	FV less of an issue due to VoIP include	Agreed.	Addressed. New interim proposals have set FV calls across all baskets to 60.
	IPTV requires a minimum of 5 Mbps speed.	Taken into consideration	Addressed. No issue, as minimum speed for bundles is 5 Mbps.
	Increase FBB to 1 Gbps	Agreed	Addressed. Basket already included. Speed adjustments to FBB speeds: 5, 25, 100, 250, 600 and 1 000 Mbps
	Is DVR still relevant?	There is wide range of markets among the 36 countries where DRV is still relevant	DVR is still included in baskets with TV as still relevant in many markets.
Switzerland	Clear support to the large majority of the proposals listed in the document defining the methodology aiming at comparing price of bundled products among OECD countries (DSTI/CDEP/CISP(2018)1/REV1).	Agreed and noted.	No change required.
	Composite offers: "add extra services to a base offer at a discounted price". With this definition, we want to be sure that, for example, the Swisscom inOne home + inOne mobile bundle (FBB-FV-MVD-TV) will be taken into account, and that the CHF 20 will be discounted ( <a href="https://www.swisscom.ch/fr/clients-prives/inone.html">https://www.swisscom.ch/fr/clients-prives/inone.html</a> ).	Noted	Noted. We will make sure Teligen notes this when undergoing the data collection.
	Considering pay-tv services are content services (and not telecommunication ones), would it be easier to just take into account ONLY the most basic pay-tv offer? In addition, Premium Movies/Sports and DVR are not so easy to define. For example, Swisscom is providing different types of DVR (max 1200 hours or max 120 hours subscriptions with different prices of course). How will you manage this?	Noted	Noted. No change required. We will send a room document so that countries can check the premium movies/sports taken into account.
United Kingdom	A basket-based approach to price benchmarking can produce useful insights Tariff and basket inputs need careful thought if this is going to be the case Need to be clear on what the outputs are saying Ideally should be complimented with other data sources to be meaningful	Agreed and noted	Noted. No change required.
	Audit or verify data, screen shoots, pdf of the	Screenshots are available	Addressed. Screenshots are taken

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
United States	web sites in order make sure that data is accurate.	for ex-post checks of basket results.	at point of data capture, and pdfs captured. OECD member can do ex- post checks of the results of the baskets.
	Problematic with the video data proposal, the three true/false variables proposed are simply not sufficient to describe video plans and differentiate across different video plans	Noted, and agree to revisit (with a view to improving) TV basket methodology - and looking forward to suggestions from interested parties - OTT, entertainment channels and streaming vs DVR are some of the issues that have already been brought up.	Addressed. Proposal to extend the TV baskets to incorporate series and documentaries, and this could also include OTT services offered through the telecommunication providers. Also, consider streamed services as a substitution to DVR. Regarding series and documentaries, agreement on which entertainment packs can be included. Proposed OTT to be considered on par with paid for channels.
	Focus should be on plans available to new subscribers rather than legacy plans	This is already the case.	Addressed. No action required, and this will be clarified in the new proposal.
	In an ideal world we would have subscribership data for all available plans in order to do a weighted average	Bundle penetration data can be displayed beside the result of bundled baskets, provided that enough countries send the data.	Addressed.
	Restrict plans to those widely available	For the case of the United States, the zip codes have been chosen according to BLS sampling technique for its own price collection of telecom services (which 85% of the sample is collected online).	Addressed. Action taken on the selection of services based on main cities where relevant.

