European Commission

Mobile and Fixed Broadband Prices in Europe 2022

FINAL REPORT and EXECUTIVE SUMMARY

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Directorate-General for Communications Networks, Content & Technology
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ABSTRACT

English

The current study provides comprehensive data on 2022 retail prices of fixed and mobile broadband offers for consumers in the **EU27, the United Kingdom, Iceland, Norway, Japan, South Korea and the USA**. The five **largest Internet Service Providers (ISPs)** and the three **largest Mobile Network Operators (MNOs)** (except when only two operators are available in a country) by market share in each country were included. Data was collected from ISPs' and MNOs' websites within a period of three weeks, from **5th to 26th October 2022.**

The baskets defined in the study follow the guidelines issued by the Body of European Regulators for Electronic Communications (BEREC). The set of baskets covers 5 fixed broadband baskets of different download speeds and 5 mobile broadband baskets (for tablet/modem/data card use) of different download volumes purchased individually (standalone), 7 individual handheld mobile baskets with voice telephony and a set of 17 baskets for representative households.

The usage baskets in this study have been updated to better reflect the current market structure and consumers' demand. As the telecommunications industry evolves, new technologies, higher data demands, and changing consumer preferences shape the market. To accurately assess and compare broadband prices and offers, it is important to adapt the usage baskets to reflect these changes. By considering factors such as data allowances, download speeds, and bundled services, the updated usage baskets provide a more accurate representation of the broadband services available in the market and align with the evolving needs of consumers.

To support valid cross-national comparison of retail prices of fixed and mobile broadband offers in each bundle and basket, consistent **price normalisation procedures were applied**. These take full account of features such as one-off fees, volume limits, discounts, different contract durations and limits for telephony call time and data volumes.

Applying the normalised prices in euro in Purchasing Power Parity (€/PPP), the **least expensive offers** for fixed broadband in the EU in 2022 were found in **Romania, Lithuania, Latvia** and **Bulgaria.**

Fixed Broadband prices show mixed trends in 2022.

- On the EU level, there has been an **overall decrease in retail prices** compared to last year for offers in the **speed category of ≥100** Mbps.
- A price decline was observed for Single Play 30 - 100 Mbps, while **Double Play and Triple Play** offers experienced a **slight increase** (**1.69%** and **2.42%** respectively) in comparison to last year.
- The **most notable change** can be observed in Single Play offers with speeds ranging from **100 Mbps to 999 Mbps**, where prices have **decreased by approximately 9%.**
- In the **gigabit category**, **Triple Play offers** have also experienced decrease as **prices dropped by approximately 4.14%.**

The comparison of EU27 prices with prices in selected non-EU countries in 2022 yielded the following picture:

- The EU27 region tends to offer the most affordable prices, particularly for Single Play offers below 999 Mbps.
- Japan stands out with the most attractive prices for gigabit Single, Double, and Triple Play offers, closely followed by the EU27.
- In comparison to the EU27 region, consumer prices across all baskets in Korea, Norway, Iceland and the USA are more expensive.

Following BEREC Guidelines, the study also monitors **converged bundles** which are bundles of usage including both mobile broadband services (data and voice) and fixed access products.

Comparing normalised prices in euro (€/PPP), **Romania, Lithuania** and **Bulgaria** exhibit the **most attractive prices** for **converged offers** in the EU.

Prices for **all converged bundles** are **lower in the EU27** than in **the USA**, **Norway**, **Iceland**, **Japan**, **South Korea**, apart from **the UK** which consistently shows lower prices in various usage baskets.

On the EU level, **prices became cheaper than last year** among **all household baskets** in each usage/speed category.

Comparing normalised prices in euro (€/PPP), the **least expensive countries** for **mobile broadband** in the EU are **Romania, Denmark** and **Finland.**

Mobile broadband was found to be **less expensive in 2022** than in October 2021 with prices being around 15% lower on average among all baskets.

Mobile broadband **data only** baskets **experienced a decline between 7.6%** (in MBB4 - 20 GB) and **24.1%** (in MBB5 - 50 GB basket).

Comparing the EU27 average in the **handset baskets** reveals a **similar trend**. Prices in a**ll baskets** experienced a **decrease between 3% and 22%.**

Comparison of EU27 mobile prices with prices in **selected non-EU countries** (the UK, Iceland, Norway, Japan, South Korea and the USA) in 2022 showed that, on average, mobile broadband **in the EU27** is more expensive than in **the UK**, among all usage baskets (apart from MBB1), and **Iceland** for the handset-based baskets. South Korea, Japan and the USA show significantly higher prices among most mobile broadband usage baskets.

Prices differ considerably between the least and most expensive countries **in the EU** for all categories.

Français

La présente étude fournit des données complètes sur les **prix de détail de 2022** des **offres de large bande fixe et mobile pour les consommateurs dans l'UE27**, **le Royaume-Uni, l'Islande, la Norvège, le Japon, la Corée du Sud et les États-Unis**. Les cinq plus grands fournisseurs de services Internet (FSI) et les trois plus grands opérateurs de réseaux mobiles (ORM) (sauf lorsqu'il n'y a que deux opérateurs disponibles dans un pays) par part de marché dans chaque pays ont été inclus. Les données ont été collectées à partir des sites Web des FSI et des ORM sur une période de trois semaines, **du 5 au 26 octobre 2022.**

Les paniers définis dans l'étude suivent les directives émises par l'Organe des régulateurs européens des communications électroniques (ORECE). L'ensemble des paniers couvre 5 paniers de large bande fixe de différentes vitesses de téléchargement et 5 paniers de large bande mobile (pour utilisation avec tablette/modem/carte de données) de différents volumes de téléchargement achetés individuellement (standalone), 7 paniers mobiles portables individuels avec téléphonie vocale et un ensemble de 17 paniers pour les ménages représentatifs.

Pour soutenir une comparaison transnationale valide des prix de détail des offres de large bande fixe et mobile dans chaque ensemble et panier, **des procédures de normalisation des prix cohérentes ont été appliquées**. Celles-ci prennent pleinement en compte des caractéristiques telles que les frais uniques, les limites de volume, les réductions, les différentes durées de contrat et les limites pour le temps d'appel téléphonique et les volumes de données.

En appliquant les prix normalisés en euro en Parité de Pouvoir d'Achat (€/PPA), **les pays les moins chers** pour la large bande fixe dans l'UE en **2022 étaient la Roumanie, la Lituanie, la Lettonie et la Bulgarie**.

Les prix du haut débit fixe montrent des tendances mixtes en 2022.

- Au niveau de l'UE, il y a eu une baisse globale des prix de détail par rapport à l'année dernière pour les offres dans la catégorie de vitesse de ≥100 Mbps.
- Une baisse de prix a été observée pour Single Play 30 - 100 Mbps, tandis que les offres Double Play et Triple Play ont connu une légère augmentation (1,69 % et 2,42 % respectivement) par rapport à l'année dernière.
- Les changements les plus notables peuvent être observés dans les offres Single Play avec des vitesses allant de 100 Mbps à 999 Mbps, où les prix ont diminué d'environ 9 %.
- Dans la catégorie gigabit, les offres Triple Play ont connu une baisse plus significative, avec une diminution des prix d'environ 4,14 %.

La comparaison des prix de l'UE27 avec les prix dans certains pays non européens sélectionnés en 2022 a donné l'image suivante :

- La région de l'UE27 tend à offrir les prix les plus abordables, en particulier pour les offres Single Play en dessous de 999 Mbps.
- Le Japon se distingue avec les prix les plus attractifs pour les offres Single, Double et Triple Play gigabit, suivi de près par l'UE27.

Conformément aux directives de l'ORECE, l'étude surveille également **les ensembles convergents**, c'est-à-dire les ensembles d'utilisation comprenant à la fois des services de large bande mobile (données et voix) et des produits d'accès fixe.

En comparant les prix normalisés en euro (€/PPA), **la Roumanie, la Lituanie et la Bulgarie présentent les prix les plus attractifs pour les offres convergentes** dans l'UE.

Les prix de tous **les ensembles convergents sont inférieurs dans l'UE27 par rapport aux États-Unis, à la Norvège, à l'Islande, au Japon, à la Corée du Sud, à l'exception du Royaume-Uni qui affiche systématiquement des prix inférieurs dans divers paniers d'utilisation**. Au niveau de l'UE, les prix sont devenus moins chers que l'année dernière parmi tous les paniers de ménages dans chaque catégorie d'utilisation/vitesse.

Au niveau de l'UE, les **prix sont devenus moins chers que l'année dernière pour tous les paniers de ménage**.

En comparant les prix normalisés en euro (€/PPA), les **pays les moins chers pour la large bande mobile** dans l'UE sont **la Roumanie, le Danemark et la Finlande**.

Il a été constaté que **la large bande mobile** était moins chère qu'en octobre 2021, les prix étant **en moyenne d'environ 15 % plus bas parmi tous les paniers**. Les paniers de données mobiles large bande uniquement ont connu une baisse entre 7,6 % (dans MBB4 - 20 GB) et 24,1 % (dans MBB5 - 50 GB).

La comparaison de la moyenne de l'UE27 **dans les paniers pour mobiles** révèle une tendance similaire. **Les prix** dans tous les paniers ont connu **une baisse entre 3 % et 22 %.**

La comparaison des prix de l'UE27 avec les prix dans certains pays non-membres de l'UE (le Royaume-Uni, l'Islande, la Norvège, le Japon, la Corée du Sud et les États-Unis) en 2022 a montré que, **en moyenne, la large bande mobile dans l'UE27 est plus chère qu'au Royaume-Uni, parmi tous les paniers d'utilisation (à part MBB1), et en Islande** pour les paniers basés sur les mobiles. La Corée du Sud, le Japon et les États-Unis affichent des prix nettement plus élevés parmi la plupart des paniers d'utilisation de la large bande mobile.

1. Executive Summary

1.1. English

1.1.1. Introduction

The current study provides comprehensive data on 2022 retail prices of fixed and mobile broadband offers for consumers in the **EU27, the United Kingdom, Iceland, Norway, Japan, South Korea and the USA**. The five **largest Internet Service Providers (ISPs)** and the two or three **largest Mobile Network Operators (MNOs)** in each country were included. Data was collected from ISPs' and MNOs' websites within a period of three weeks, from **5th to 26th October 2022.**

The baskets defined in the study follow the guidelines issued by the Body of European Regulators for Electronic Communications (BEREC). The set of baskets covers 5 fixed broadband baskets of different download speeds and 5 mobile broadband baskets (for tablet/modem/data card use) of different download volumes purchased individually (standalone), 7 individual handheld mobile baskets with voice telephony and a set of 17 baskets for representative households.

The usage baskets in this study have been updated to better reflect the current market structure and consumers' demand. As the telecommunications industry evolves, new technologies, higher data demands, and changing consumer preferences shape the market. To accurately assess and compare broadband prices and offers, it is important to adapt the usage baskets to reflect these changes. By considering factors such as data allowances, download speeds, and bundled services, the updated usage baskets provide a more accurate representation of the broadband services available in the market and align with the evolving needs of consumers.

To support valid cross-national comparison of retail prices of fixed and mobile broadband offers in each bundle and basket, consistent **price normalisation procedures were applied**. These take full account of features such as one-off fees, volume limits, discounts, different contract durations and limits for telephony call time and data volumes.

1.1.2. Results: Fixed broadband baskets

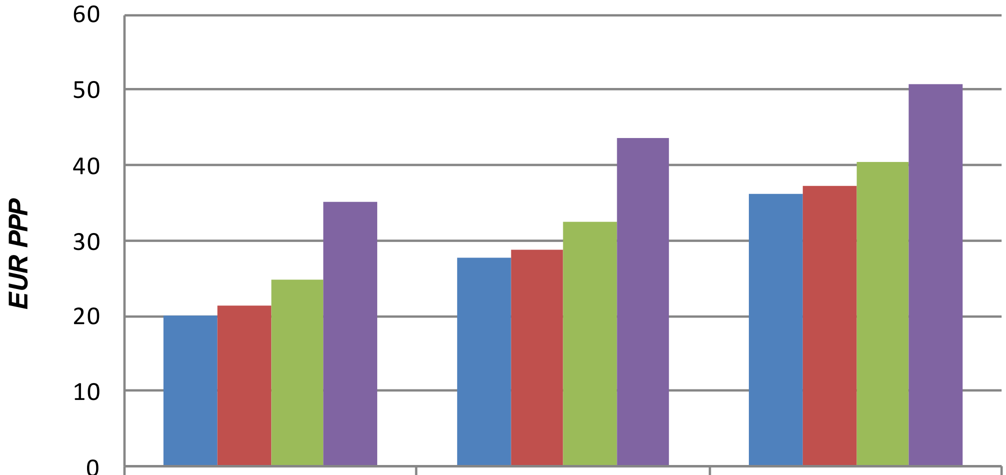
The baskets defined here cover:

- **Standalone fixed broadband** (with no telephony, TV, or mobile services) in five speed categories, from very low (10 - 30 Mbps) to very high (≥ 1 Gbps).
- **Double Play with fixed telephony** in four speed categories, from low (30 – 100 Mbps) to very high (≥ 1 Gbps).
- **Triple Play with fixed telephony and TV**. The range of fixed broadband varies from low (30 – 100 Mbps) to very high (≥ 1 Gbps).

2022 prices across the EU for fixed broadband offers

Figure 1 shows the average lowest prices across the EU for each of the three service bundles and for the four speed baskets above 30 Mbps. The impact on prices of adding value through increased speed is clearly visible, with a distinction in the ≥ 1 Gbps baskets (see section 4.1.8 for a discussion of "speed premiums"), as is the increase in price from bundling television and fixed telephony services with standalone internet (see section 4.1.9 for details on the “bundle premiums”)[1].

Figure 1 – EU27 average of the lowest prices for each service bundle across four speed baskets



	Standalone	Double Play | Telephony	Triple Play
≥30 - <100	€19.96	€27.84	€36.12
≥100 - <200	€21.32	€28.73	€37.20
≥200 - <999	€24.94	€32.60	€40.37
≥ 1 Gbps	€35.17	€43.73	€50.65

Figure 2 shows the lowest price found in the EU for each service bundle and speed basket. Standalone fixed internet delivered at more than 30 Mbps can be obtained at a normalised price of only 8.24[2] EUR/PPP per month. The Double Play service bundles start from 14.40[3] EUR/PPP per month while the lowest price in Europe for Triple Play service bundles with over 30 Mbps speed is provided at 19.99 EUR/PPP[4].

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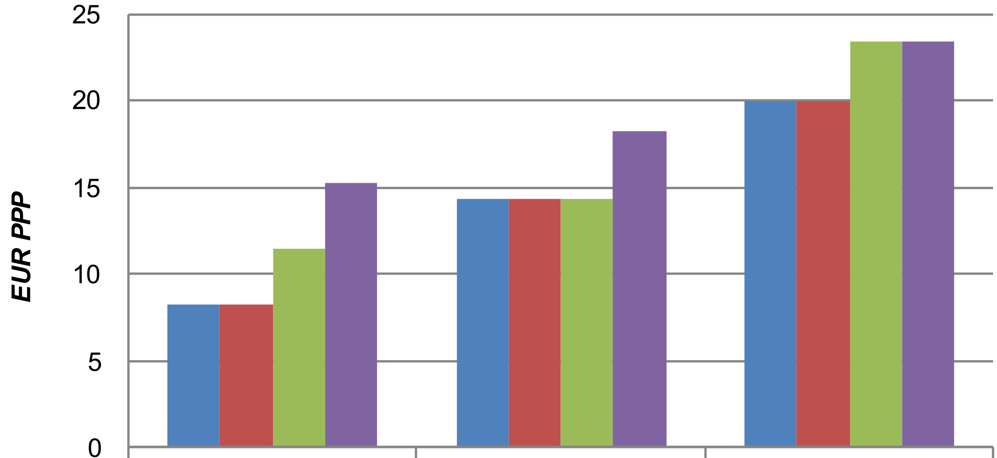
[1] Please note that ≥ 1 Gbps offers are not available in all EU27 countries.

[2] This offer is available in Finland.

[3] This offer is available in Bulgaria.

[4] This offer is available in Lithuania.

Figure 2 – EU27 absolute lowest prices for each service bundle across four speed baskets



	Standalone	Double Play | Telephony	Triple Play
≥30 - <100	€8.24	€14.40	€19.99
≥100 - <200	€8.24	€14.40	€19.99
≥200 - <999	€11.48	€14.40	€23.45
≥ 1 Gbps	€15.31	€18.23	€23.45

To provide a more comprehensive understanding of the pricing trends without introducing the distraction of small price differences, four clusters of countries were identified[5] in each category of offer, that is, for each combination of service bundle and speed basket, based on the prices of the least expensive offer in the bundle/basket category in each country.

A dark green symbol (1) in a bundle/basket category stands for countries in the cluster with inexpensive offers for that category. Light green (2) symbols indicate clusters of relatively inexpensive, orange symbols (3) of relatively expensive price levels. A red symbol (4) stands for countries in the expensive cluster of offers in a bundle/basket category. A dash signifies that no offer was collected in 2022 in that offer category and country.

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[5] k-means clustering was used with k=4; observations (offer categories) are assigned to clusters so as to minimise the average squared Euclidean distance of observations to each cluster centroid.