Comments from other delegations

Delegation	Comment	Response	Proposed resolution in baskets
BIAC	Observations around bundle distribution and data quality	These were addressed in the revised proposals presented in May 2019 at the WPCISP meeting, as well as in Teligen's subsequent written response.	Addressed.
	Assurance around bundle type popularity when determining bundle basket types	Agreed, and this is being taken into consideration to the extent possible.	Addressed. Bundle baskets have been reviewed and extended in new proposals.
	Usage allowances for FBB are too low for modern usage levels	These have been set to ensure the capture of usage based tariffs only, and in reality, have no significant impact on the results. They are in line with the levels of the current standalone OECD Fixed Broadband baskets.	No change proposed, as the levels are in line with the OECD Fixed Broadband baskets. Please note that the majority of broadband offers are not affected by the specified usage levels.
	Usage allowances for Mobile Broadband too low - increase by at least 50% for each tier	As with FBB, these follow OECD standalone baskets, however, we agree that there is scope to raise these, however, in this case there is scope to raise it.	Addressed. The mobile broadband (mobile data) levels have been adjusted. The highest level is now 20GB.
	Mobile voice and SMS calls are generally	While this is often true, it is	Addressed. SMS have been

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
	unlimited in most plans.	not always the case in all countries, and to consider unlimited only across all baskets would be unfairly discriminating against those providers where this is not exclusively the case.	excluded in the new proposal. Please note that to consider very high or unlimited mobile voice only would result in exclusion of providers from the results. The baskets have been adjusted to mirror OECD mobile voice and data (standalone) baskets.
	FBB speeds - 300 Mbps seems ill chosen due to number of speeds up to 250 Mbps. Decrease, rather than relegating 250 Mbps to 100 Mbps category. Also >1000 Mbps very few offers - reduce to 600 Mbps	While there are some services at 250 Mbps, there are not a large number of them. However, it is possible to reduce 300 Mbps to 250 Mbps. With respect to 1000 Mbps, this is in line with the OECD standalone FBB basket, and we are seeing more of these offers available.	Addressed. The 300 Mbps speed has been reduced to 250 Mbps. The 1 Gbps speed still remains, but an additional speed of 600 Mbps has been introduced to address this comment.
	Comments regarding video services, definition of premium channels etc.	Pay TV component will be reviewed.	Addressed. The Pay TV baskets have been reviewed and adjusted in the interim version
	Quality issues around television - e.g. number simultaneous streams	This has been addressed to the extent possible.	For further discussion. Simultaneous streams are not considered within the baskets currently, as this may not be available/advertised in all countries. This can be revisited in future.
	Availability of bundles geographically - e.g. miss eligible offers because available bundles may be address-specific. Data may not be available any more, may not be available for residential customers.	For the case of the United States, the zip codes have been chosen according to BLS sampling technique for its own price collection of telecom services (which 85% of the sample is collected online).	Addressed. See note in the Annex explaining the methodology. This issue only applies to the service providers in the United States.
	Comments on Teligen's data collection process being faulty.	BIAC should clarify on what they base this concern of accuracy, as the data is not available yet. OECD countries need to agree on the methodology before Teligen engages in data collection. Please note that all tariffs collected are for new customers and include quality features that are relevant to the benchmark. Screenshots will be available for ex post checks of basket results in case an OECD country finds a significant discrepancy.	Addressed. The data collection process within Teligen follows a clearly defined approach. Following input, a detailed results check is carried out. The tariff data within the benchmarking system is fully transparent, and Teligen is always happy to discuss all aspects of the updating process.
	Issue of advertising and video content cost, issue of TV licence, issue of tenanted services, product quality bias.	These are more difficult to address as part of any benchmarking exercise (and some of this already features for FBB e.g. tenanted services). There is no simple solution; however, we do recognise these issues.	Partially addressed. For future discussion.

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
		Licence cost excluded as not all countries have separate TV licences, and it is impossible to calculate a likely cost. Information can be included, to support the results, if needed.	
GSMA (BIAC)	Why are the premium channels split by type of content? In some countries, the most affordable bundle may have sports and not movies (e.g. BT UK)/ Suggest have only 'Premium channels' as a criteria regardless of content nature. Capture information on the type of content (e.g. movies, sports, other) on the bundle parameter	TV baskets have been revised. New category of "series and documentaries" has been included. Premium movies refers to "first run" Hollywood blockbusters. Premium sports refers to either sport leagues offers. OTT is included, if part of communication subscription.	Addressed. TV baskets revised and clarifications included in proposal document.
	Do we need a criterion on whether a DVR is included? In which situations would a DVR / set-top-box not be required to watch traditional pay-tv? Pay-DTT? Suggest embed into the definition that all bundles captured (with a TV service) include a DRV / set-top-box	TV baskets have been revised. DVR included in all but very low baskets.	Addressed. TV baskets have been revised. DVR included in all but very low baskets, and proposal to include streaming as an option.
	Do all bundles have a single contract for all services? This is sometimes unclear on FMC offers (e.g. Virgin Media UK). Suggest include in the definition for the bundles that all services are purchased on a single contract	To clarify, bundled service definition in proposal document has been reviewed. There is a need for a definition that works across all countries. Bundled services and multi service discounts will be considered. Access to information on how service contracts are set up for all providers and all offers is not possible, so this should not form part of the definition	Addressed. Clarification on definition in proposal document.
	Are we capturing the contract length of a specific bundle? Is it the promotional rental period as described in the bundle parameters? Suggestion to include the contract length in the information captured per bundle. It will help inform the comparison analysis. The cheapest bundle may have a much longer contract than the typical offer.	Contract length is captured, as well as promotional rental period. However, contract length does not have an effect in the results of the benchmarking. It allows for depreciation of initial non-recurrent fees.	No action required.
	FBB criteria: How do you treat bundles' 'unlimited allowances' against the 'required allowance? Suggest to use the fair usage policy to compare instead of the required allowance	Providing the download requirement is met by the tariff, it will be considered as part of the analysis.	No action required.
	What was the methodology used to calculate the availability of bundles per country? Suggest select operators that account for at least 80% of country's FBB connections. Capture all their bundle types.	The proposal document considers the different bundles offered by country. Operators will be selected to account for at least 70% of FBB connections - at least 3 largest. In line with OECD FBB methodology. All bundle types captured.	Addressed. Operators will be selected to account for at least 70% of FBB connections - at least 3 largest. In line with OECD FBB methodology. All bundle types captured.
	Telefonica (BIAC)	Change bundle types to be included in basket. Remove FBB+TV and add	Both of these sets of baskets are included in the

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
	FBB+FV+MVD+TV	proposals, due to different requirements in different countries. Inclusion of bundle take up may be included to support results.	FBB+FV+MVD+TV are included.
	Include number of minutes in bundle (200, 500, 1000 and unlimited), and not number of calls for FV. Trend is to include unlimited minutes in FBB bundles	Number of calls has been used for FV, to mirror the OECD standalone basket, and the 60 calls basket has been used across all baskets including FV.	Addressed. FV revised in bundled basket proposals.
	Should consider that FBB already includes unlimited data in most countries.	Usage levels are set to closely mirror OECD FBB usage levels. As some countries still have FBB services with usage limitations, it makes sense to maintain usage levels in the baskets. Most tariffs will, in any case not be impacted by the inclusion of usage levels in the baskets.	No change proposed.
	FBB download speed of 5Mbps already too low. Propose to align speeds with Technology. ADSL 10Mbps, VDSL/Cable 30Mbps, FTTB 250Mbps, FTTH 600Mbps. 85% FBB market in EU has a minimum 10 Mbps download speed	Speeds have been revised, but minimum speed of 5 Mbps is relevant for some markets (some members asking for speeds sub 5 Mbps) and has been maintained.	Addressed. FBB speeds have been revised in baskets. - 5, 25, 100, 250, 600 and 1 000 Mbps
	Update mobile data caps to reflect increasing usage patterns. New proposal: 200 Mbps, 5GB, 10GB and 30GB. Average data usage in EU already at 3GB with consumption growing over 50% annually. Ongoing trend to start providing unlimited data	Mobile data caps have been revised. Top cap now 20 GB.	Addressed. Mobile data caps have been revised. Top cap now 20 GB.
	When considering Mobile, include SIM only offers (to avoid including effect of handset subsidy)	Offers are included according to what the bundle includes. Where SIM only offers are available, these will be included.	No action required. Points noted and already in place.
	Reduce to 24 months depreciation of non-recurring items (in EU law setting maximum contract duration at 24 months)	The baskets methodology, aims to reflect the consumer behaviour toward a fixed broadband subscription contract. Therefore, 36 months is a reasonable period of time to distribute the initial nonrecurring (connection) costs of a fixed broadband subscription.	No change proposed.
	When considering Mobile, include SIM only offers (to avoid including effect of handset subsidy)	Changing the period to 24 months would have the non-desirable effect of increasing prices for all countries in all baskets configurations, and would create a break in the prices time series we use in some of our analysis.	No action required. Points noted and already in place.
	Consider monthly tariffs only (not weekly, biweekly). Inconsistent approach to "premium TV" and "premium sports. Include access to SERIES rather than Premium movies. What is	Tariffs will typically be monthly. TV baskets reviewed. New category of series and documentaries.	No action required. Points noted and already in place.