Figure 3 – Price variation per offer category across the EU, country clusters (fixed broadband)

	Single Play					Double Play				Triple Play			
	≥10 - <30 Mbps fixed internet	≥30 - <100 Mbps fixed internet	≥100 - <200 Mbps fixed internet	≥200 - <999 Mbps fixed internet	≥ 1 Gbps fixed internet	≥30 - <100 Mbps fixed internet with fixed phone	≥100 - <200 Mbps fixed internet with fixed phone	≥200 - <999 Mbps fixed internet with fixed phone	≥ 1 Gbps fixed internet with fixed phone	≥30 - <100 Mbps fixed internet with fixed phone and TV	≥100 - <200 Mbps fixed internet with fixed phone and TV	≥200 - <999 Mbps fixed internet with fixed phone and TV	≥ 1 Gbps fixed internet with fixed phone and TV
RO	1	1	1	1	1	1	1	1	1	1	1	1	1
LT	1	1	1	1	1	1	1	2	1	1	1	1	1
FI	1	1	1	1	2	-	-	-	-	-	-	-	-
LV	2	1	1	1	1	1	1	2	2	1	1	2	1
BG	1	1	2	1	2	1	1	2	2	1	1	2	2
HU	2	2	2	1	1	1	2	2	2	1	1	1	1
SK	2	1	1	1	1	1	2	2	1	2	2	2	1
CZ	2	1	1	1	1	1	1	2	2	2	2	2	2
PL	2	2	2	1	1	1	2	2	2	2	2	2	1
ES	3	3	3	2	2	1	2	2	1	2	2	2	1
SI	3	3	3	2	2	1	2	2	2	2	2	2	2
IT	4	3	3	2	2	2	2	2	1	3	2	2	1
FR	4	3	3	2	2	2	3	2	2	2	2	2	1
DE	3	3	3	2	3	2	2	3	3	2	2	3	2
LU	2	2	2	3	3	2	2	3	2	4	3	3	2
HR	4	4	4	2	2	2	2	2	2	3	3	3	2
SE	3	2	2	2	3	1	2	3	3	4	3	4	3
DK	3	2	2	1	1	3	3	3	3	4	4	4	3
CY	4	4	4	3	2	2	3	3	2	3	3	3	2
EL	4	3	4	4	4	1	2	3	4	2	2	3	-
MT	4	3	4	4	3	3	3	3	3	2	2	3	2
EE	3	3	4	3	3	2	3	3	4	3	3	3	4
AT	3	2	4	3	4	2	4	4	4	3	3	4	4
IE	4	4	4	3	3	4	4	3	3	4	4	4	3
NL	4	4	4	3	3	4	4	4	3	4	4	4	3
PT	4	4	4	4	3	3	4	4	3	4	4	4	3
BE	4	3	4	3	4	4	4	4	4	4	4	4	4

Cluster Centres [EUR]

1	10.77	11.90	11.92	15.42	20.58	21.31	18.08	14.40	24.90	22.84	23.39	24.57	31.99
2	14.34	16.42	15.88	26.02	30.32	28.51	25.60	25.13	33.63	31.42	32.17	31.28	45.35
3	19.22	23.28	22.65	32.55	40.89	35.64	32.18	36.05	47.36	37.71	42.83	42.59	62.30
4	26.60	29.51	29.54	36.37	71.69	44.35	42.77	51.50	86.17	50.48	54.29	56.58	101.32

Number of cases in each cluster

1	4	7	6	10	8	12	5	1	5	5	5	3	9
2	6	6	6	7	8	8	11	12	10	9	10	9	8
3	7	9	5	7	8	3	5	9	7	5	6	7	5
4	10	5	10	3	3	3	5	4	4	7	5	7	3

Dark green symbol 1 – inexpensive cluster
Light green symbol 2 - relatively inexpensive cluster
Yellow symbol 3 – relatively expensive cluster
Red symbol 4 – expensive cluster

The following general country groupings can be observed:

- Overall, Romania and Lithuania have the most attractive prices for broadband internet in the EU. All the offers in Romania belong to the cluster of the least expensive in their respective baskets.
- Finland, Latvia, Bulgaria and Hungary follow. Spain and Slovenia have low prices especially for Double and Triple Play offers.
- Greece and Malta tend to have attractive prices for lower bandwidth Triple Play offers, but also tend to be in the cluster of more expensive countries for Single Play offers.
- Ireland, the Netherlands, Portugal and Belgium have no offers in the inexpensive or relatively inexpensive clusters.

Development of prices

- On the EU level, there has been an overall decrease in prices compared to last year for offers in the speed categories of ≥100 Mbps.
- A price decline was observed for Single Play 30 - 100 Mbps, while Double Play and Triple Play offers experienced a slight increase (1.69% and 2.42%, respectively) in comparison to last year.
- The most notable change can be observed in Single Play offers with speeds ranging from 100 Mbps to 999 Mbps, where prices have decreased by approximately 9%.
- In the gigabit category, Triple Play offers have experienced a decrease as prices dropped by approximately 4.14%.

The EU compared with selected non-EU countries

The comparison of EU27 prices with prices in selected non-European countries in 2022 yielded the following picture:

- The EU27 region tends to offer the most affordable prices, particularly for Single Play offers below 999 Mbps.
- Japan stands out with the most attractive prices for gigabit Single, Double, and Triple Play offers, closely followed by the EU27.
- In comparison to the EU27 region, consumer prices across all baskets in Korea, Norway, Iceland and the USA are more expensive.

1.1.3. Results: Converged broadband baskets

In line with BEREC guidelines, converged baskets include both mobile broadband and household requirements for fixed broadband as defined in the representative household (HH) baskets from HH9 to HH17 (see section 3.1.1, Table 3. Overview of all consumer baskets and basket elements). All baskets include fixed and mobile voice and two of the baskets are for mobile service with two active SIM cards. The use of 2 SIM cards is to be interpreted as representing the demand of a two-person household, where everyone uses one SIM card with their own unique usage profile. Normalisation of prices assumes usage of twice the Mobile Broadband range and twice the Mobile Voice range shown. If a household needed both mobile and fixed broadband, and there was no converged basket offer available to meet their requirements, synthetic offers were created by combining different offers to fulfil the customer's needs for the given basket.

Figure 4 – Price variation per offer category across the EU, country clusters (converged offers)

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
	≥30 - <100 Mbps fixed internet with fixed phone with 1-SIM, 30 calls 5 GB mobile	≥100 - <200 Mbps fixed internet with fixed phone with 1-SIM, 30 calls 5 GB mobile	≥100 - <200 Mbps fixed internet with fixed phone with 2-SIM, 100 calls 10 GB mobile	≥100 - <200 Mbps fixed internet with fixed phone and TV with 1-SIM, 100 calls 10 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone with 1-SIM, 100 calls 10 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone with 1-SIM, 300 calls 20 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone and TV with 1-SIM, 300 calls 20 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone and TV with 2-SIM, 300 calls 20 GB mobile	≥ 1 Gbps fixed internet with fixed phone and TV with 1-SIM, 300 calls 20 GB mobile
RO	1	1	1	1	1	1	1	1	1
LT	1	1	2	1	1	1	2	2	2
BG	1	1	2	1	1	1	2	2	3
ES	2	2	2	2	1	1	1	1	2
PL	2	2	2	2	1	1	1	1	2
SI	2	2	2	2	1	1	2	1	2
IT	2	2	3	2	1	1	2	2	2
FR	3	3	3	2	2	1	2	1	2
LV	3	3	3	2	2	2	3	3	2
SK	2	2	4	3	3	2	3	3	2
CY	3	3	3	3	2	2	3	3	3
DK	3	3	3	4	2	1	4	2	3
SE	2	2	3	3	3	2	4	3	3
DE	3	3	3	3	3	2	3	3	3
IE	4	4	3	3	3	2	3	2	2
LU	2	2	3	3	2	3	4	4	3
MT	3	3	3	2	3	3	3	3	3
HR	3	3	4	3	3	2	3	3	3
EE	2	3	3	3	3	3	4	3	4
HU	3	3	4	3	3	2	3	4	3
AT	3	4	3	3	3	2	4	3	4
EL	3	3	3	3	3	3	4	4	-
CZ	3	3	4	4	3	3	4	4	3
NL	4	4	4	4	4	3	4	3	3
PT	4	4	4	4	4	4	4	3	3
BE	4	4	4	4	4	4	4	4	3
FI	-	-	-	-	-	-	-	-	-

Cluster Centres [EUR]

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
1	23.64	24.57	22.02	31.95	32.20	37.13	36.27	49.62	28.30
2	34.00	33.88	41.20	42.71	44.97	54.16	45.53	67.98	51.59
3	41.29	41.75	56.92	55.39	51.55	64.42	62.05	91.43	76.18
4	53.94	53.17	76.92	67.17	65.33	79.76	74.22	107.61	129.41

Number of cases in each cluster

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
1	3	3	1	3	7	9	3	5	1
2	8	7	5	7	5	9	5	5	9
3	11	11	13	11	11	6	8	11	13
4	4	5	7	5	3	2	10	5	2

Dark green symbol 1 – inexpensive cluster
Light green symbol 2 - relatively inexpensive cluster
Yellow symbol 3 – relatively expensive cluster
Red symbol 4 – expensive cluster

The following general country groupings can be observed:

- Romania has the most attractive prices for converged offers in the EU. All the offers in this country belong to the least expensive cluster.
- The majority of offers in Lithuania and Bulgaria belongs to the cluster of the least expensive in the respective baskets.
- Spain, Poland, Slovenia, and Italy follow. Spain and Poland have particularly low prices for Triple Play and Quadruple Play offers in the 200 - 999 Mbps speed category.
- Greece, Czechia, the Netherlands, Portugal, and Belgium have no offers belonging to the two less expensive clusters.

Development of prices

On the EU level, prices have become lower than last year among all household baskets in each usage/speed category.

- The most significant change in pricing can be observed in basket HH11 (100 - 200 Mbps fixed internet with fixed phone with 2-SIM, 100 calls 10 GB mobile) with a 27.1% price drop.
- Similarly, HH13 (200 - 999 Mbps fixed internet with fixed phone with 1-SIM, 100 calls 10 GB mobile) has seen a substantial average price decrease of 24.2%.
- The price decrease for the rest of the household baskets ranges from 14.6% in HH9 (30 - 100 Mbps fixed internet with fixed phone with 1-SIM, 30 calls 5 GB mobile) to 19.2% in HH16 (200 - 999Mbps fixed internet with fixed phone and TV with 2-SIM, 300 calls 20 GB mobile).

The EU compared with selected non-EU countries

Prices for all converged bundles are lower in the EU27 compared to the USA, Norway, Iceland, Japan, South Korea, apart from the UK, which consistently shows lower prices in eight out of nine usage baskets. The EU27 shows similar price patterns with the UK forthree of the converged bundles. The USA, Norway and Japan exhibit significantly higher prices than the rest of the countries among converged bundles.

1.1.4. Results: Mobile broadband baskets

The baskets defined here cover:

- **Mobile data-only** baskets in five different data – volume categories, ranked from very low (1 GB) to very high (50 GB).

Handset-based baskets defined in seven different baskets by the volume of data (GB) and the mobile voice telephony (number of calls) the average user requires. The values for Low, Medium, and High mobile voice consumption in number of calls are 30 calls, 100 calls and 300 calls, respectively.

Figure 5 – Price variation per offer category across the EU, country clusters (mobile broadband)

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
	1 GB mobile data with no calls	5 GB mobile data with no calls	10 GB mobile data with no calls	20 GB mobile data with no calls	50 GB mobile data with no calls	1 GB mobile data with 30 calls	5 GB mobile data with 30 calls	10 GB mobile data with 100 calls	20 GB mobile data with 300 calls	50 GB mobile data with 300 calls	20 GB mobile data with 30 calls	50 GB mobile data with 100 calls
RO	1	1	1	1	1	1	1	1	1	1	1	1
DK	1	1	1	1	2	1	1	1	1	1	2	1
FI	2	2	1	1	1	2	1	2	2	2	1	1
PL	1	2	1	2	2	3	2	1	1	1	2	1
ES	1	2	2	2	2	3	2	1	1	1	2	1
SI	2	3	1	2	2	2	2	1	1	1	2	2
IT	4	3	2	2	2	4	3	2	1	1	2	1
LT	2	3	3	2	2	2	2	2	2	2	3	2
FR	4	4	3	2	2	3	3	2	1	1	2	1
IE	4	4	2	2	2	4	3	2	1	1	2	1
BG	3	3	2	3	3	3	2	1	2	2	3	2
EE	1	1	2	3	4	1	2	2	3	3	4	3
LU	1	2	2	3	4	1	2	2	3	3	4	3
AT	2	3	2	3	4	3	2	1	2	3	3	3
CY	2	3	2	3	3	4	3	2	2	2	3	2
NL	3	4	3	2	3	3	3	2	2	2	2	2
SK	1	3	3	3	3	2	3	3	3	2	3	2
SE	3	3	3	2	3	2	3	2	2	3	3	3
EL	2	2	1	2	3	4	3	2	3	4	4	4
BE	2	4	3	3	4	3	3	2	2	3	3	3
DE	2	4	4	3	4	1	3	3	3	3	4	3
LV	3	3	2	2	3	4	4	3	3	3	4	3
HR	1	4	3	3	3	4	4	3	3	4	4	3
MT	4	4	3	4	4	4	3	2	3	3	4	3
PT	3	4	3	3	4	3	3	3	3	4	4	4
HU	2	3	3	3	4	3	4	4	4	4	4	4
CZ	2	4	4	4	4	4	4	4	4	4	4	4

Cluster Centres [EUR]

1	3.14	4.53	6.20	6.10	4.86	4.11	5.21	8.31	10.65	12.54	4.86	11.75
2	5.23	5.97	10.18	11.94	12.06	6.50	8.69	12.76	19.63	22.07	11.64	20.73
3	7.80	9.33	14.12	20.03	19.24	9.18	12.47	21.49	27.92	30.05	19.95	30.70
4	10.55	13.09	22.08	33.03	30.77	12.15	19.00	36.80	42.16	43.54	28.76	44.03

Number of cases in each cluster

1	8	3	6	3	2	5	3	7	8	8	2	8
2	10	5	9	11	8	5	8	13	8	6	8	6
3	5	10	10	11	8	9	12	5	9	8	7	9
4	4	9	2	2	9	8	4	2	2	5	10	4

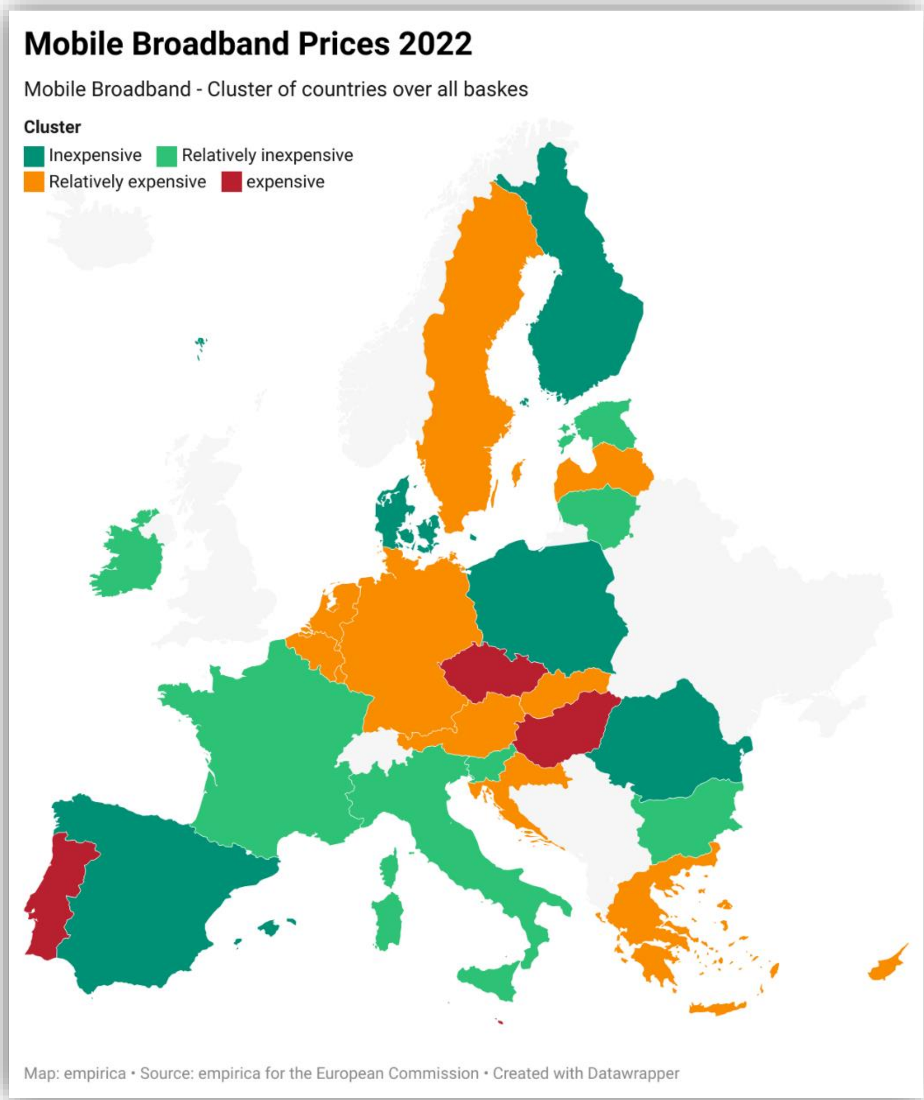
Dark green symbol 1 – inexpensive cluster
Light green symbol 2 - relatively inexpensive cluster
Yellow symbol 3 – relatively expensive cluster
Red symbol 4 – expensive cluster

- The most **inexpensive** offers among all usage baskets are found in Romania, Denmark and Finland, with an average cluster membership score[6] of 1.5 or less. Romania has all its offers belonging to the inexpensive cluster.
- The **relatively inexpensive** cluster is made up of Poland, Spain Slovenia, Italy, Lithuania, France, Ireland, Bulgaria, Estonia, and Luxembourg. These countries have an average cluster membership score of 2.5 or less. Poland, Spain, and Slovenia have at least four offers belonging to the inexpensive cluster.
- France and Ireland show particularly attractive prices for the high and very high individual handheld mobile baskets (20 GB and >100 voice calls).
- The **relatively expensive** offers are found in the following countries: Luxembourg, Austria, Cyprus, the Netherlands, Sweden, Slovakia, Greece, Belgium, Germany, Latvia, and Croatia.
- The **expensive** cluster is made up of Portugal, Malta, Hungary, and Czechia.

Averaging all the baskets of mobile broadband usage and distinguishing the four main clusters, we get the pattern shown in the map, Figure 6 below.

[6] The *average cluster membership score* is the average of the cluster memberships (ranging from 1 to 4) of a country across all twelve baskets.

Figure 6 – Major clusters of countries by price level over all usage baskets (mobile broadband)



Development of prices

According to the information provided in the table below, mobile broadband prices have decreased compared to October 2021. On average, prices for mobile broadband across all baskets are approximately 15% lower. The first two usage baskets have experienced significant price declines in comparison to the previous year. Specifically, the EU average price for the 1 GB basket has experienced a decline of 18.6%, while the 5 GB basket has seen a decline of 13.4%. These price reductions indicate more affordable mobile broadband options for consumers with lower data consumption. Furthermore, it is evident that the most considerable decrease in EU average mobile broadband prices is observed in the highest data allowance basket, with prices approximately 24.1% lower compared to the previous year. This indicates a substantial reduction in prices for mobile broadband plans with higher data allowances, offering more value for consumers.