OECD country or Delegation	Comment	Response	Proposed resolution in baskets
	a premium sport? (access to all games of La Liga or relevant national football league)	Premium movies refers to first run Hollywood blockbusters. Premium sports = either national or champions league offerings. OTT included if part of telco offering.	Addressed. TV baskets revised and clarifications included in proposal document.
INTUG	In order to extend the benefits of comparability to increase comparability of bundles, INTUG recommends that OECD seek to include differentiation between the different types of cloud services. In addition, transparent international guidelines for the impact of security protection included. Furthermore, the impact of needing multiple contracts with different suppliers-direct and indirect-and the hidden costs implied by such arrangements which affect the overall price. INTUG welcomes the decision of the EU to abolish the difference between international calls and roaming tariffs with effect from mid-May 2019.	These issues go beyond pure price benchmarking, and lie beyond the scope of the bundled service basket definitions. A discussion with INTUG is welcomed outside of this general process.	No action required. Separate discussion with INTUG welcomed.

The comments below correspond to those received by the Secretariat during October 2019 regarding the interim version of the report circulated in September 2019.

**Table A.2. Comments received based on the interim version of September 2019**

OECD country or Delegation	Main comments	Notes	How the comment has been addressed after the interim report
Australia	For FBB: Include 50 Mbps and below and higher data allowances	250 Mbps FBB offers are not common in Australia and data allowances are too low as FBB plans contain unlimited data	Addressed. FBB speeds of some bundles have been lowered.
	Higher MVD allowances	MVD inclusions are relatively low (as 20 GB is common in Australia)	Addressed. Data allowances have been increased for MVD.
	Changing the TV packages so that premium sports are included in more of the baskets.	In Australia, consumers buy packages including only sports.	Addressed. It is always included in high usage bundle, but a more detailed definition on premium sports can be discussed.
	Adjusting contract length to 24 months		Addressed. The baskets methodology, aims to reflect the consumer behaviour toward a fixed broadband subscription contract. Therefore, 36 months is a reasonable period to distribute the initial nonrecurring (connection) costs of a fixed broadband subscription. Changing the period to 24 months would have the non-desirable effect of increasing prices for all countries in all baskets configurations, and would create a break in the prices time series we use in some of our analysis.
	Adding zero rated features to MVD		For future discussion.
	The paper should consider the proportion of consumers that can access each of the bundles proposed in the analysis.		Noted. Efforts will be made to select representative bundled offers, with the caveat that this request depends on 36