Table 1 – Development of mobile broadband prices

Basket	Least expensive [EUR/PPP]	EU27 average 2022 [EUR/PPP]	EU27 average 2021 [EUR/PPP]	Variation 2022/21
1 GB	1.81	5.88	6.97	-18.6%
5 GB	3.81	9.43	10.69	-13.4%
10 GB	3.81	11.64	12.78	-9.8%
20 GB	3.81	16.15	17.38	-7.6%
50 GB	3.81	19.89	24.69	-24.1%

Comparing the average prices of handset baskets in the EU27, we observe a consistent decrease in prices across all baskets, ranging from -3% (1 GB, 30 calls) to -22% (10 GB, 100 calls) compared to 2021.

Table 2 – Development of mobile broadband and voice prices

Basket	Least expensive [EUR/PPP]	EU27 average 2022 [EUR/PPP]	EU27 average 2021[EUR/PPP]	Variation 2022/21
1 GB, 30 calls	3.71	8.63	8.85	-3%
5 GB, 30 calls	3.81	11.52	13.44	-17%
10 GB, 100 calls	3.81	15.02	18.29	-22%
20 GB, 300 calls	4.85	21.41	24.69	-15%
50 GB, 300 calls	4.85	25.59	29.55	-15%
20 GB, 30 calls	3.81	19.64	23.72	-21%
50 GB, 100 calls	3.81	24.86	29.45	-18%

The EU compared with selected non-EU countries

Mobile Broadband prices in the EU27 are on average more expensive than in the UK, among all usage baskets (apart from the lowest basket – 1 GB, 30 calls), and more expensive than in Iceland for the handset-based baskets. South Korea, Japan and the USA have significantly higher prices for the majority of mobile broadband usage baskets.

1.2. Français

1.2.1. Introduction

L'étude présente des données complètes sur les prix de détail en 2022 des offres de haut débit fixe et mobile pour les clients de l'UE27, du Royaume-Uni, de l'Islande, de la Norvège, du Japon, de la Corée du Sud et des États-Unis. Les cinq plus grands fournisseurs d'accès à Internet (FAI) et les deux ou trois plus grands opérateurs de réseaux mobiles (ORM) de chaque pays ont été inclus. Les données ont été collectées sur les sites web des FAI et des ORM sur une période de trois semaines, du 5 au 26 octobre 2022.

Les paniers définis dans cette étude sont conformes aux recommandations émises par l'Organe des Régulateurs Européens des Communications Électroniques (ORECE). L'ensemble des paniers couvre 5 paniers fixes à large bande de différentes vitesses de téléchargement et 5 paniers mobiles à large bande (pour utilisation sur tablette/modem/carte de données) de différents volumes de téléchargement achetés individuellement (autonomes), 7 paniers mobiles individuels de téléphonie vocale et un ensemble de 17 paniers pour les ménages représentatifs.

Les paniers d'utilisation de cette étude ont été mis à jour pour mieux refléter la structure actuelle du marché et la demande des consommateurs. Au fur et à mesure que le secteur des télécommunications évolue, les nouvelles technologies, les demandes de données plus élevées et les préférences changeantes des consommateurs façonnent le marché.

Pour assurer une comparaison transnationale valable des prix de détail des offres de haut débit fixe et mobile dans chaque paquet et chaque panier, **des procédures de normalisation des prix ont été appliquées**. Celles-ci prennent en considération des caractéristiques telles que les frais uniques, les limites de volume, les rabais, les différentes durées de contrat et les limites de temps d'appel téléphonique et de volume de données.

1.2.2. Résultats: Paniers à large bande fixe

Les paniers définis ici comprennent:

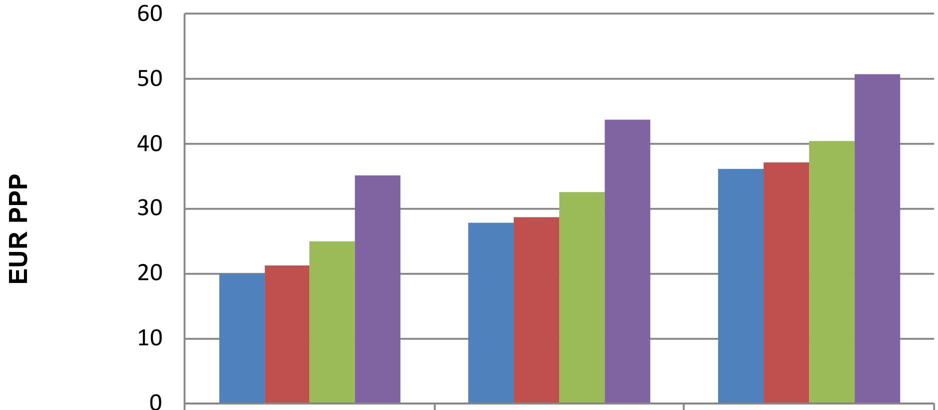
- **Le haut débit fixe autonome** (sans services de téléphonie, de télévision ou mobile) dans cinq catégories de vitesse, de faible (10 - 30 Mbps) à très élevée (≥1 Gbps).
- **Double Play avec téléphonie fixe** dans quatre catégories de vitesse, de faible (30 - 100 Mbps) à très élevée (≥1 Gbps).
- **Triple Play avec téléphonie fixe et télévision**. La gamme de haut débit fixe varie de faible (30 - 100 Mbps) à très élevée (≥1 Gbps).

Prix 2022 dans l'UE pour les offres de haut débit fixe

La Figure 7 montre la moyenne dans l'UE des prix les plus bas constatés dans chaque pays pour chacun des trois forfaits de services et pour les quatre paniers de vitesse supérieurs à 30 Mbps. L'impact sur les prix de la valeur ajoutée par l'augmentation de la vitesse est clairement visible – voir la section 4.1.8 (en anglais) pour une discussion de ces « primes de vitesse » – tout comme l'augmentation de prix due au regroupement des services de télévision et de téléphonie fixe avec l'internet autonome – voir la section 4.1.9 (en anglais) pour plus de détails sur les « primes de regroupement ».[7]

[7] Veuillez noter que les offres de 1 Gbps et plus ne sont pas disponibles dans tous les pays de l'UE27.

Figure 7 – Moyenne de l'UE27 des prix les plus bas pour chaque forfait de services sur quatre paniers de vitesse

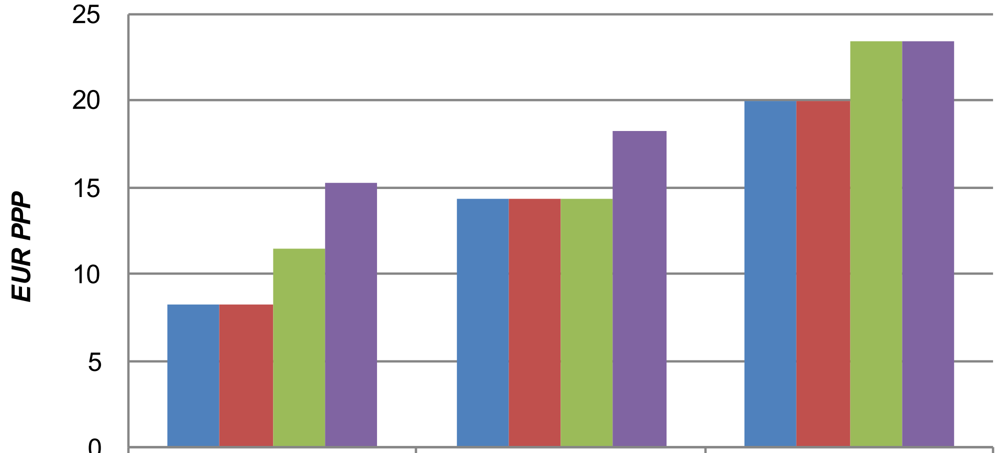


	Standalone	Doube Play | Téléphonie	Triple Play
≥30 - <100 Mbps	€19,96	€27,84	€36,12
≥100 - <200 Mbps	€21,32	€28,73	€37,20
≥200 - <999 Mbps	€24,94	€32,60	€40,37
≥ 1 Gbps Mbps	€35,17	€43,73	€50,65

La Figure 8 montre le prix le plus bas constaté dans l'UE pour chaque forfait de services et chaque panier de vitesse. On voit que l'internet fixe standalone à plus de 30 Mbps peut être acheté à un prix normalisé de seulement 8,24 € par mois (PPP)[8] dans au moins un pays. Les offres de services Double Play commencent à 14,40 € par mois (PPP)[9], le prix le plus bas en Europe pour les offres groupées de services Triple Play à plus de 30 Mbps est de 19,99 € (PPP)[10].

[8] Cette offre n'est disponible qu'en Finlande.
[9] Cette offre n'est disponible qu'en Bulgarie.
[10] Cette offre n'est disponible qu'en Lituanie.

Figure 8 – Les prix les plus bas en termes absolus dans l'UE27 pour chaque forfait de services sur quatre paniers de vitesse



	Standalone	Double Play | Telephony	Triple Play
≥30 - <100	€8.24	€14.40	€19.99
≥100 - <200	€8.24	€14.40	€19.99
≥200 - <999	€11.48	€14.40	€23.45
≥ 1 Gbps	€15.31	€18.23	€23.45

Pour présenter un tableau plus complet, sans introduire la distraction de petites différences de prix, quatre groupes de pays ont été identifiés[11] dans chaque catégorie d'offre, c'est-à-dire pour chaque combinaison de forfait de services et de panier de vitesse, sur la base des prix de l'offre la moins chère dans la catégorie de forfait/panier dans chaque pays.

La Figure 9 montre les résultats. Une balle verte foncée (1) dans une catégorie de forfait/panier correspond aux pays du cluster ayant des offres peu coûteuses pour cette catégorie, une balle rouge (4) aux pays du cluster d'offres coûteuses dans une catégorie de forfait/panier. Les balles vertes claires (2) indiquent des groupes d'offres relativement peu coûteuses, les balles oranges (3) des niveaux de prix relativement coûteux. Un tiret signifie qu'aucune offre n'a été collectée en 2022 dans cette catégorie d'offres et dans ce pays.

[11] La mise en clusters k-means a été utilisée avec k=4; les observations (catégories d'offre) sont attribuées aux clusters de manière à minimiser la distance euclidienne carrée moyenne des observations à chaque centroïde de cluster.

Figure 9 – Variation des prix par catégorie d'offre dans l'UE, clusters de pays

	Single Play					Double Play				Triple Play			
	≥10 - <30 Mbps internet fixe	≥30 - <100 Mbps internet fixe	≥100 - <200 Mbps internet fixe	≥200 - <999 Mbps internet fixe	≥ 1 Gbps internet fixe	≥30 - < 100 Mbps internet fixe avec téléphonie fixe	≥100 - <200 Mbps internet fixe avec téléphonie fixe	≥200 - <999 Mbps internet fixe avec téléphonie fixe	≥ 1 Gbps internet fixe avec téléphonie fixe	≥30 - < 100 Mbps internet fixe avec téléphonie fixe et TV	≥100 - <200 Mbps internet fixe avec téléphonie fixe et TV	≥200 - <999 Mbps internet fixe avec téléphonie fixe et TV	≥ 1 Gbps internet fixe avec téléphonie fixe et TV
RO	1	1	1	1	1	1	1	1	1	1	1	1	1
LT	1	1	1	1	1	1	1	2	1	1	1	1	1
FI	1	1	1	1	2	-	-	-	-	-	-	-	-
LV	2	1	1	1	1	1	1	2	2	1	1	2	1
BG	1	1	2	1	2	1	1	2	2	1	1	2	2
HU	2	2	2	1	1	1	2	2	2	1	1	1	1
SK	2	1	1	1	1	1	2	2	1	2	2	2	1
CZ	2	1	1	1	1	1	1	2	2	2	2	2	2
PL	2	2	2	1	1	1	2	2	2	2	2	2	1
ES	3	3	3	2	2	1	2	2	1	2	2	2	1
SI	3	3	3	2	2	1	2	2	2	2	2	2	2
IT	4	3	3	2	2	2	2	2	1	3	2	2	1
FR	4	3	3	2	2	2	3	2	2	2	2	2	1
DE	3	3	3	2	3	2	2	3	3	2	2	3	2
LU	2	2	2	3	3	2	2	3	2	4	3	3	2
HR	4	4	4	2	2	2	2	2	2	3	3	3	2
SE	3	2	2	2	3	1	2	3	3	4	3	4	3
DK	3	2	2	1	1	3	3	3	3	4	4	4	3
CY	4	4	4	3	2	2	3	3	2	3	3	3	2
EL	4	3	4	4	4	1	2	3	4	2	2	3	-
MT	4	3	4	4	3	3	3	3	3	2	2	3	2
EE	3	3	4	3	3	2	3	3	4	3	3	3	4
AT	3	2	4	3	4	2	4	4	4	3	3	4	4
IE	4	4	4	3	3	4	4	3	3	4	4	4	3
NL	4	4	4	3	3	4	4	4	3	4	4	4	3
PT	4	4	4	4	3	3	4	4	3	4	4	4	3
BE	4	3	4	3	4	4	4	4	4	4	4	4	4

Centroïde de cluster [EUR]

1	10.77	11.90	11.92	15.42	20.58	21.31	18.08	14.40	24.90	22.84	23.39	24.57	31.99
2	14.34	16.42	15.88	26.02	30.32	28.51	25.60	25.13	33.63	31.42	32.17	31.28	45.35
3	19.22	23.28	22.65	32.55	40.89	35.64	32.18	36.05	47.36	37.71	42.83	42.59	62.30
4	26.60	29.51	29.54	36.37	71.69	44.35	42.77	51.50	86.17	50.48	54.29	56.58	101.32

Nombre de cas dans chaque cluster

1	4	7	6	10	8	12	5	1	5	5	5	3	9
2	6	6	6	7	8	8	11	12	10	9	10	9	8
3	7	9	5	7	8	3	5	9	7	5	6	7	5
4	10	5	10	3	3	3	5	4	4	7	5	7	3

Balles vertes foncées 1 – cluster peu coûteux
Balles vertes claires 2 – cluster relativement peu coûteux
Balles oranges 3 – cluster relativement coûteux
Balles rouges 4 – cluster coûteux

Voici les regroupements généraux par pays qui peuvent être observés:

- Dans l'ensemble, la Roumanie et la Lituanie proposent les prix les plus attractifs pour l'internet à large bande dans l'UE. Toutes les offres en Roumanie font partie du cluster peu coûteux dans leurs paniers respectifs.
- La Finlande, la Lettonie, la Bulgarie et la Hongrie suivent. L'Espagne et la Slovénie proposent des prix bas, notamment pour les offres Double et Triple Play.
- La Grèce et Malte ont tendance à proposer des prix attractifs pour les offres Triple Play à bande passante plus faible, mais elles ont également tendance à figurer dans le cluster des pays les plus chers pour les offres Single Play.

L'Irlande, les Pays-Bas, le Portugal et la Belgique n'ont pas d'offres dans les clusters des pays peu et relativement peu coûteux.

Évolution des prix

Au niveau de l'Union européenne, on constate une diminution globale des prix par rapport à l'année dernière pour les offres dans la catégorie de vitesse de ≥100 Mbps.

- Au niveau de l'UE, on constate une baisse générale des prix par rapport à l'année dernière pour les offres dans les catégories de vitesse ≥100 Mbps.
- Une baisse de prix a été observée pour le Single Play 30 - 100 Mbps, tandis que les offres Double Play et Triple Play ont connu une légère augmentation (respectivement 1,69 % et 2,42 %) par rapport à l'année précédente.
- Les changements les plus remarquables sont observés dans les offres Single Play offrant des vitesses allant de 100 Mbps à 999 Mbps, où les prix ont diminué d'environ 9 %.
- Dans la catégorie du gigabit, les offres Triple Play ont enregistré une baisse plus significative, avec une diminution d'environ 4,14 % des prix.

L'UE comparée à certains pays non-UE

La comparaison des prix entre l'UE27 et certains pays non européens en 2022 offre le tableau suivant:

- La région de l'UE27 se démarque en proposant des prix abordables, notamment pour les offres Single Play en dessous de 999 Mbps.
- Le Japon se distingue avec des prix particulièrement attractifs pour les offres Single, Double et Triple Play en gigabit, suivi de près par l'UE27.
- Par rapport à la région de l'UE27, les prix à la consommation de tous les paniers sont plus élevés en Corée, en Norvège, en Islande et aux États-Unis.

1.2.3. Résultats : Paniers convergents à large bande

Conformément à l'Organe des régulateurs européens des communications électroniques (ORECE), les paniers convergents comprennent à la fois la téléphonie et le haut débit mobile et les besoins des ménages en haut débit fixe tels que définis dans les paniers représentatifs des ménages HH9 à HH17 (voir section 3.1.1, tableau 3. Vue d'ensemble de tous les paniers de consommation et de leurs éléments). Tous les paniers comprennent la téléphonie fixe et mobile et deux des paniers sont pour les services mobiles avec deux cartes SIM actives. L'utilisation de deux cartes SIM représente la demande d'un ménage de deux personnes, chacune utilisant une carte SIM et ayant son propre profil d'utilisation. La normalisation des prix suppose l'utilisation de deux fois la gamme Mobile Broadband (haut débit mobile) et de deux fois la gamme Mobile Voice (voix sur mobile) indiquée.

Quand un panier nécessitait à la fois du haut débit mobile et du haut débit fixe pour le même ménage et qu'aucune offre ne correspondait à un panier convergent, des combinaisons d'offres (offres synthétisées) ont été identifiées qui, ensemble, répondaient aux besoins des clients pour le panier donné.