OECD country or Delegation	Main comments	Notes	How the comment has been addressed after the interim report
			national authorities.
Austria	Promotions should be included since they are the standard rather than the exception in Austria.		Addressed. Current proposal includes promotions.
	They support including information of the penetration of a given bundle (subscriber data).		Addressed. Proposal to include take up data by bundle type where available, for inclusion alongside basket results for information only, and not weighted average calculation. Relies on information being available/provided by the regulator. Note. If this is incorporated, the data will be treated in a separate table, provided by regulators who are able and willing to supply the information on bundle type take up. If the information is not available, the table entries will be left blank.
	We suggest to use only 30 fixed minutes or to use no fixed minutes at all.		Addressed. Voice calls have been placed incrementally again (with respect to the interim version of the report), and for the low usage baskets less calls are included, which corresponds to less minutes.
	Why is the restriction on the bundles coming from the same provider needed?		No change required. Since there is no subscribership data available, the task of constructing bundles by different providers is too complex.
Colombia	No offers in their country that combine FV and MVD(MV)		Noted
	Speeds below 100 Mbps should be opened further	Moving from a connection of 10 to 20 Mbps means an important difference in the experience and payment made by the user	Addressed.
	Adding unlimited usage for FBB (no data cap)		Addressed. Unlimited usage would be considered in the 900 GB category, otherwise it penalises many countries.
	They support including information of the penetration of a given bundle (subscriber data)		Noted. Proposal to include take up data by bundle type where available, for inclusion alongside basket results for information only, and not weighted average calculation. Relies on information being available/provided by the regulator. Note: If this is incorporated, the data will be treated in a separate table, provided by regulators who are able and willing to supply the information on bundle type take up. If the information is not available, the table entries will be left blank.
	Suggest including unlimited option for fixed voice		Addressed. The comparison of these plans would be included in the very-high usage bundles.
	Suggest including unlimited option for mobile voice		Addressed. The comparison of these plans would be included in the very-high usage bundles.
	Inclusion of the number of HD channels		Addressed. We added the number of channels. However, no change for the moment on the number of HD channels, as it is not possible to have the

OECD country or Delegation	Main comments	Notes	How the comment has been addressed after the interim report
			breakdown of HD channels in all countries.
Czech Republic	Factual corrections on the bundles available according to tables in the document	<p>a) The combination of fixed voice (PV) and TV is offered by number of operators, typically by UPC (Vodafone) or O2</p> <p>b) The combination of fixed broadband (FBB), fixed voice and mobile services (MVD) is offered at least by O2</p> <p>c) The combination FBB - FV - MVD - TV is again offered by O2</p> <p>d) The combination FBB - FV - MVD - MBB - TV is also offered by O2</p>	Addressed. (Included in Table 1).
	Clarification on the number of SMS included	According to the information on page 8, the last combination of FBB - FV - MVD - TV services should also include a number of SMS, however, since the column with SMS has been removed from the table 2 on page 10, it is now unclear how many SMS were included in the last six consumer baskets.	Noted. SMS are excluded, based on general agreement.
European Union	Full support the convergent bundle paper and happy with categories of usage and allowances.		Noted.
France	Baskets are correctly constructed. Minor suggestion: add FBB+FV+MVD		Addressed.
Germany	Shorten contract period to 24 months		Addressed. Idem as reply to Australia.
Greece	Agree on focusing into the 5 proposed combinations of bundled services		Noted.
	The breakdown of the 5 proposed bundled baskets into 6 subsets (Figure 2) according to the degree of their usage, is very detailed. Consider adding an additional breakdown level, namely 50 Mbps, which is more representative for the residential sector.		Addressed. The benchmarking system includes a number of options: 1) results showing exact bundles that match the speed tiers of the baskets (e.g. just the offers that would be between 2 Mbps and 24 Mbps), or 2) bundles that include the basket requirement as a minimum. The 50 Mbps offers would be compared in the speed category of 25 Mbps and above,, while DSL offers (usually lower than 24 Mbps) would be included in baskets below 25 Mbps.
	Actual price paid by users for a bundled offer may be lower than the advertised commercial price due to cumulative promotions for a single user subscription with multiple connections.		Addressed to the extent that the offers are available on websites (as for the other OECD bundles), as invoice data is not something we cannot observe. The current proposal includes promotions available for a single user subscription, and excludes promotions offered for a single user with multiple connections. However, Teligen and the Secretariat are aware of this particular issue