Prix 2022 dans l'UE pour les forfaits convergents

Figure 10 – Variation des prix par catégorie d'offre dans l'UE, clusters de pays

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
	≥30 - <100 Mbps internet fixe avec téléphonie fixe et 1 SIM, 30 appels, 5 Go données mobiles	≥100 - <200 Mbps internet fixe avec téléphonie fixe et 1 SIM, 30 appels, 5 Go données mobiles	≥100 - <200 Mbps internet fixe avec téléphonie fixe et 2 SIM, 100 appels, 10 Go données mobiles	≥100 - <200 Mbps internet fixe avec téléphonie fixe et TV avec 1 SIM, 100 appels, 10 Go données mobiles	≥200 - <999 Mbps internet fixe avec téléphonie fixe et 1 SIM, 100 appels, 10 Go données mobiles	≥200 - <999 Mbps internet fixe avec téléphonie fixe et 1 SIM, 300 appels, 20 Go données mobiles	≥200 - <999 Mbps internet fixe avec téléphonie fixe et TV avec 1 SIM, 300 appels, 20 Go données mobiles	≥200 - <999 Mbps internet fixe avec téléphonie fixe et TV avec 2 SIM, 300 appels, 20 Go données mobiles	≥ 1 Gbps internet fixe avec téléphonie fixe et TV avec 1 SIM, 300 appels, 20 Go données mobiles
RO	1	1	1	1	1	1	1	1	1
LT	1	1	2	1	1	1	2	2	2
BG	1	1	2	1	1	1	2	2	3
ES	2	2	2	2	1	1	1	1	2
PL	2	2	2	2	1	1	1	1	2
SI	2	2	2	2	1	1	2	1	2
IT	2	2	3	2	1	1	2	2	2
FR	3	3	3	2	2	1	2	1	2
LV	3	3	3	2	2	2	3	3	2
SK	2	2	4	3	3	2	3	3	2
CY	3	3	3	3	2	2	3	3	3
DK	3	3	3	4	2	1	4	2	3
SE	2	2	3	3	3	2	4	3	3
DE	3	3	3	3	3	2	3	3	3
IE	4	4	3	3	3	2	3	2	2
LU	2	2	3	3	2	3	4	4	3
MT	3	3	3	2	3	3	3	3	3
HR	3	3	4	3	3	2	3	3	3
EE	2	3	3	3	3	3	4	3	4
HU	3	3	4	3	3	2	3	4	3
AT	3	4	3	3	3	2	4	3	4
EL	3	3	3	3	3	3	4	4	-
CZ	3	3	4	4	3	3	4	4	3
NL	4	4	4	4	4	3	4	3	3
PT	4	4	4	4	4	4	4	3	3
BE	4	4	4	4	4	4	4	4	3
FI	-	-	-	-	-	-	-	-	-

Centroïde de cluster [EUR]

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
1	23.64	24.57	22.02	31.95	32.20	37.13	36.27	49.62	28.30
2	34.00	33.88	41.20	42.71	44.97	54.16	45.53	67.98	51.59
3	41.29	41.75	56.92	55.39	51.55	64.42	62.05	91.43	76.18
4	53.94	53.17	76.92	67.17	65.33	79.76	74.22	107.61	129.41

Nombre de cas dans chaque cluster

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
1	3	3	1	3	7	9	3	5	1
2	8	7	5	7	5	9	5	5	9
3	11	11	13	11	11	6	8	11	13
4	4	5	7	5	3	2	10	5	2

Balles vertes foncées 1 – cluster peu coûteux
Balles vertes claires 2 – cluster relativement peu coûteux
Balles oranges 3 – cluster relativement coûteux
Balles rouges 4 – cluster coûteux

Certains groupes deviennent clairs dans ce diagramme:

- La Roumanie propose les prix les plus attractifs pour les offres convergentes dans l'UE. Toutes les offres de ce pays font partie du cluster peu coûteux.
- La majorité des offres en Lituanie et en Bulgarie font partie du cluster peu coûteux dans les paniers respectifs.
- L'Espagne, la Pologne, la Slovénie et l'Italie suivent. L'Espagne et la Pologne offrent des prix particulièrement bas pour les offres Triple Play et Quadruple Play dans la catégorie de vitesse 200 - 999 Mbps.
- La Grèce, la Tchéquie, les Pays-Bas, le Portugal et la Belgique n'ont pas d'offres appartenant aux deux catégories les moins chères.

Évolution des prix

Au niveau de l'Union européenne, les prix sont devenus moins chers que l'année dernière dans tous les paniers ménagers, quelle que soit la catégorie d'utilisation/vitesse.

- Les changements les plus significatifs en termes de tarification peuvent être observés dans le panier HH11 (Internet fixe 100 - 200 Mbps avec téléphone fixe et 2 cartes SIM, 100 appels et 10 Go de données mobiles), où le prix a baissé de 27,1 %.
- De même, le panier HH13 (Internet fixe 200 - 999 Mbps avec téléphone fixe et 1 carte SIM, 100 appels et 10 Go de données mobiles) a connu une baisse de prix moyenne significative de 24,2 %.
- La diminution des prix pour le reste des paniers ménagers varie de 14,6 % dans le panier HH9 (Internet fixe 30 - 100 Mbps avec téléphone fixe et 1 carte SIM, 30 appels et 5 Go de données mobiles) à 19,2 % dans le panier HH16 (Internet fixe 200 - 999 Mbps avec téléphone fixe et TV avec 2 cartes SIM, 300 appels et 20 Go de données mobiles).

L'UE comparée à certains pays non-UE

Les prix de tous les forfaits convergents sont plus bas dans l'UE27 qu'aux États-Unis, en Norvège, en Islande, au Japon, en Corée du Sud, à l'exception du Royaume-Uni qui affiche systématiquement des prix plus bas dans différentes catégories d'utilisation. L'UE27 présente des schémas de prix similaires à ceux du Royaume-Uni pour trois des forfaits convergents. Les États-Unis, la Norvège et le Japon affichent des prix significativement plus élevés que le reste des pays pour les forfaits convergents.

1.2.4. Résultats: Paniers du haut débit mobile

Les paniers définis ici comprennent :

- Des **paniers de données mobiles** dans cinq catégories allant de très faible (1 Go) à très élevé (50 Go).

Les **paniers basés sur les téléphones portables** sont définis dans sept paniers différents selon le volume de données et la téléphonie mobile. Les valeurs pour les minutes d'appel basses, moyennes et hautes pour la téléphonie mobile sont respectivement de 30, 100 et 300.

Prix 2022 dans l'UE pour le haut débit mobile

Figure 11 – Variation des prix par catégorie d'offre dans l'UE, clusters de pays

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
	1 Go données mobiles sans appels	5 Go données mobiles sans appels	10 Go données mobiles sans appels	20 Go données mobiles sans appels	50 Go données mobiles sans appels	1 Go données mobiles avec 30 appels	5 Go données mobiles avec 30 appels	10 Go données mobiles avec 100 appels	20 Go données mobiles avec 300 appels	50 Go données mobiles avec 300 appels	20 Go données mobiles avec 30 appels	50 Go données mobiles avec 100 appels
RO	1	1	1	1	1	1	1	1	1	1	1	1
DK	1	1	1	1	2	1	1	1	1	1	2	1
FI	2	2	1	1	1	2	1	2	2	2	1	1
PL	1	2	1	2	2	3	2	1	1	1	2	1
ES	1	2	2	2	2	3	2	1	1	1	2	1
SI	2	3	1	2	2	2	2	1	1	1	2	2
IT	4	3	2	2	2	4	3	2	1	1	2	1
LT	2	3	3	2	2	2	2	2	2	2	3	2
FR	4	4	3	2	2	3	3	2	1	1	2	1
IE	4	4	2	2	2	4	3	2	1	1	2	1
BG	3	3	2	3	3	3	2	1	2	2	3	2
EE	1	1	2	3	4	1	2	2	3	3	4	3
LU	1	2	2	3	4	1	2	2	3	3	4	3
AT	2	3	2	3	4	3	2	1	2	3	3	3
CY	2	3	2	3	3	4	3	2	2	2	3	2
NL	3	4	3	2	3	3	3	2	2	2	2	2
SK	1	3	3	3	3	2	3	3	3	2	3	2
SE	3	3	3	2	3	2	3	2	2	3	3	3
EL	2	2	1	2	3	4	3	2	3	4	4	4
BE	2	4	3	3	4	3	3	2	2	3	3	3
DE	2	4	4	3	4	1	3	3	3	3	4	3
LV	3	3	2	2	3	4	4	3	3	3	4	3
HR	1	4	3	3	3	4	4	3	3	4	4	3
MT	4	4	3	4	4	4	3	2	3	3	4	3
PT	3	4	3	3	4	3	3	3	3	4	4	4
HU	2	3	3	3	4	3	4	4	4	4	4	4
CZ	2	4	4	4	4	4	4	4	4	4	4	4

Centroïde de cluster [EUR]

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
1	3.14	4.53	6.20	6.10	4.86	4.11	5.21	8.31	10.65	12.54	4.86	11.75
2	5.23	5.97	10.18	11.94	12.06	6.50	8.69	12.76	19.63	22.07	11.64	20.73
3	7.80	9.33	14.12	20.03	19.24	9.18	12.47	21.49	27.92	30.05	19.95	30.70
4	10.55	13.09	22.08	33.03	30.77	12.15	19.00	36.80	42.16	43.54	28.76	44.03

Nombre de cas dans chaque cluster

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
1	8	3	6	3	2	5	3	7	8	8	2	8
2	10	5	9	11	8	5	8	13	8	6	8	6
3	5	10	10	11	8	9	12	5	9	8	7	9
4	4	9	2	2	9	8	4	2	2	5	10	4

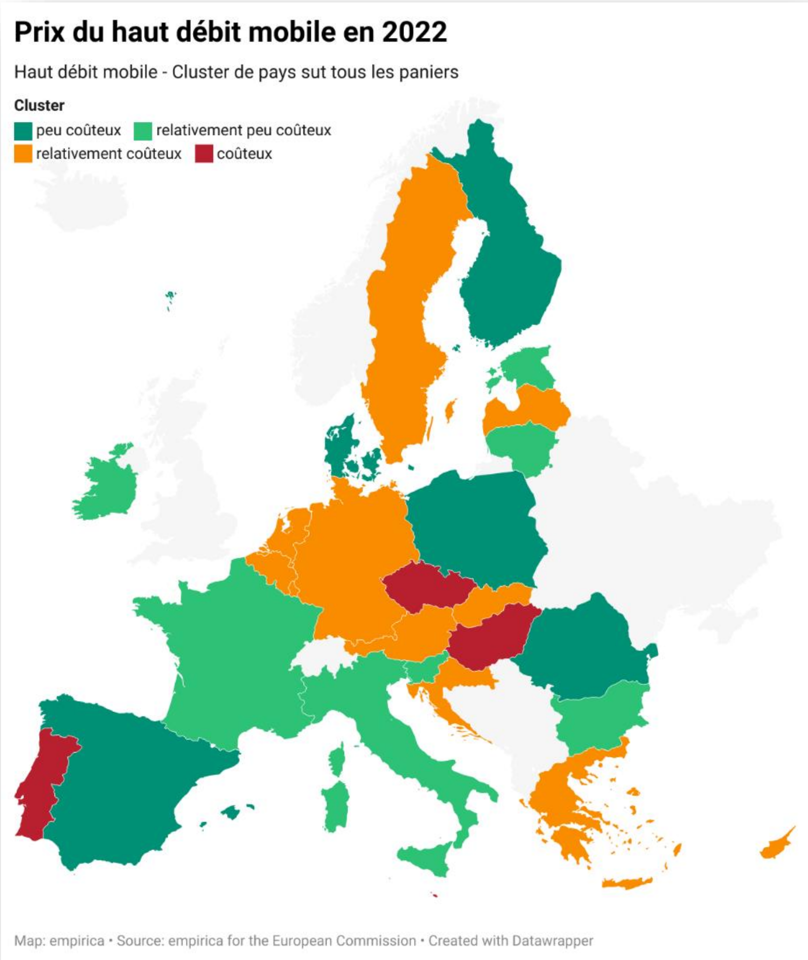
Balles vertes foncées 1 – cluster peu coûteux
Balles vertes claires 2 – cluster relativement peu coûteux
Balles oranges 3 – cluster relativement coûteux
Balles rouges 4 – cluster coûteux

- La Roumanie, le Danemark et la Finlande sont les pays qui proposent les offres les **moins chères** parmi tous les paniers d'utilisation, avec un score moyen d'appartenance à un cluster[12] de 1,5 ou moins. Toutes les offres de la Roumanie appartiennent au groupe des offres bon marché.
- La Pologne, l'Espagne, la Slovénie, l'Italie, la Lituanie, la France, l'Irlande, la Bulgarie, l'Estonie et le Luxembourg suivent avec un score moyen d'appartenance à un cluster de 2,5 ou moins. La Pologne, l'Espagne et la Slovénie ont au moins quatre offres appartenant au cluster peu coûteux.
- La France et l'Irlande proposent des prix particulièrement attractifs pour les paniers individuels haut de gamme (20 Go et plus et 100 appels).
- Les pays **relativement coûteux** sont le Luxembourg, l'Autriche, Chypre, les Pays-Bas, la Suède, la Slovaquie, la Grèce, la Belgique, l'Allemagne, la Lettonie et la Croatie.
- Les pays **chers** sont le Portugal, Malte, la Hongrie et la Tchéquie.

En moyennant tous les paniers d'utilisation du haut débit mobile et en distinguant les quatre principaux regroupements, nous obtenons le schéma représenté sur la carte, Figure 12, ci-dessous.

[12] Le *score moyen d'appartenance à un cluster* est la moyenne des appartenances à un cluster (allant de 1 à 4) d'un pays dans l'ensemble des douze paniers.

Figure 12 – Principaux clusters de pays par classe de prix sur tous les paniers d'utilisation (haut débit mobile)



Évolution des prix

Selon les informations fournies dans le tableau ci-dessous, les prix du haut débit mobile ont diminué par rapport à octobre 2021. En moyenne, les prix du haut débit mobile pour tous les paniers sont inférieurs d'environ 15 %. Les deux premiers paniers d'utilisation ont connu des baisses de prix significatives par rapport à l'année précédente. Plus précisément, le prix moyen dans l'UE pour le panier de 1 GB a baissé de 18,6 %, tandis que le panier de 5 GB a baissé de 13,4 %. Ces baisses de prix indiquent que les options de haut débit mobile sont plus abordables pour les consommateurs qui consomment moins de données. En outre, il est évident que la baisse la plus importante des prix moyens du haut débit mobile dans l'UE est observée dans le panier de données le plus élevé, avec des prix inférieurs d'environ 24,1 % par rapport à l'année précédente. Cela indique une réduction substantielle des prix pour les forfaits de téléphonie mobile à haut débit avec des allocations de données plus élevées, offrant une plus grande valeur pour les consommateurs.

Tableau 1 – Évolution des prix pour le haut débit mobile

Panier	Moins coûteux [EUR/PPP]	Moyenne EU27 (Oct.) 2022 [EUR/PPP]	Moyenne EU27 (Oct.) 2021 [EUR/PPP]	Variation 2022/21
500 Mo	1.81	5.88	6.97	-18.6%
1 Go	3.81	9.43	10.69	-13.4%
2 Go	3.81	11.64	12.78	-9.8%
5 Go	3.81	16.15	17.38	-7.6%
20 Go	3.81	19.89	24.69	-24.1%

La comparaison de la moyenne de l'UE27 dans les paniers de combinés révèle une tendance similaire. Les prix sont sensiblement plus bas qu'en 2021 dans tous les paniers, allant de -3 % (500 Mo, 30 appels) à -22 % (20 Go, 100 appels).

Tableau 2 – Évolution des prix pour les paniers du haut débit mobile avec téléphonie

Panier	Moins coûteux [EUR/PPP]	Moyenne EU27 (Oct.) 2022 [EUR/PPP]	Moyenne EU27 (Oct.) 2021[EUR/PPP]	Variation 2022/21
500 Mo, 30 appels	3.71	8.63	8.85	-3%
1 Go, 30 appels	3.81	11.52	13.44	-17%
2 Go, 100 appels	3.81	15.02	18.29	-22%
5 Go, 300 appels	4.85	21.41	24.69	-15%
20 Go, 300 appels	4.85	25.59	29.55	-15%
5 Go, 30 appels	3.81	19.64	23.72	-21%
20 Go, 100 appels	3.81	24.86	29.45	-18%

L'UE comparée à certains pays non-UE

Le haut débit mobile dans l'UE27 est en moyenne plus cher qu'au Royaume-Uni, pour tous les paniers d'utilisation (à part le panier le plus bas - 1 GB, 30 appels), et qu'en Islande pour les paniers mobiles. La Corée du Sud, le Japon et les États-Unis affichent des prix nettement plus élevés pour tous les paniers d'utilisation du haut débit mobile.

A note on the limitations of the study

Readers are advised to note some limitations of the information presented in this report:

- The data on the offers for fixed and mobile internet services in 2022 represents a snapshot of prices, limited to three weeks in October 2022.
- All reasonable steps were taken to obtain a complete data set for each offer; however, some gaps remain.[13]
- Following the consistent methodology agreed with the European Commission (EC), only offers advertised and purchasable on providers' websites were considered. In consequence, offers which may have been referred to in documents on the website but which were not available for sale on the website were not included in the analysis.
- Offers from a maximum of five internet service providers (ISPs) per country were considered. The ISPs selected were those with the largest market share, determined after consultation with the relevant National Regulatory Authorities (NRAs). This ensures that the selected offers are representative even though a small proportion of customers may subscribe to cheaper offers of ISPs, which were not considered.
- Only the three largest Mobile Network Operators (MNOs) in a country (except when only two operators are available in a country) have been included. Although those MNOs combined have a market share of at least 70% and this ensures that the selected offers are representative, it remains possible that a smaller MNO or Mobile Virtual Network Operator (MVNO) has a less expensive offer for one or more mobile broadband usage baskets.
- Where an ISP/MNO sets different prices for the same offer so that prices vary by city or region, a sample of 5-15 locations was drawn, and the mode of the sampled prices recorded as the price of the offer in the country concerned[14].
- The data represents only offers as advertised. Moreover, the advertised speeds reported cannot be taken as a reliable guide to speeds experienced by customers.
- The usage baskets have been developed together with BEREC based on the usage patterns of the EU countries. Nevertheless, not all baskets may be representative in each country. The selected offers with the least expensive prices may not necessarily be the ones with the highest sales volume in the market.
- For mobile broadband services, up to two add-ons/top-ups were included for each tariff. In some markets, like Greece, consumers willing to research an optimal, larger number of add-ons/top-ups may be able to save a little more.
- This study does not include aspects of quality of service.

[13] Gaps include, in several, cases missing download speeds, missing upload speeds and missing information on type of technology. Some price information had to be simplified.

[14] Sample sizes were 5 - 10 in the USA, 10 - 15 in European countries.

2. INTRODUCTION

2.1. Overall study objectives

The overall objective of the study is to investigate the level of prices for standardised offers of fixed, mobile, and converged broadband services in the EU, the United Kingdom, Norway and Iceland, South Korea and Japan, as well as three states of the United States of America (USA) – California, Colorado and New York.

The price of fixed and mobile broadband services in any country can be an informative indicator of key developments within the electronic communications retail market. As such, broadband prices are part of the European Commission's monitoring exercise in the context of the Digital Single Market strategy, launched in 2015. The monitoring activity is of great relevance to steering policy in this area, providing key resources for an evidence-based approach to policymaking.

The definition of baskets of consumer and household internet usage for international price comparison follows guidelines published by the Body of European Regulators for Electronic Communications (BEREC) in 2018[15]. The composition of baskets has also been informed by feedback provided on price comparison to date from national regulators and related market research and analysis of global price patterns.

The complete set of baskets is to represent the full range of current consumer usage of internet services in Europe. Baskets are defined in terms of one or more service components such as mobile and fixed internet access, telephony or TV and the degree of usage of each component service.

The set of baskets covers fixed and mobile broadband services purchased individually (standalone), mobile broadband with voice telephony and a set of baskets for representative households.

The usage baskets in this study have been updated to better reflect the current market structure and consumers' demand. As the telecommunications industry evolves, new technologies, higher data demands, and changing consumer preferences shape the market. To accurately assess and compare broadband prices and offerings, it is important to adapt the usage baskets to reflect these changes. By considering factors such as data allowances, download speeds, and bundled services, the updated usage baskets provide a more accurate representation of the broadband services available in the market and align with the evolving needs of consumers.

2.2. Monitoring internet prices in Europe

This study took place as a continuation of the annual cycle of the European Commission's monitoring of retail prices of broadband internet access, which has been in place since 2007. The results are used to provide policy feedback and input for other benchmark instruments.

The focus of this study, which is not limited to fixed retail offers but also includes converged as well as mobile offers, is on the offers that are available to residential customers on broadband services. Fixed broadband services are supplied to homes via xDSL, cable modem, FTTx,

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[15] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

satellite or fixed wireless systems. Converged broadband services are a combination of fixed internet and additional bundled services such as fixed telephony or TV and a mobile component. Mobile internet service is delivered via LTE, 4G and in most of the countries through 5G.

Though fixed broadband internet access is sometimes provided as a standalone service, this basic service is often bundled with other services, such as telephony and web space. Three specific bundles of services, each of which includes fixed broadband internet access, were included in the study. The three specific "fixed bundles" are all combinations of fixed internet access with or without telephony and television, referred to as Single Play (or as "standalone" internet), Double Play with fixed telephony and Triple Play (fixed broadband internet, fixed telephony, and TV service).

For each offer, prices were analysed in each of the several download speed baskets, ranging from 144 Kbps to more than 200 Mbps. Offers at the lower limit, such as the ISDN Basic Rate Interface payload rate of 144 kbps[16] are now rare. As is evident from the targets set in the Digital Decade, the focus of the policy and towards the market has shifted to higher speeds of internet access. The results presented in this report therefore focus on offers in much higher speed baskets, from 10 Mbps upwards.

The study employs the representative household basket approach in line with BEREC guidelines[17]. The representative usage basket of a household always includes fixed broadband internet access and fixed telephony. Standalone baskets, as the name suggests, cover usage of either mobile or fixed internet access only. The approach is explained in more detail in Chapter 3.

Fixed and mobile broadband products were subject to separate annual EC price monitoring exercises and are now reported in combination.

Data was collected on broadband and mobile market offers across Europe and beyond to identify the least expensive offers for each bundle in a given country. Comprehensive data has been compiled on the 2022 retail prices of the fixed, converged and mobile broadband offers available by the largest Internet Service Providers in each country for consumers in the EU27, the United Kingdom, Iceland, Norway, Japan, South Korea and the USA. For intra-annual comparability and consistency, the data was collected from ISP websites during a period of three weeks in October 2022.

Consistent price normalisation procedures were applied to support valid cross-national comparison of retail prices of broadband offers in each bundle and basket. These procedures take into account a range of marketing, sales, service, and payment features such as one-off fees, discounts, different contract durations and varying telephony time limits. The prices were further normalised with Purchasing power parity.

Price normalisation did not involve the creation of fictitious or proxy offers. All offers that were considered were actual offers available on the market that consumers could buy. Consumer profiles were agreed upon with the Commission and applied to normalise actual service use where flat rates were not provided or would be often exceeded, causing greater costs. In line with this real customer view of the market, actual offers that provide more than a customer

[16] The ISDN Basic Rate Interface provides 144 kbit/s over a twisted pair line, comprising two 64 kbit/s bearer "B" channels and a 16 kbit/s signalling "D" channel.

[17] European Benchmark of the pricing of bundles – methodology guidelines - [BEREC Bundles Price methodology, October 4th 2018](#)

profile request (e.g. offers that have a faster speed or more services but are cheaper than offers which match the customer profile) were accepted as the lowest price offer for that profile.

2.3. Methodological approach

This section includes the methodology agreed with the European Commission for the monitoring of *Mobile and Fixed Broadband Prices in Europe* study, starting with the definition of usage baskets and describing the scope of data collection and the methodology for price normalisation.

The applied methods in this study are closely aligned with the guidelines set by BEREC[18]. A comparison with OECD guidelines[19] has allowed BEREC's outlined basket characteristics to be completed, including specific ranges of download speed and usage volumes. The composition of baskets has also been informed by up-to-date feedback from national regulators, related market research and analysis of global price patterns.

A clear set of criteria ensures the validity of the international comparisons made in this report and enables that the inclusion of offers and the procedure of the normalisation of prices can be rendered comparable. Comparisons made on the retail broadband prices cover a range of complex products taken across many different countries. Details of the methodology applied for this purpose are provided below.

[18] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

[19] OECD (2012-09-04), "Methodology for Constructing Wireless Broadband Price Baskets", OECD Digital Economy Papers, No. 205, OECD Publishing, Paris. http://dx.doi.org/10.1787/5k92wd5kw0nw-en

3. THE STUDY METHODOLOGY

3.1. The BEREC approach

In their 2018 Guidelines[20], BEREC proposed the development of "representative households" and "standalone" baskets. A representative household basket always includes fixed broadband internet access and fixed telephony. Standalone baskets, as the name suggests, cover usage of either mobile or fixed internet access only.

In order to simplify reporting with respect to the levels or intensity of usage - download volumes, numbers of calls etc. the baskets are defined using a general qualitative scale – very low, low, medium, high and very high - rather than specific volume or time boundaries. The values or ranges for download speeds or volumes corresponding to very high, high, medium, low or very low are not defined by BEREC. However, BEREC has made statistical data available to assist in drawing appropriate boundaries around baskets and data has been obtained from national regulatory authorities on the issue.

There are 17 different types of households' baskets that represent different levels of usage of fixed telephony services, TV services, mobile broadband internet access and mobile voice telephony. The set of representative household baskets includes several baskets related to "converged" offers, which are bundles of usage including both mobile broadband services (data and voice) and fixed access products. Some of these representative households may require two SIM cards for their mobile services. Combinations of fixed and mobile broadband services are proposed by BEREC since 2018. In line with the importance of converged bundles, more than half of the household baskets represent the usage of this kind of service bundle. The intention is to allow a more accurate comparison of offers in countries where mobile and fixed broadband services are bundled and countries where they are not.

The baskets defined thus include both classic Double Play with fixed telephony and Triple Play, as well as variants of Quadruple Play (fixed + mobile, converged baskets). Baskets covering Double Play with TV reported on in previous studies were not included in the set.

BEREC's[21] suggestion not to distinguish baskets with respect to the use of tablets or laptops is in line with previous practice.

3.1.1. Basket definition

The baskets defined for the study follow the guidelines issued by BEREC and have been updated to better reflect market composition and consumers demand (e.g., number of calls and call duration, minimum and maximum mobile broadband ranges). To complete the basket definitions in operational terms, usage intensity ranges are defined for all usage baskets.

In respect of volume caps, the set of ranges used in previous studies was updated by removing those with the smallest allowance/speed limits and adding categories with very high allowance/speed provided. Following BEREC guidelines[22], where a household requires only fixed services ("standalone") or only mobile services, a lower usage level is considered compared to household baskets which comprise both fixed and mobile services. In line with

[20] European Benchmark of the pricing of bundles – methodology guidelines (europa.eu)

[21] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

[22] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

this, there are five fixed broadband baskets of different download speeds and five mobile broadband baskets (for tablet/modem/data card use) of different download volumes.

Only baskets for private individuals and households are considered (Business offers are not included).

The following sections describe the baskets defined for:

- Fixed access
- Converged offers and
- Mobile broadband

Some of the abbreviations used, introduced by BEREC's guidelines, are:

- FBB — Fixed broadband; FV — Fixed voice; TV — Pay-TV; MBB — Mobile Broadband; I — Individual handheld mobile basket
- VL — Very Low; L — Low; M — Medium; H — High; VH — Very High.

An overview of all consumer baskets is provided in the table below while the following sections outline basket construction elements and their rationale.

Table 3. Overview of all consumer baskets and basket elements

Name	FBB range (Mbps)	FV	TV	Number of SIM cards	Mobile BB range	Mobile Voice range
FBB1	≥10 - <30	no	-	-	-	-
FBB2	≥30 - <100	no	-	-	-	-
FBB3	≥100 - <200	no	-	-	-	-
FBB4	≥200 - <999	no	-	-	-	-
FBB5	≥1 Gbps	no	-	-	-	-
HH1	≥30 - <100	yes	no	-	-	-
HH2	≥100 - <200	yes	no	-	-	-
HH3	≥200 - <999	yes	no	-	-	-
HH4	≥1 Gbps	yes	no	-	-	-
HH5	≥30 - <100	yes	yes	-	-	-
HH6	≥100 - <200	yes	yes	-	-	-
HH7	≥200 - <999	yes	yes	-	-	-
HH8	≥1 Gbps	yes	yes	-	-	-
HH9	≥30 - <100	yes	no	1	5 GB	30 calls
HH10	≥100 - <200	yes	no	1	5 GB	30 calls
HH11	≥100 - <200	yes	no	2	10 GB	100 calls
HH12	≥100 - <200	yes	yes	1	10 GB	100 calls
HH13	≥200 - <999	yes	no	1	10 GB	100 calls
HH14	≥200 - <999	yes	no	1	20 GB	300 calls
HH15	≥200 - <999	yes	yes	1	20 GB	300 calls

HH16	≥200 - <999	yes	yes	2	20 GB	300 calls
HH17	≥1 Gbps	yes	yes	1	20 GB	300 calls
MBB1	-	-	-	1	1 GB	-
MBB2	-	-	-	1	5 GB	-
MBB3	-	-	-	1	10 GB	-
MBB4	-	-	-	1	20 GB	-
MBB5	-	-	-	1	50 GB	-
I1	-	-	-	1	1 GB	30 calls
I2	-	-	-	1	5 GB	30 calls
I3	-	-	-	1	10 GB	100 calls
I4	-	-	-	1	20 GB	300 calls
I5	-	-	-	1	50 GB	300 calls
I6	-	-	-	1	20 GB	100 calls
I7	-	-	-	1	50 GB	30 alls

3.1.2. Fixed access and converged baskets

Baskets for standalone fixed broadband

In line with BEREC's guidelines, offers should be available in most countries with a minimum offered download speed matching that of BEREC's lowest download speed category, being 4-12 Mbps. While in previous years the lowest download speed category was 4-12 Mbps, this has been updated to better match the observed market structure and reflect consumer service demands with increasing data traffic (e.g., Netflix, 4K-TV, and Stream-On-Demand). Also, the 2021 study collected 86 offers in the 4-12 Mbps category, of which 27 had a download speed characteristic below 10 and represented offers in three countries only. Increasing demand for higher download speeds and the negligible amount of offers available at speeds below 10 Mbps, led to updates in the two lowest speed categories. As a minimum requirement, fixed offers must have a download speed characteristic of at least 10 Mbps. The range for the lowest speed category tops at 29.9 Mbps, while the next highest category starts at 30 Mbps.

The values for fixed broadband speed categories VL to VH are the following:

Table 4. Fixed broadband speed categories

FBB Speed	greater than (Mbps)	less than or equal to (Mbps)
VL	≥10	<30
L	≥30	<100
M	≥100	<200
H	≥200	<999
VH	≥1 Gbps	

Applying these categories, the baskets for standalone fixed broadband defined in the BEREC Guidelines are as follows:

Table 5. Standalone fixed broadband baskets

Name	Speed
FBB1	VL
FBB2	L
FBB3	M
FBB4	H
FBB5	VH

Metered fixed broadband offers (e.g., FWA or Satellite) are now relatively rare in the market. In the 2018 price monitoring study[23], such were found within the EU only in Belgium. Metering is more common outside the EU, e.g. in the USA. Based on feedback received from the NRAs, no data cap was included i.e. only unmetered offers were analysed (e.g., xDSL, DOCSIS, FTTx).

Table 6. Fixed broadband data cap

FBB Data cap	
VL	Unlimited
L	Unlimited
M	Unlimited
H	Unlimited
VH	Unlimited

Baskets for Double Play with telephony

The household baskets for fixed broadband (FBB) with fixed voice (FV) defined in the BEREC Guidelines[24] are differentiated by download speed categories and are as follows:

Table 7. Double Play fixed broadband and fixed voice baskets

Name	FBB range
HH1	L
HH2	M
HH3	H
HH4	VH

The single user usage profile compromise 14 and 6 calls per month to fixed and mobile lines, respectively, with calls of 5 minutes average duration in line with OECD data on fixed voice call durations[25].

[23] https://digital-strategy.ec.europa.eu/en/library/fixed-broadband-prices-europe-2018
[24] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018
[25] The Methodologies For The OECD Baskets – OECD, December 19th 2017

Baskets for Triple Play

The household baskets for fixed broadband (FBB) combined with fixed voice (FV) and TV as defined in the BEREC Guidelines[26] are differentiated by download speed categories and are as follows:

Table 8. Triple Play fixed broadband, fixed voice and TV baskets

Name	FBB range
HH5	L
HH6	M
HH7	H
HH8	VH

Triple Play baskets contain fixed broadband internet access (FBB), voice telephony (FV) and TV. The range of fixed broadband varies from Low to Very High based on the speed category. The values proposed for the categories of FBB range are those shown above.

For fixed voice telephony, again, the usage defined is in line with previous practice. A single user profile is applied, comprising 14 and 6 calls to fixed and mobile lines per month, respectively, with calls of 5 minutes average duration.

The representative households (baskets), defined in BEREC guidelines, include baskets with TV service included. No distinction is made based on the quality of television service. The wide variation and fast change in technology types, number of channels and quality of TV services included in offers across EU continue to make it difficult to select useful categories.

The information about different TV packages is not considered in basket definition or price normalisation. On the more formal point that TV programming as content is not an electronic communication service, BEREC considers that the only criterion related to TV services that should be taken into consideration is whether an offer includes multi-channel TV services (more than 5 channels) or not. Therefore, offers with high-value content are excluded from comparison, so that the benchmarking studies appropriately focussed on differences in the pricing of electronic communication services, not on differences in content provision.

Baskets for converged services

The BEREC Guidelines[27] proposed an extension of previous price monitoring that includes baskets consisting of both household requirements for mobile broadband and fixed broadband. This extension has been adopted into the future price monitoring basket sets, specifically in baskets HH9 to HH17. Additionally, there are baskets with two active SIM cards. The baskets for fixed broadband (FBB) combined with fixed voice (FV), TV and mobile broadband and voice are shown below.

[26] European Benchmark of the pricing of bundles – methodology guidelines - [BEREC Bundles Price methodology, October 4th 2018]
[27] European Benchmark of the pricing of bundles – methodology guidelines - [BEREC Bundles Price methodology, October 4th 2018]

Table 9. Quadruple Play basket elements

Name	FBB range	FV	TV	Number of SIM cards	Mobile BB range	Mobile Voice range
HH9	L	yes	no	1	L	L
HH10	M	yes	no	1	L	L
HH11	M	yes	no	2	M	M
HH12	M	yes	yes	1	M	M
HH13	H	yes	no	1	M	M
HH14	H	yes	no	1	H	H
HH15	H	yes	yes	1	H	H
HH16	H	yes	yes	2	H	H
HH17	VH	yes	yes	1	H	H

As can be seen in table 9 above, all baskets include fixed voice. None of the baskets represents Double Play with TV service.

The use of 2 SIM cards is to be interpreted as representing the demand of a two-person household, where each individual uses one SIM card with their own unique usage profile. Normalisation of prices assumes usage of twice the Mobile BB range and twice the Mobile Voice range shown.

Synthesis of converged baskets

Given that in some countries no operator will provide a matching converged offer for certain pre-defined converged service basket, BEREC suggested considering combinations of a fixed offer and a separate mobile offer to construct a convergent household basket. When a mobile offer was required to satisfy the household needs (e.g., no offers including a mobile package are offered on the operator's website), the selection of this offer was determined to fit the mobile voice and data volume requirements (see 3.a.iii and 3.a.iv for details) in the cheapest way possible. This methodology allowed for combining offers from different operators.

In countries where converged offers were not available (or were overpriced), the price of the combination of a mobile package and a fixed-only package (which together provided all the services required in the basket) is used for comparison of the relevant basket. Synthesis of mobile offers with fixed offers to mimic converged offers was applied for the baskets/representative households HH9 to HH17. This method simulates how consumers address this issue: the household profile is split into fixed-only and mobile-only bundles and the lowest priced offers in the market for fixed and mobile bundles are selected to calculate the total price for the synthesised converged offer. The two offers combined may be from different operators, and as BEREC points out, this is not uncommon for consumers as many of them already purchase services this way in case of unavailability/high prices of locally provided bundle offers.

A converged basket is seen as composed of simpler baskets, each of which can separately be matched by an offer or offers on the market. The bundles of simpler baskets together form "synthetic baskets", matching the profile of the converged basket.

Converged baskets can be a combination of simpler baskets as shown below (compare Table 6 of BEREC (2018) - the "+" symbol indicates that the prices should be added).

Table 10. Combination of Triple Play and handheld baskets into synthetic Quadruple Play

Name	Synthetic baskets
HH9	HH1+I2
HH10	HH2+I2
HH11	HH2+I3+I3
HH12	HH6+I3
HH13	HH3+I3
HH14	HH3+I4
HH15	HH7+I4
HH16	HH7+I4+I4
HH17	HH8+I4

As can be seen from table 10, baskets HH11 and HH16 require doubling the I3 and I4 basket profiles, respectively, in line with the interpretation of the requirements of baskets with two SIM cards. The rationale given by BEREC for 2 as the maximum value of the number of SIM cards is that the EU average number living in a household is around 2.4.

3.1.3. Mobile broadband baskets

The baskets for standalone mobile broadband (MBB) defined in the BEREC Guidelines are those shown below. The services in these baskets are suitable for use with a tablet, modem, or data card. Baskets for handset use are defined separately.