OECD country or Delegation	Main comments	Notes	How the comment has been addressed after the interim report
			(multiple users) and will look for a solution in future revisions.
Hungary	shorten contract period to 24 months		Addressed. Idem as Australia and Germany,
Japan	Regarding the 36-month period, for Japan it is very important not to shorten it.		No change required. The 36-month period is maintained.
Korea	Suggestion to exclude FV from bundles include FBB+MVD & MVD+TV bundle.	Increasing substitution mobile and fixed.	Addressed. Including FV would not influence the comparison of FBB+MVD & MVD+TV bundles.
	Multiple mobile lines trend.		For future discussion. See comments on Table A.1.
	Distinction between family type bundles		For future discussion. See comments on Table A.1.
	One-time promotions and rental fees need to be excluded from the study.		Addressed. One-time promotions are excluded (only permanent promotions are included, consistent with other basket methodology). What is included and depreciated over 36 months are the installation fees (i.e. initial non-recurrent fixed costs).
Lithuania	They state they also have FBB-TV & FV-TV	Comment on Figure 1 (Availability of bundle types per country): Lithuania also has the following bundles: FBB-FV (2019 quarter II 17 637 subscribers) and FV-TV (2019 quarter II 4 000 subscribers).	Addressed. (Included in Figure 1).
Mexico	Statement on most important bundle types (FBB+FV, FBB+TV, FBB+FV+TV)	For Mexico, the most important in Mexico are: FBB - FV, FBB - TV and FBB - FV - TV	Noted.
Turkey	Basic criteria for categorization of bundles should be the speed of the service especially for fixed broadband.		Noted.
	16Mbps should also be included in the bundles to fill the gap between the proposed 5Mbps and 25Mbps bundles.		Noted, however after considering all comments, adding another subcategory of speed would be too complex.
Non-OECD countries	Main comments	Notes	How the comment has been addressed after the interim report
Brazil	Adding unlimited usage for FBB (no data cap)		Addressed. Unlimited usage would be considered in the 900 GB category, otherwise it penalises many countries.
	Adding zero rated features to MVD		For future discussion.
	Adding other taxes than VAT such as ICMS		Noted. In case of specific VAT telecommunication taxes, the baskets are flexible to adjust the VAT level according to the national level of sector specific taxes, if countries make the information available to Teligen, and that the exercise is not too complex to integrate.
	Shorter contract length than 36 months		Addressed. Idem as response to Australia, Germany and Hungary.
Other Delegations	Main comments	Notes	How the comment has been addressed after the interim report
BIAC	Appreciate the addition of an FBB-FV-MVD bundle and the addition of a sixth usage tier		Noted.

OECD country or Delegation	Main comments	Notes	How the comment has been addressed after the interim report
	MVD data allowance adjustments in FBB and MVD still appear to be lower than appropriate for future use levels.		Addressed. Data allowances for mobile are increased.
	Adjustment on number of calls are odd.		Addressed. Incremental calls have been re-established.
	Inclusion of OTT option is confusing.		Noted. Can be clarified during the meeting.
	Problematic that TV has to have all three categories		Addressed. Approach simplified.
	Problematic to add ill-defined "Streaming" option to the DVR option for different tiers		Addressed. This was added to address previous comments from BIAC.
	Adding promotional offer is welcome.		Noted.
	The sampling methodology should ensure that only widely available, accessible and subscribed-to bundles are sampled. Direct queries to national regulators or operators as to which of their bundles are most popular.		Noted. Efforts will be made, with the caveat that this request depends on 36 national authorities. An alternative approach is presented in the document and proposes that the data is provided by BIAC for all of the member countries.
	Total number of TV channels, number of HD/SD channels, local FTA channels and video programs that can be watched simultaneously by the subscriber should be included. BIAC proposed solution is to include these channel counts in the analysis and to include the type of technology used to deliver the video services into the home (e.g., CATV, IPTV, satellite, OTT).		Addressed. The number of channels is now included. However, no change for the moment on the number of HD channels, as it is not possible to have the breakdown of HD channels in all countries. Simultaneous streams is not well defined by operators in their advertised offers.
	Series & Documentaries," "Premium Movies," or "Premium Sports" seem to be inadequate. BIAC solution is to change the Categorization of channels into different groupings based on their cost to the TV distributor (e.g. available for free, available for less than USD 1 per subscriber per month, available for less than USD 5 per subscriber per month, available for more than USD 5 per subscriber per month)		Partially addressed. TV categories have been revised. On series and documentaries, conflicting comments have been received by BIAC. The category of series and documentaries has been taken out based on the latest set of BIAC comments.
	Inspection/audit of the data collected by Teligen		Addressed. Ex-post checks of the results of the bundle benchmarking will be available
	To select only the cheapest plan is statistically unsound. BIAC solution : Report average and/or median prices of all bundle's meeting a service tier's eligibility criteria		No change required. This comment cannot be addressed as it goes against OECD basket methodology for standalone communication services, already approved by consensus by all OECD Member countries.