Table 11. Mobile broadband basket elements

Name	BB Volume / Datacap
MBB1	VL
MBB2	L
MBB3	M
MBB4	H
MBB5	VH

BEREC did not make proposals for the values of basket's data volumes and the values used are those drawn from previous studies. However, due to observations of ever-increasing data volumes of mobile offers across the EU, the study team decided to shift the range of mobile data volume categories towards 50GB at the upper end and a 1GB threshold as minimum requirement (previously 500 MB). The download volume requirements in mobile broadband baskets are the following:

Table 12. Mobile broadband range

MBB Volumes	
VL	1 GB
L	5 GB
M	10 GB
H	20 GB
VH	50 GB

3.1.4. Individual handheld mobile baskets

SMS are now completely excluded from the basket definitions of individual handheld mobile baskets. The baskets for a typical use of smartphones and similar handheld devices defined in the BEREC Guidelines[28] are as follows:

Table 13. Individual handheld mobile basket elements

Name	MBB	MV
I1	VL	L
I2	L	L
I3	M	M
I4	H	H
I5	VH	H
I6	H	L
I7	VH	M

The latest available OECD data[29] reports an average of 157 voice minutes per month (86 on-net and 58 off-net) in 2017. The findings do not take into account voice-over-ip usage patterns. Values previously used for the simplified BEREC categories Low, Medium and High (30, 100 and 300 calls remain unchanged, as they correspond to average voice minutes and reflect a broad range of usage patterns:

Table 14. Mobile voice ranges

MV number of calls		% Fixed	% On-net	% Off-net	Avg. call duration fixed	Avg. call duration on-net	Avg. call duration off-net	Avg. call minutes
L	30	15	55	30	2.0	1.6	1.7	50.7
M	100	15	55	30	2.1	1.9	1.8	190
H	300	15	55	30	2.0	2.0	1.8	582

[28] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018
[29] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

BEREC Guidelines confirm continued exclusion of voice and data roaming and international calls from price monitoring.

3.2. Operators and country samples

3.2.1. Countries sample

The study covers the following countries:

- all Member States of the EU27.
- the United Kingdom, Norway, Iceland.
- the USA, South Korea, and Japan.

As in previous years, three states of the USA — California, Colorado, and New York – are each treated as countries in order to represent the USA.

In the first phase of this study, 'Retail Broadband Prices in Europe' (2019), the United Kingdom was included as part of the EU28.

3.2.2. Sample of fixed broadband operators

The study aims to reflect good coverage of the market in all countries, with clear rules for Internet Service Providers and product inclusion to avoid distortions of comparisons.

The coverage of fixed broadband operators is as follows:

- For each country selected, a list of the leading broadband ISPs is compiled, ranked by number of users. For all Member States of the EU, Norway, Iceland, and the United Kingdom the list covered at least 90% of the overall national retail fixed broadband market. For other countries, the list covered at least 80% of the market. All ISPs in the list of leading broadband ISPs are included in the data collection.
- In countries where the broadband market is very fragmented and the number of ISPs needed for the above list is too high, the five ISPs with the highest market share are selected. These ISPs are all included in the data collection.
- Incumbent telecom operators are always included in the data collection, regardless of their market share.

National Regulatory Authorities were given the opportunity to verify the sample drawn for their Member State.

3.2.3. Sample of mobile broadband operators

The three largest Mobile Network Operators from each country (except when only two operators were available in a country) have been included.[30].

The largest operators in a country were identified based on the number of mobile broadband subscriptions, or the total number of mobile subscriptions where the former was not available.

[30] The OECD sets the market coverage limit at 70%, except for handset-based baskets. For handset-based baskets the coverage limit was set by the OECD at 50% in order to correspond to the mobile baskets defined in 2009/2010. At least 70% have been observed in this study.

Furthermore, the number of subscriptions per MNO was taken directly from the NRAs where available.

A list of MNOs following these rules was drawn up and the NRAs were given the opportunity to verify the entries for their Member State.

For each of the MNOs selected, data on all relevant mobile broadband products offered to residential consumers was collected. Relevant products in this case entail those meeting the (modified) OECD inclusion criteria, including standalone broadband offers permitting both mobile voice telephony as well as mobile data usage.

3.3. Data collection and product inclusion

3.3.1. Inclusion by source and target customer

Product inclusion

In line with BEREC (2018) Annex II[31], we identified the products offered to residential consumers by the selected ISPs/MNOs. These products consist of fixed and/or mobile broadband internet access, whether standalone or combined with any type of value-adding service or feature. Both prepaid and post-paid tariffs were included. The offers that correspond to the inclusion criteria in this section were identified and compiled in the country databases for retail broadband offers. Those offers that are significantly more expensive than the offers already contained in the database for all representative user baskets were not included. After applying price normalisation, the cheapest offers for each basket were determined from this database.

In line with previous studies, data was collected only from the websites of mobile broadband operators and fixed (and converged) broadband operators. The requirement that offers should be displayed on the operator's website is in line with OECD methodology 2012[32]. The OECD requires that any discount brands offered by network operators are only included when they are clearly linked with the network operator's website and brand.

Only offers that are available for purchase directly on the website of the respective operator were included in the database of offers. This requirement removes an earlier OECD requirement that only prices that are clearly displayed on operators' websites as currently available for new customers should be considered. As current prices are essential for a purchase, this criterion has now lost its significance and is not applied anymore.

These rules are fully in line with BEREC (2018) Annex II[33] which stipulates that all offer data must be collected from online sources hosted by the ISP/MNO offering the service concerned, and only offers advertised on and purchasable on the website of the respective provider should be included in the sample. Any discount brands offered by MNOs are only to be included when the MNO's website contains a clear link to the discount brand.

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[31] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

[32] OECD (2012-09-04), "Methodology for Constructing Wireless Broadband Price Baskets", OECD Digital Economy Papers, No. 205, OECD Publishing, Paris. http://dx.doi.org/10.1787/5k92wd5kw0nw-en

[33] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018 Annex II, p. 26

Residential and business

As in previous years, offers for business packages were not included in the sample. This is in line with the OECD and BEREC guidelines, with the exception of individual mobile baskets where the OECD has requested the inclusion of business offers to be consistent with the OECD mobile basket methodology. This exception did not apply in previous studies and will not be applied in this study unless otherwise agreed with the Commission.

3.3.2. Inclusion by technology and service bundle

Technology

The different types of technology considered for inclusion in the study database were based on several criteria listed henceforth: The study complied with the BEREC requirement that fixed broadband services should be supplied to homes via xDSL, cable modem, FTTx, satellite or fixed wireless systems. It should be noted that previous studies excluded fixed wireless access. From now on, offers of services supplied via “LTE at home” were collected as fixed broadband offers.

As in earlier studies, neither wireless access for fixed use (e.g. LTE at home) nor Wi-Fi hotspot access were considered mobile broadband. Mobile offers had to be at least 3G, which confirms previous practice and may therefore currently be 3G, 4G, or 5G.[34] As advised by BEREC, the type of access technology was not used for comparison even though operators may use it in advertising the offers.

Mobile service offers from MNOs

Data on offers for mobile broadband services, with or without mobile voice telephony, was sampled from the selected MNOs. While scanning various mobile service providers, data regarding offers was collected for modem/tablet and handset use. For price normalisation of these baskets, mobile offers include data on call pricing. All variations of tariffing units (e.g., 60/60, 60/10, 180/1 etc.) are included in the study.

Fixed services from ISPs

For each of the selected fixed access service providers, all products offered to residential customers that consist of or include fixed broadband internet access were identified regardless of whether it is standalone access, combination with a value-added service, or an add-on feature.

Service bundles defined in representative households or other usage baskets (see above) were sampled to obtain the lowest price in the market. BEREC requires that the value-adding provision of fixed voice telephony and/or television must be singled out for full sampling and analysis.

The collected data covers the following standalone and bundle services:

- Standalone fixed broadband internet access (Single Play),
- Fixed broadband internet access combined with fixed voice telephony (Double Play with Telephony),

[34] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018 Section 3.2, p. 8

- Fixed broadband internet access combined with both fixed telephony and television (Triple Play),
- Fixed broadband internet access combined with fixed telephony, television, and mobile services (Convergent /Quadruple Play)

Mobile services from ISPs

When scanning offers for fixed broadband, data on mobile services was also included when offered with fixed broadband, making up a "converged" offer. These mobile service offers were collected for modem/tablet and for handset use. For price normalisation in mobile telephony, mobile offers must include data on call pricing.

It is possible that the usage profile of a converged (fixed + mobile) basket might be met by such converged (fixed + mobile) offers. However, it might not necessarily be the most favourable offer for all usage baskets. Therefore, in all countries, mobile packages and fixed network packages were included in the offer database, if they result in a synthetic convergent offer, i.e. together offer all services required by a convergent usage basket.

Only unrestricted services

TV services are only taken into consideration if their use is not restricted in time or volume, and only when the offers include more than five free channels. Moreover, packages that degrade or stop internet access when the usage allowance is exceeded are only included in the baskets whose average user requires a volume/time covered by the allowance. Packages that allow extension with a new price or overage charge are included in the baskets whose average user requirements exceed the allowance.

An offer of broadband (internet) access must provide IP/HTTP access to the greater Internet via HTTP. Offers that constituted a "walled garden" and only offered e-mail services, or where access to websites, content and applications was restricted to those "offered directly by the mobile network operator and customised for its network and devices" were therefore excluded. Following BEREC guidelines, no offers that limit the time of use in any way were included, "The methodology excludes those offers with time-based limitations, for example by the number of monthly hours of use, or daily or weekly offers. Only those offers where the allowance can be freely used over a whole month have been considered. Therefore, the number of hours or days of use per month are not parameters in the methodology."

Cheaper offer only

Following BEREC guidelines, in cases where the same product - a product in the same selected service bundle and providing the same download speed/volume - is offered in different variations and where it is clear which of the variations is the least expensive (usually the offer with the least value-adding features), only the least expensive variation was included in the database of offers.

When expensive content (variations of expensive pay-TV etc.) is bundled into a convergent offer it is no longer regarded as competitive for the relevant basket of users and its variations not included in the database.

Add-on packages

When it comes to pre-paid plans, the inclusion of multiple add-on packages can make it difficult for consumers to choose the best combination for their needs. This lack of transparency raises concerns, as customers may not have the time or desire to compare a large number of packages. To address this issue, a reasonable cap was placed on the number of add-on packages considered for each customer type (or usage basket) to meet their volume requirements. In the previous study, a limit of three add-on packages was applied, which is consistent with the approach taken in this study as well.

3.3.3. Excluding bundled devices

Bundled notebooks, handsets

BEREC, in line with the OECD, stipulates that:

- Offers are not to be recorded in case those offers include provision of a laptop, netbook, notebook or tablet device;
- Packages are to be taken into account when the price for the service includes an upfront or integrated charge for a modem, e.g. as a stick or dongle, if the customer cannot receive the same service without the device;
- Individual handheld mobile offers are to be considered if they permit voice telephony, regardless of whether a smartphone or other device is bundled into the offer or only a SIM card is provided.

These inclusions and exclusions were applied, as in previous years, through the so-called “lowest price mechanism” which entails that an offer which includes expensive devices bundled with the service defined in a basket is unlikely to represent the lowest price for that basket. If, however, it does represent the lowest price for a basket, it is understood that including the offer in the database would not compromise the comparison across markets in any way.

Multiple SIM cards

In previous studies, offers with multiple SIM cards were to be included only if no extra charge was made for the second or subsequent SIM card. In line with this, BEREC specified that tariffs included should be exclusively single user offers for all packages, excluding mobile offers with more than one SIM-Card.

Although this rule aligns with the previous methodology, it may appear inappropriate while recording the lowest price offers for one of the 2-SIM baskets. Therefore, the rule has been relaxed in order to include competitive bundled offers and accurately analyse the market for households containing two and more persons interested in converged (fixed + mobile) offers.

3.3.4. List of parameters per offer

The following parameters served as a minimum data collection for each selected offer and each ISP operator:

- Meta data: Country, region, national currency, VAT rate, ISPs/MNOs name, status (e.g. incumbent or new entrant and for what market — fixed or mobile), geographic coverage (national, regional).
- Name of the offer.
- Geographic availability.
- Technology (xDSL, cable modem, FTTx, Ethernet, LTE, plug and play, satellite, other).
- Category of the service (broadband standalone, bundle).

- Services included (fixed broadband access, fixed telephony, TV, mobile voice and broadband access).
- Speeds (upload and download). Offers with download speeds below 10 Mbps for fixed and 144 kbit/s for mobile offers were not considered.
- If offer was metered or unlimited.
- Download limit, expressed in number of GB per month (metered offers only).
- Price per GB above limit (metered offers only).
- Online time limit, expressed in number of hours per month (metered offers only).
- Non-recurring charges, e.g. installation costs plus any fixed initial costs (e.g. antennae, modem, software driver).
- Monthly charges (or monthly equivalent if charged over a different time period), including monthly rental charges for necessary components such as xDSL, cable modem or other technology and any other charges necessary for/exclusively linked to the service, rental of equipment if an inseparable part of the offer and any other charges made by the ISP which were not included in the tariff but necessary to make use of the offer as defined in any household consumption basket. For metered offers, the additional cost per hour and/or GB was recorded for use in price normalisation. Recurring charges were clearly separated from non-recurring charges. Normalised monthly charges excluded the monthly cost of the telephone line rental or the cable TV monthly fee.
- Monthly cost of telephone line rental.
- Monthly cost of cable TV monthly subscription fee.
- Contract duration and penalties for early withdrawal.
- Discounts, commercial advantages, and extra charges.
- Additional technical parameters such as webspace and level of protection and other parameters seen as adding significant value.
- 5G network.
- Intra-EU calls included/roam like at home/restrictions.

Notes on offer details

The recurring charges included the cost of phone line rental and cable TV fees, as well as any other charges that the customer needs to incur to receive the offered service. These charges were recorded on a monthly basis. In case of any regular charges for periods other than a month, they were converted proportionately to a recurring charge for one month. Irregular charges were treated as a combination of recurring and non-recurring charges. If the prices differed based on payment methods, the most easily and publicly accessible price was recorded, regardless of the payment or billing method specified.

Discounts were recorded if they applied to all customers and were applicable from the first day of the Price Reference Period. The country data set comprised of country symbol (EU and non-EU), currency, (integer) Euro exchange rate, and VAT rate (integer) percent.

The TV data set comprised of number of channels (categories of), download content, and other value-added or no value-added features.

The internet data set comprised of (integer) Mbps download/upload speed.

The telephony service data set comprised of geographic coverage of international calls; (integer) minutes time allowance to mobile; (integer) local currency cost of additional minute to mobile; (integer) minutes time allowance to fixed; (integer) local currency cost of additional minute to fixed.

Value-adding features were recorded only if no additional charge was made for their provision.

Electronic copies of the web pages (screenshots) and documents from which tariff information was collected are kept and used in quality assurance processes during data capture.

3.4. Price normalization

3.4.1. Overall approach

In order to make a valid price comparison across markets, it is essential to conduct normalisation of advertised prices. This provides comparability across offers that have different price components and/or usage rules, with relevance to the cost incurred by a typical user (as defined in the agreed baskets).

The rules applied to achieve normalisation were drawn from BEREC Guidelines[35], OECD recommendations[36] and previous reports.

Normalisation of advertised prices results in a standard monthly price for an offer with respect to a certain basket. This standard monthly price is determined by taking into consideration the one-time, recurring, and usage charges as well as the applicable discounts. The price was determined for each of the different consumption baskets which the offer could meet. Analysis was done both for broadband standalone products and for each of the different combinations of fixed broadband and other services following the categorisation of BEREC guidelines and the criteria set in the work on basket definitions.

Broadband products were distributed according to the advertised download speed.

Normalisation made use of the agreed set of baskets in which typical user and household profiles were defined in terms of typical download volumes and call minutes.

On completion of the data collection, the dataset was analysed, and the prices were normalised to generate a comparable, standard monthly price for each relevant usage basket (representative household). The standardised monthly price calculated for each offer and basket has three main components:[37]

- depreciation over one month of one-off (non-recurring) charges and discounts.

[35] European Benchmark of the pricing of bundles – methodology guidelines - [BEREC Bundles Price methodology, October 4th 2018]

[36] OECD (2020), "OECD bundled communication price baskets", *OECD Digital Economy Papers*, No. 300, OECD Publishing, Paris, https://doi.org/10.1787/64e4c18a-en.

[37] Normalized price = All Monthly Recurring Charges + (One-Off Charges – One-Off discount – (monthly discount*validity in months))/24)

- monthly recurring charges.
- recurring discounts and extra charges normalised when necessary to a monthly amount.

The following sections give more detailed information on proposals for normalisation of a range of tariff plan conditions:

- normalisation of broadband services for metering and capping by volume and time.
- normalisation of prices for telephony services, applying OECD and additional techniques to compensate for billing increments greater than 1 second, for long minimum call duration for mobile telephony, with similar simpler provisions for fixed telephony.
- normalisation for bundled or additionally required equipment, such as bundled laptops and receivers to handsets.
- normalisation for discounts, contract period variation and up-front costs.

3.4.2. Normalisation of broadband services

Metering and capping by volume and time

When it comes to mobile broadband offers, the charges usually remain the same regardless of the usage, as long as the customer does not exceed a given volume of downloaded data. In the case of fixed broadband, most offers were "unmetered" without a volume or time limit to use.

Details of the normalisation of offers both for mobile broadband and fixed broadband services are provided below.

Mobile broadband - volume capping/fair use

When operators offer a flat rate with a data allowance limit, different actions may be taken when the limit is exceeded. If a customer exceeds the data limit, they may be disconnected, experience reduced internet speed or incur extra charges. The OECD methodology considers excess usage, i.e. usage beyond the data allowances included in the offer, in one of two ways:

- If throttling (reduced internet speed) is used, the tariff is excluded from the results if the basket volume exceeds the allowance. This was also applied if both throttling and extra charges were applied to a given offer. In this regard, throttling practices specified by acceptable use policies (AUPs) were also considered.
- If excess usage results in extra charges, the additional cost is added to the total costs as a usage element to pick the level of usage specified in a basket.

Packages for which the operators offered to degrade the internet speed or stop internet access when the usage allowance was exceeded were included only in baskets whose average user required a volume/time covered by the allowance.

Packages for which the operators allowed extension (additional data volumes) on a new price or extra charges were included for baskets whose average user requirements exceeded the allowance with normalisation.