## Annex B.

This annex provides feedback from Teligen after the comments received in the floor during the WPCISP May 2019 meeting. Teligen has been partner of the OECD in the data collection process of the OECD's methodology of communication price baskets since 1995. Since then, OECD countries have agreed and revised the methodology of price baskets with the evolving nature of the telecommunication sector. The approach has always been iterative in nature, with an open and constructive attitude to achieve consensus among OECD member countries. The new price baskets presented in this document aim to incorporate the changes in convergence that have led to an increase in bundling practice of communication services in OECD countries.

### Teligen's summary response to CISP meeting 7<sup>th</sup> May 2019

*"Teligen was very pleased to be able to present its proposals for bundled service baskets at the CISP meeting on 7<sup>th</sup> May 2019, and to demonstrate the underlying model it has developed to support these baskets.*

*We welcome all the very constructive and supportive feedback, as this is valuable in helping us shape our propositions further, with the ultimate goal of consensus on the baskets among OECD members.*

*At this stage, it is not possible to respond in full to all the feedback, as this has not yet been fully documented by the OECD, and we will do this in due course. However, we would like to present some short feedback based on some of the comments that were raised.*

*Teligen has collected very basic bundle price data at a very simplistic level for a number of years (within the OECD Fixed Broadband Price Benchmarking service), however this is not designed to be analysed in the context of bundle price benchmarking, as it does not capture the full range of available bundles (for example, those involving mobile voice and data). Nor does it consider add-ons and extended services, such as extended pay-TV options. This is because the OECD Fixed Broadband Price Benchmarking service is focused on broadband services only, and bundled services are included to ensure that all broadband services can be fully considered (many providers offer no or a very limited number of standalone broadband plans). Separately, we have tracked Pay TV pricing in a systematic and detailed way over a number of years. Although Pay TV pricing is often closely linked to fixed broadband services, it is not advisable to take these two data sets to try to create bundled service pricing, as these are two very distinct data collection and input exercises.*

*With this in mind, Teligen created a system that would deal with the full range of bundles in a consistent way (covering fixed broadband, fixed voice, mobile broadband, mobile voice/data/SMS, Pay TV), and would also take into account add-ons and extended services (for example, call add-ons, Pay TV add-ons). This system has been populated with data that is collected in a systematic and thorough way and follows the same approach as that used for the OECD Price Benchmarking services. In particular:*

*The list of providers considered closely follows that of the OECD Fixed Broadband Price Benchmarking service, primarily as most bundled services are driven from fixed broadband services.*

*All bundles and options are considered, and tariffs are gathered based on the most widely available offers. Offers that are limited to a subset of the population, such as rural offers, or offers for students or old people only, are not considered.*

*For each update, data is collected in a given time period (1 month), and is collected directly from provider websites. All data input is fully transparent.*

*Screenshots are taken for all data collected, and time stamped. All relevant information is captured (e.g. connection, rental, usage charges, promotional offers, add-ons). Where pdf pricelists are available, these are*

*also collected. This process is particularly important as it allows data entry to be checked and verified, if required.*

*The tariffs collected consider plans available to a new subscriber, and not legacy plans.*

*Following data entry into the benchmarking system, the results undergo a detailed audit, with data entry and result output checks, as well as comparison to previous updates.*

*The proposed set of baskets aim to cover as wide a range of bundle types as possible, and have been based on the extent to which certain bundles are offered in the OECD countries. The proposed list of baskets will be fully reviewed once OECD member feedback has been received. The basket proposals have not taken into account the penetration of different types of bundles, as this is not fully available. Rather, we have endeavoured to represent the most widely offered bundle types.*

*Over the course of the next few months, and going forward, we will continue to look at ways that the basket proposals can be improved, and how the benchmarking system can produce outputs that are more valuable. This will be based on feedback received from the CISP meeting in the first instance, and, as is the case with the current OECD Price Benchmarking systems, it will be an ongoing and iterative process.”*

# End Notes

<sup>1</sup> Note that the reliability of results depends on the data collection exercise. Please refer to (Research ICT Africa, 2020<sup>[5]</sup>) for Africa, and to (Galperin and Ruzzier, 2013<sup>[6]</sup>) for Latin America. Please refer to the Benchmarking Methodology for Arab Countries produced for TRA Bahrain and AREGNET (Teligen, 2020<sup>[7]</sup>), which was actually conducted by Teligen, so in this case it mirrors OECD methodology.

<sup>2</sup> *“We used the Teligen basket methodology, which identifies the cheapest tariff for different usage profiles. An advantage of this approach is that it provides a clear and undisputed measure for what a certain customer would pay. That is, Teligen obtains a measure for the customer bill, with many details that are practically relevant and accounted for (e.g., distribution of calls, SMS, data downloads, and so forth). This raises the question, however, of how representative the hypothetical bill identified by Teligen is compared with the actual bill paid by customers. Customers in different countries may have different mobile usage attitudes: to the extent that these are time invariant, or that they change proportionally over time in the various countries, our (country–operator–usage, as well as time) fixed effects would capture such differences, and therefore we included them in our analysis. If instead there are variations that are time- and country-specific, then our results could be biased – though the direction of bias is not clear a priori. We also note that we used both fixed baskets, as well as time varying baskets, and we did not find qualitative differences, which should be reassuring for the robustness of our findings.*

*An alternative to the basket approach would be to look at aggregated revenues, such as ARPU. But we would argue that these measures, which are sometimes used in other studies, are not very meaningful. This is for two reasons. First, by definition, ARPU relates to total revenues per subscriber. These revenues also include revenues for incoming calls, which are not paid by a given subscriber but by calling subscribers from other networks. Hence, this is not related to the customer bill, but it is closer to a measure of profitability. Second, total revenues per subscriber depend also on the usage made by the subscriber for a given price, so ARPU may be large also because the allowance of a given price is large. In other words, changes in ARPU may reflect changes in the composition of consumption rather than real price changes. It is of no surprise that, when analysing ARPU directly, we found that it has no clear relationship with market structure. We therefore conclude that ARPU, which may be monitored perhaps to provide a view on profitability, is not an interesting variable to study when looking at the impact on subscriber prices. In itself, this is also an interesting finding of our analysis.” (Genakos, Valletti and Verboven, 2018, p. 82<sup>[11]</sup>).*

<sup>3</sup> For non-OECD countries, World Bank CPLs will be used.

<sup>4</sup> In case of specific VAT telecommunication taxes, the baskets are flexible to adjust the VAT level according to the national level of sector specific taxes, provided that countries make the information available to Teligen, and that the exercise is not too complex to integrate.

<sup>5</sup> As screenshots are taken at point of data capture, and *pdfs* saved by Teligen, OECD members can request an ex-post review of the results of the baskets.