When a plan was offered with the option of additional data at the original speed but with extra charges, the price was adjusted accordingly to reflect the actual cost of using the additional data under the tariff rules of the offer.

To reflect the total cost of a mobile package when the usage volume is exceeded, prices were normalized accordingly. Prices were also normalized in instances where:

- the average user of a basket requires a download volume not included in the original data pack,
- an extension of mobile data limit is possible with a new price or an overage fee.

Normalisation was calculated based on the additional charges made to meet the full download volume requirements of the average user of the basket in question. At the same time, it was recorded whether it was possible to purchase additional volume after a limit had been reached without reducing download speed.

Fixed broadband - time and volume capping

In line with BEREC guidelines, time-limited or metered offers have not been included in the monitoring.

3.4.3. Normalisation of telephony and TV services

Normalisation of prices for fixed and mobile telephony services (OECD 2017)

The following sections deal with normalisation of the prices for baskets, including mobile voice telephony usage.

Normalisation is required due to variations in plans providing telephony:

- with minute interval billing e.g. a call of 110 seconds costs the same as 115 seconds, but 125 seconds costs more.
- with a longer initial billing interval imposing a minimum call duration/charge.
- offering one or two user-selected numbers which are cheaper or free as “family and friends”, three user-selected numbers "selective discounts”.
- charge differently at different times of the day or days of the week.
- charge differently those which are on the provider’s own network - on-net/off-net.
- charge differently calls to a voice mail compared to on-net charges.

Following BEREC guidelines, normalisation is no longer required for plans that charge per SMS, or restrict the number of SMS at a flat rate.

The OECD provides data per user profile/representative household basket to include and weight each of these different charges. In this way, a single monthly charge is determined for a consumer whose usage corresponds to a specific individual handheld mobile basket.

Normalisation of mobile telephony charges

The calculation of normalised offer prices in mobile telephony baskets, as defined in the OECD report, ‘Methodology for constructing telecommunication price baskets (2010)’, was carried out by deducting the value of call allowances included in the package from the usage element (minutes or calls) of the basket, up to the value of actual usage.

Allowances were deducted in the following order:

- selective discounts
- most restricted minute allowance
- least restricted minute allowance
- message allowance
- value allowance.

Finally, specific volume discounts were deducted from the total costs.

Based on BEREC guidelines, selective discounts were not calculated.

To calculate the compensation for billing unit duration, the duration of the basket call (D) was converted to seconds and multiplied by the average per second charges. The formula D + (Unit (seconds)-1)/2 was then applied to obtain the final calculation. This method is further explained in the section on longer billing increments below. A normalisation rule regarding long 'first billing unit' was applied, e.g. all short calls were charged as if they lasted three minutes, even if subsequent billing units were one second in length. The application of the statistical model is described in the section on minimum call duration below.

The data required to normalise offers provided in the following tables comprise:

- Voice call destination distribution, percentage per destination. This distribution was equalised across all baskets and made independent of number of calls per month in the 2017 update, 'Revised OECD telecommunication price baskets'.
- Voice call distribution by time of day. This distribution was equalised across all baskets and made independent of number of calls per month in the 2017 OECD update, 'Revised OECD telecommunication price baskets (OECD 2017)'.
- Voice call duration by destination distribution. This distribution varies between frequent users and low users, i.e. according to the number of calls per month in the usage basket concerned.

Data on SMS distributions are no longer collected and treated as unlimited in terms of units and free of charge.

Figure 13 – Voice call destination distribution

Basket No.	Calls/month	Fixed	On-net	Off-net
(all)	(any)	15%	55%	30%

Figure 14 – Voice call time-of-day distribution

Basket No.	Day	Evening	Weekend
(all)	46%	27%	27%

Figure 15 – Voice call duration by destination network / service in minutes per call

Calls/Month	Fixed	On-net	Off-net
30	2.0	1.6	1.7
100	2.1	1.9	1.8
300	2.0	2.0	1.8

The following description of such compensation is provided for completeness and may be relevant when considering the validity of trend analysis.

Selective discounts, e.g., "Family and Friends" offers including free calls or minutes to selected numbers, are not considered.

Correcting for longer billing increments

This study follows the OECD methodologies for comparable retail prices of telecommunication services in its most recent update from 2017.[38] This method appears to be fully in line with BEREC guidelines.

A price per second is the basis of the calculation in all cases, regardless of the billing increments (billing unit duration). For a tariff with 60 second billing increments the price per second is simply the price per unit divided by 60. Given a flat distribution of call duration, the average overrun is half the billing increment less one second, that is for a 1-minute increment, (60-1)/2 seconds.

This means that an average call duration of 75 seconds in a tariff with 60 second billing is priced at 75 + (60-1)/2 seconds times the fictitious per-second price (unit price/60).

The general rule for costing a call basket is:

(average basket call duration + (billing increment -1) / 2) * unit price / billing increment

Call duration and billing increment (N in OECD notation) is measured in seconds. The unit price is the price for exceeding the next billing increment.

An additional rule applied in normalisation is that if the "adjusted" call duration is shorter than the billing unit, the full price of one billing unit is considered the cost of the call.

Any call set up charge is added to the cost per call.

Correcting for minimum call duration

A correction for minimum call duration is called for in the BEREC Guidelines and the method described here has been applied in data analysis going forward.

The normalisation technique to be used was developed by empirica for the now-common pricing practice of setting a long first billing unit or minimum call length, typically one minute. These tariffs have a cost impact on bundles of calls, as some of them will be shorter than the minimum length charged.

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[38] OECD (2017) "REVISED OECD TELECOMMUNICATION PRICE BASKETS" https://one.oecd.org/document/DSTI/CDEP/CISP(2017)4/FINAL/En/pdf

The method applies an exponential distribution of call lengths. For a minimum billed call length of 1 minute, followed by one-second increments, the proportionate increase in billed duration compared to per-second billing is given by $\frac{1}{\mu}$ - (1 - $e^{-\frac{1}{\mu}}$)

where μ is the average duration of calls in a basket.

Normalisation of fixed voice telephony pricing

Prices for services including fixed telephony have been normalised by applying a single user profile or basket defined by the OECD. This comprises 14 and 6 calls to fixed and mobile lines respectively, with calls of an average duration of 5 minutes.

Normalisation of varying TV offers for fixed access

Offers in which the use of television was restricted in time or in volume, or where less than 5 free channels were offered as television, were treated as offers that do not include television service. No other normalisation has been applied as any other service is treated equivalently. Offers with high price TV components have been automatically excluded from comparison as content value is intentionally not part of the EU price monitoring approach.

3.4.4. Normalisation of fixed charges and discounts with Standard contract duration (SCD)

Standard contract duration

In line with OECD rules prescribed in 'OECD 2020 bundled communication price baskets' report, non-recurring or one-off charges at the start of an offer (e.g. installation charges, software or equipment purchase) were converted into a monthly charge by the joint study team, as part of the normalization effort for fixed charges. Standard net present value and discounting techniques were applied to achieve this. The same procedure was applied to one-off discounts and subsidies.

This approach required the application of an appropriate discounting period and a discount rate. Whether consumers receive monetary discounts at the start of a subscription or throughout the contract duration, the total amount of discounts is spread equally over the contract duration, i.e., a discount rate of zero is applied. This is in line with BEREC Guidelines[39] and the OECD[40] distribution rule, which is implicitly zero percent discounting - distributing fixed costs proportionately over the standard contract duration.

The standard contract duration used in previous studies was the 36 months recommended by the OECD. Several operators and NRAs have responded to previous normalisation practice pointing out that 36 months is longer than the contract durations common on the market today. 2018 data from our price monitoring for the Commission show that there were only very few offers with a 36-month contract duration. No contracts had longer durations.

[39] European Benchmark of the pricing of bundles – methodology guidelines - BEREC Bundles Price methodology, October 4th 2018

[40] OECD (2020), "OECD bundled communication price baskets", *OECD Digital Economy Papers*, No. 300, OECD Publishing, Paris, https://doi.org/10.1787/64e4c18a-en.

BEREC noted this discrepancy and BEREC Guidelines now recommend the application of a standard contract duration of 24 months instead of the 36 months used in previous pricing studies.

Treatment of discounts

Targeted discounts, discounts for group subscriptions, as well as offers applicable only to certain groups, i.e. students or disabled people, were not considered.

Generally available discounts - typically one-off up-front or a reduced monthly charge for a limited period - were taken into account fully, creating a (negative) component of the monthly price, using depreciation techniques where necessary.

The method of taking into account discounts (which were valid for all customers on the first day of the price reference period) ensured proper reflection of the cost of the service to an average customer, purchasing then and retaining the service for the standard contract duration. Discounts for ordering online were applied in full. A recurring discount provided for a limited period was discounted to a net present value and spread over the standard contract duration.

Discounts were given on up-front (non-recurring) charges, e.g. equipment, activation and/or installation charges and/or on the recurring charges, monthly fee, or other time-based charge. Both were considered.

The principle to be followed in EU price monitoring is as has been applied since 2016. The way discounts and charges are considered is as close as possible result in the total cost of a service faced by the average consumer during the price reference period. The current rules are as follows:

For promotional discounts (e.g. limited time offers, regardless of whether they were likely to be repeated in the future or not), the full value of the discount was applied.

Discounts for ordering online were applied in full, as all customers purchasing from an operator’s website have access to this discount.

Discounts and extra charges may be incurred for billing and payment methods (e-invoicing, electronic payment, direct debit, paper billing, cash, credit card, cheque, etc.). In respect to discounts which depend on matters such as method of payment or billing, the most easily publicly accessible price for the service, regardless of which payment or billing method was linked to this price, was considered.

Selective discounts - friends and family etc.

Previous mobile broadband pricing studies have taken the impact of selective discount plans into account. Selective discounts allow users to specify a certain number of recipients to which calls are free or discounted.

These tariffs have been losing importance in most countries due to the elimination of on-net/off-net tariffs. The study followed the BEREC proposal to disregard selective discounts.

3.4.5. Purchasing power parity (PPP) and currency

Normalisation further includes converting prices indicated in a currency other than Euro and correcting for purchasing power parity to allow meaningful comparison of least expensive offer prices. Both is achieved by factoring in price level indices and data published by Eurostat[41].

For non-EU countries, such as Korea, Japan and USA, current exchange rates[42] are used to convert local national currency to Euro. Worldbank data[43] on PPP conversion factors are applied as well.

3.4.6. Bundled and added equipment

Treatment of mobile handsets

The approach followed from 2016 onward was to allow basic and advanced handsets with any basket. However, given that the handset device is not reflected as a requirement in any of the baskets, empirica agreed with the Commission, from 2020 onwards, to not consider the price of an offer including smartphone devices.

Bundled laptops and other devices

For a given operator in a country, the cheapest offer fitting a basket requirement was recorded. If this required an up-front charge for any equipment, this charge was included in price normalisation and depreciated as with other up-front charges.

Non-recurring (one-off) charges include all charges made at the beginning of a contract, such as activation, packaging, and postal costs, buying or renting of material (modem, handset, software), etc. Normalisation of non-recurring charges was carried out by depreciating of the SCD over 24 months, assuming consumers have no significant remainder value at the end of that period.

The stipulation of a standard contract duration enables the consistent translation of one-off costs into monthly amounts and vice versa.

The OECD basket building rules[44] require the depreciation of non-recurring price elements over the standard contract period, which was then three years. We deprecate non-recurring charges over the standard contract duration of 24 months.

3.4.7. Rental, maximum charge and contract duration

Buy or rent

Where options were given to either buy or rent required equipment, both offer variants were included, unless it was clear on data entry which one resulted in a lower normalised standard monthly price to consumers.

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[41] Eurostat indicator: Purchasing power parities (PPPs), price level indices and real expenditures for ESA 2010 aggregates [PRC_PPP_IND__custom_4603793]

[42] https://de.exchange-rates.org/

[43] https://databank.worldbank.org/reports.aspx?source=2&series=PA.NUS.PPP&country=KOR#

[44] Methodology for Constructing Wireless Broadband Price Baskets – OECD, September 4th 2012

Maximum charge

In some cases, either a maximum charge was advertised for additional time or download volume, or the total invoice was set to a maximum limit. If this maximum charge was lower than the normalised charge, the maximum charge was taken.

Compensating for contract duration

Normalisation was required for contracts longer and shorter than SCD. Any charges for renewing a shorter contract or overrun of a contract (series of contracts) of fixed duration were considered as non-recurring charges at a particular time. Discounting techniques were applied to determine the contribution to the standard monthly price. Normalisation results vary with whether the contract duration was shorter or longer than SCD.

Short contracts: For offers that have contract duration shorter than the SCD, the pricing is normalised based on the assumption that the customer will renew the contract to maintain the service for at least the SCD. The normalised price for contracts of duration shorter than the SCD was calculated in the same way as for a contract of exactly SCD duration. Additionally, any non-recurring charges made on extension of a short contract were discounted back to the beginning of the first contract before being added to the non-recurring charges and spread over the SCD period. Long contracts: The charges for the period after the SCD elapsed were discounted back to the start of the contract period.

3.5. Data collected and cheapest offer

The cheapest offer per price basket and country was determined based on the normalised price for each offer in all the baskets for which it was eligible.

If an offer in a country provides a greater data volume and call number than the ones specified in a price basket and is cheaper than all other offers that only provide the basket amounts, then it can be considered as the least expensive offer for that basket.

3.6. Quality assurance

In order to obtain solid results, the gathered data was thoroughly checked and subsequently prepared for the statistical analysis, beginning with normalisation procedures.

The following table summarises techniques applied to ensure high quality of all statistical data:

Figure 16 – Summary of automated and manual checks on statistical data

Real time/ parallel	Across data sets (EU-wide)	Within one data set (Member State)
Real time during entry	• Model/extreme value analysis - highlights cases where captured values differ significantly from expected values generated from a multivariate model.	• Checks on plausibility of data within one Member State/country data set, highlighting of ○ presence of duplicates ○ presence of non-numeric values ○ unlikely relative prices (within ISP/MNO offer)

Automated after/ parallel with entry	• Checking data completeness in respect of
	  ○ Member States and other selected countries
	  ○ Selected MNOs & ISPs
	  ○ Defined baskets
	  ○ Coverage of market share
		• Cross check of collected offers with data from last collection, usually the previous year
		  ○ for each Member State
		  ○ for each ISP/MNO

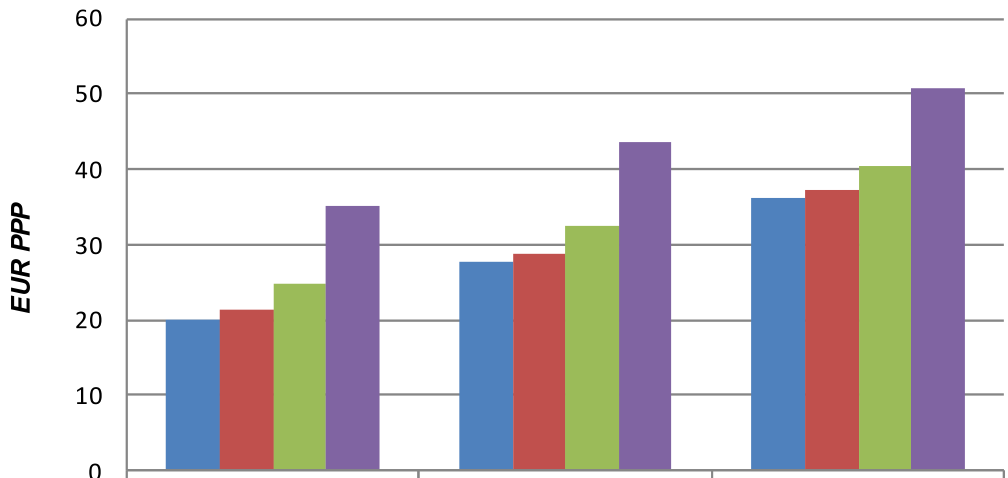
4. KEY FINDINGS

4.1. Fixed prices at a glance

4.1.1. 2022 prices across the EU for fixed broadband offers

Figure 17 shows the average lowest prices of the three service bundles and four speed baskets above 10 Mbps in each EU country. The impact of higher speed values on prices is evident, particularly in the ≥ 1 Gbps baskets (refer to section 4.1.8 for further discussion of the “speed premiums”). Additionally, the increase in prices of bundling television and fixed telephony services with standalone internet is noticeable (refer to section 4.1.9 for further details on the “bundle premiums”)[45].

Figure 17 – EU27 average of lowest prices for each fixed service bundle across four speed baskets

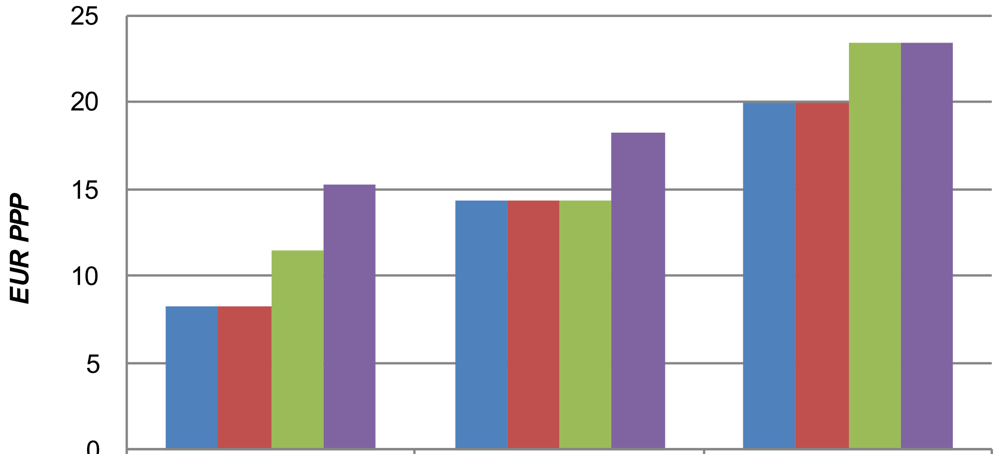


	Standalone	Double Play | Telephony	Triple Play
≥30 - <100	€19.96	€27.84	€36.12
≥100 - <200	€21.32	€28.73	€37.20
≥200 - <999	€24.94	€32.60	€40.37
≥ 1 Gbps	€35.17	€43.73	€50.65

Figure 18 shows the lowest price found anywhere in the EU for each service bundle and speed basket. As can be seen, standalone fixed internet delivered at more than 30 Mbps can be obtained at a normalised price of only €8.24 per month (PPP) in Romania. The Double Play service bundles prices start from €14.4 per month (PPP) while the cheapest price in Europe for Triple Play service bundles delivered at more than 30 Mbps is provided at €19.99 (PPP) - both available in Bulgaria.

[45] Please note that ≥ 1 Gbps offers are not available in all EU27 countries.

Figure 18 - EU27 absolute lowest prices for fixed services for each service bundle across four speed baskets



	Standalone	Double Play | Telephony	Triple Play
≥30 - <100	€8.24	€14.40	€19.99
≥100 - <200	€8.24	€14.40	€19.99
≥200 - <999	€11.48	€14.40	€23.45
≥ 1 Gbps	€15.31	€18.23	€23.45

Figure 19, below, gives a first idea of how variable prices for fixed broadband access are across Europe. For each country, the average was calculated across the lowest prices in twelve offer categories (three service bundles and four speed baskets). Even though these averages include the fastest download speeds and all Triple Play offers, the average lowest price lies under €20 in three Member States. Consumers in six other countries can benefit from average prices of under €25 from their most competitive suppliers. The majority of EU national markets exhibit averages under €35, while only two markets exhibit averages higher than €45. The range of average prices is €31.59.

Figure 19 – Country averages across 12 lowest price offers by price ranges, EU27

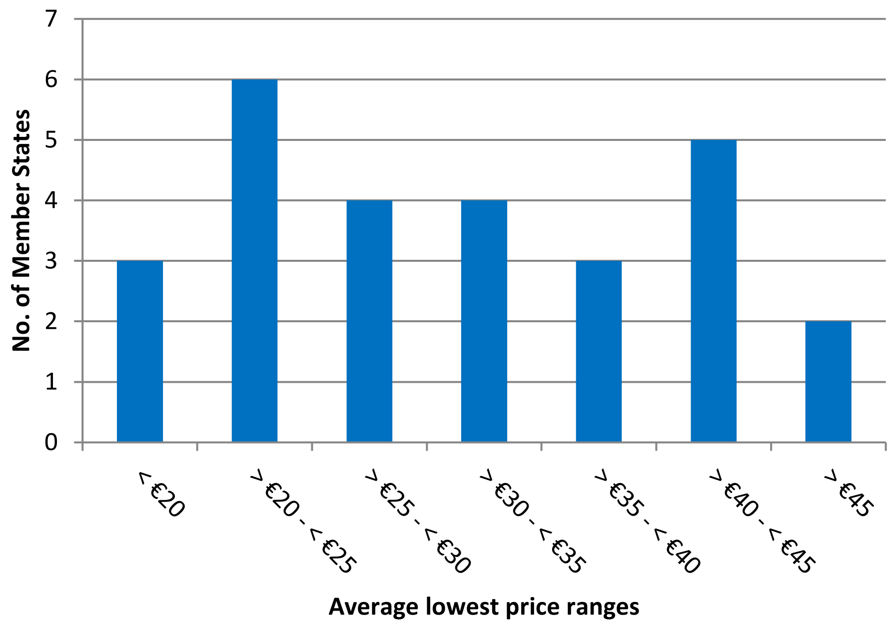
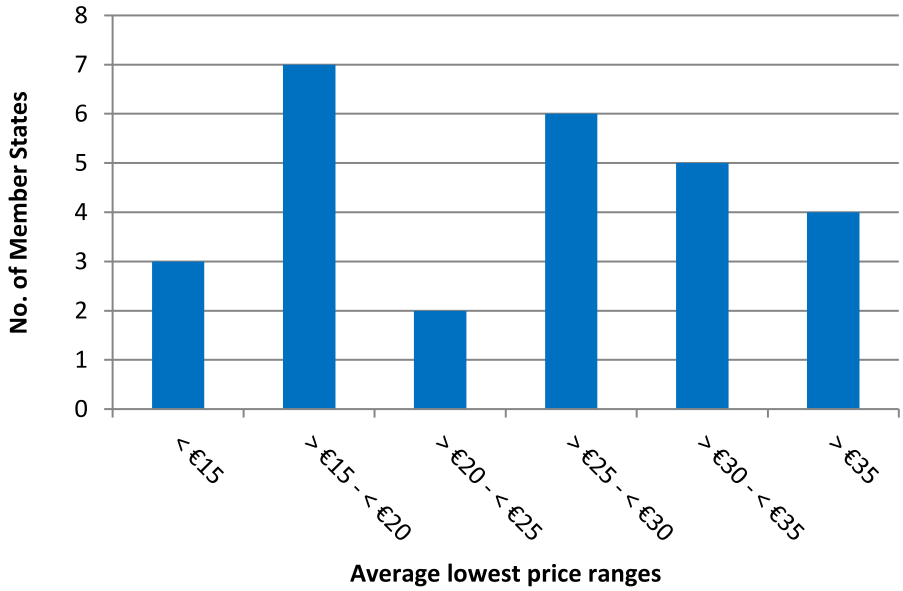


Figure 20, below, shows results for the cheapest prices found for standalone broadband providing speeds greater than 30 Mbps. Consumers in three Member States have a choice of very cheap internet services < €15, followed by average prices between €15 and €20 in seven Member States. The lowest price in Europe for standalone internet is €8.24, found in Finland. The average least expensive offer price in over half of EU27 countries starts from €25.

Figure 20 – Distribution of lowest prices for >30 Mbps standalone broadband, EU27



To provide a more comprehensive understanding of the pricing trends, but without introducing the distraction of small price differences, four clusters of countries were identified[46] in each category of offer, that is, for each combination of service bundle and speed basket, based on the prices of the least expensive offer in the bundle/basket category in each country. Figure 21 shows the results.

Figure 21 - Price variation per offer category across the EU, country clusters (fixed broadband)

	Single Play					Double Play				Triple Play			
	≥10 - <30 Mbps fixed internet	≥30 - <100 Mbps fixed internet	≥100 - <200 Mbps fixed internet	≥200 - <999 Mbps fixed internet	≥ 1 Gbps fixed internet	≥30 - <100 Mbps fixed internet with fixed phone	≥100 - <200 Mbps fixed internet with fixed phone	≥200 - <999 Mbps fixed internet with fixed phone	≥ 1 Gbps fixed internet with fixed phone	≥30 - <100 Mbps fixed internet with fixed phone and TV	≥100 - <200 Mbps fixed internet with fixed phone and TV	≥200 - <999 Mbps fixed internet with fixed phone and TV	≥ 1 Gbps fixed internet with fixed phone and TV
RO	1	1	1	1	1	1	1	1	1	1	1	1	1
LT	1	1	1	1	1	1	1	2	1	1	1	1	1
FI	1	1	1	1	2	-	-	-	-	-	-	-	-
LV	2	1	1	1	1	1	1	2	2	1	1	2	1
BG	1	1	2	1	2	1	1	2	2	1	1	2	2
HU	2	2	2	1	1	1	2	2	2	1	1	1	1
SK	2	1	1	1	1	1	2	2	1	2	2	2	1
CZ	2	1	1	1	1	1	1	2	2	2	2	2	2
PL	2	2	2	1	1	1	2	2	2	2	2	2	1
ES	3	3	3	2	2	1	2	2	1	2	2	2	1
SI	3	3	3	2	2	1	2	2	2	2	2	2	2
IT	4	3	3	2	2	2	2	2	1	3	2	2	1
FR	4	3	3	2	2	2	3	2	2	2	2	2	1
DE	3	3	3	2	3	2	2	3	3	2	2	3	2
LU	2	2	2	3	3	2	2	3	2	4	3	3	2
HR	4	4	4	2	2	2	2	2	2	3	3	3	2
SE	3	2	2	2	3	1	2	3	3	4	3	4	3
DK	3	2	2	1	1	3	3	3	3	4	4	4	3
CY	4	4	4	3	2	2	3	3	2	3	3	3	2
EL	4	3	4	4	4	1	2	3	4	2	2	3	-
MT	4	3	4	4	3	3	3	3	3	2	2	3	2
EE	3	3	4	3	3	2	3	3	4	3	3	3	4
AT	3	2	4	3	4	2	4	4	4	3	3	4	4
IE	4	4	4	3	3	4	4	3	3	4	4	4	3
NL	4	4	4	3	3	4	4	4	3	4	4	4	3
PT	4	4	4	4	3	3	4	4	3	4	4	4	3
BE	4	3	4	3	4	4	4	4	4	4	4	4	4

Cluster Centres [EUR]

1	10.77	11.90	11.92	15.42	20.58	21.31	18.08	14.40	24.90	22.84	23.39	24.57	31.99
2	14.34	16.42	15.88	26.02	30.32	28.51	25.60	25.13	33.63	31.42	32.17	31.28	45.35
3	19.22	23.28	22.65	32.55	40.89	35.64	32.18	36.05	47.36	37.71	42.83	42.59	62.30
4	26.60	29.51	29.54	36.37	71.69	44.35	42.77	51.50	86.17	50.48	54.29	56.58	101.32

Number of cases in each cluster

1	4	7	6	10	8	12	5	1	5	5	5	3	9
2	6	6	6	7	8	8	11	12	10	9	10	9	8
3	7	9	5	7	8	3	5	9	7	5	6	7	5
4	10	5	10	3	3	3	5	4	4	7	5	7	3

[46] k-means clustering was used with k=4; observations (offer categories) are assigned to clusters so as to minimise the average squared Euclidean distance of observations to each cluster centroid.

Dark green symbol 1 – inexpensive cluster
Light green symbol 2 - relatively inexpensive cluster
Yellow symbol 3 – relatively expensive cluster
Red symbol 4 – expensive cluster

The following general country groupings can be observed:

- Overall, Romania and Lithuania have the most attractive prices for broadband internet in the EU. All the offers in Romania belong to the cluster of the least expensive in their respective baskets.
- Finland, Latvia, Bulgaria and Hungary follow. Spain and Slovenia have low prices, especially for Double and Triple Play offers.
- Greece and Malta tend to have attractive prices for lower bandwidth Triple Play offers, but also tend to be in the cluster of more expensive countries for Single Play offers.
- Ireland, the Netherlands, Portugal and Belgium have no offers in the inexpensive or relatively inexpensive clusters.

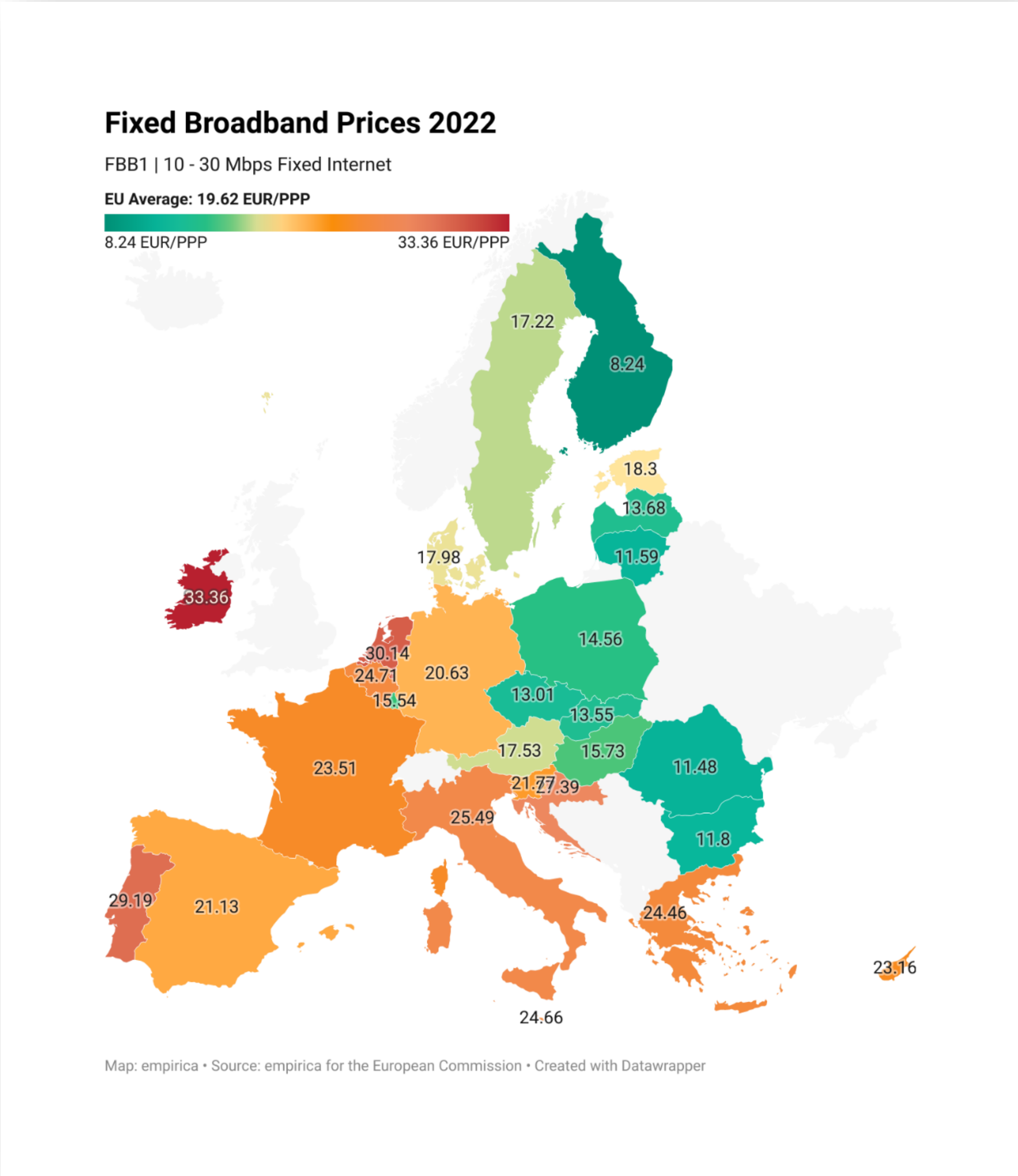
4.1.2. Who is best in class in the EU?

The maps in the following sections show the prices in EU27 countries of the least expensive offer found on the market for each service category – standalone fixed internet, Double Play offers with fixed telephony, and Triple Play. Additionally, within each service bundle, the prices are displayed for various download speed baskets. Each country's comparative level of prices is indicated by a certain colour in the range from dark green (representing the least expensive country) to dark red (representing the most expensive country).

4.1.3. Single Play (standalone internet) across Europe, FBB1-FBB5 baskets

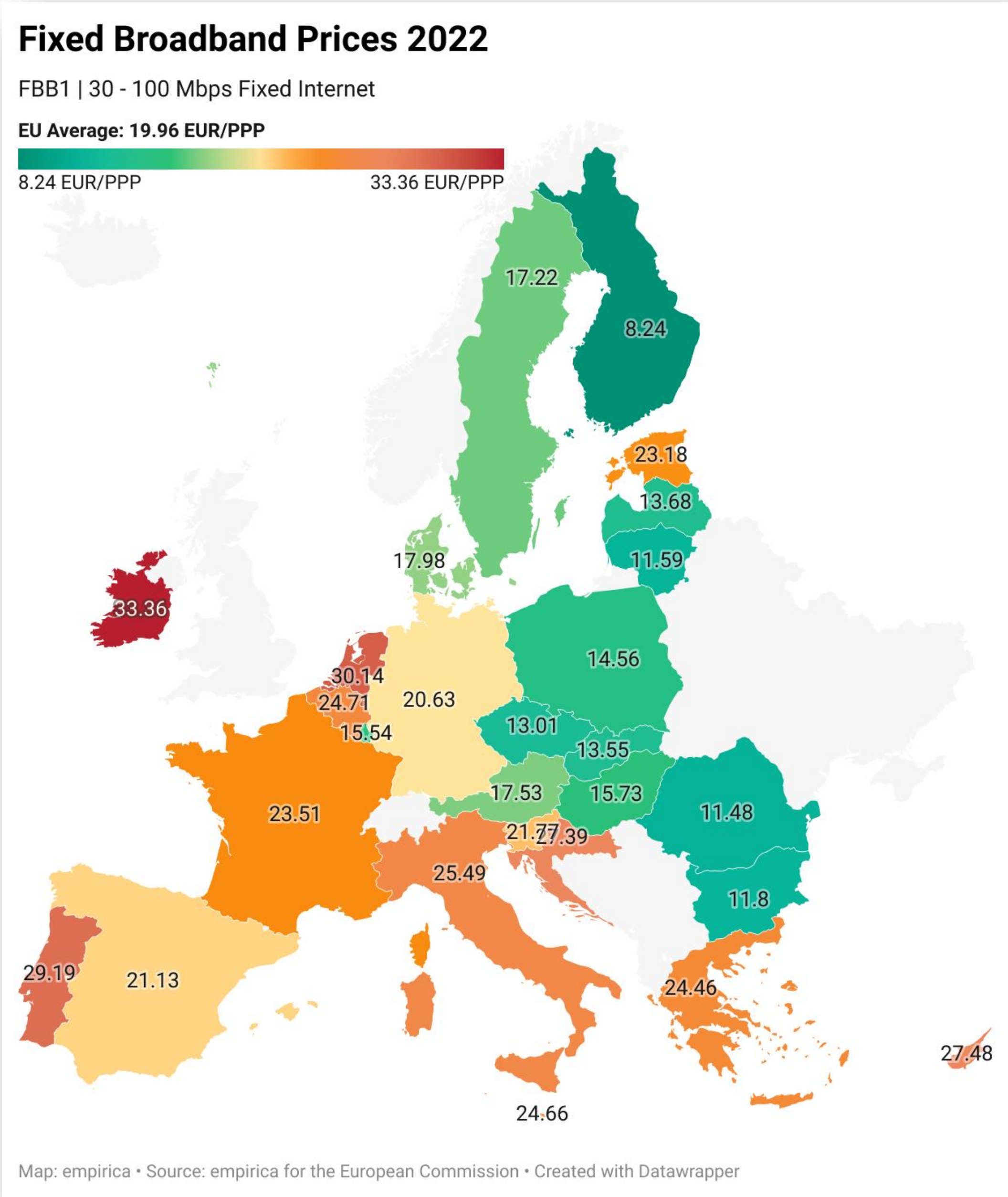
For FBB1, the map indicates that the best in class, with the least expensive offers across the EU27, are Finland, Romania, Lithuania, and Bulgaria. The lowest price found is €8.24, which is less than half of the EU average (€19.62) and more than four times lower than the highest price found.

Map 1 – FBB1 | 10 - 30 Mbps fixed internet



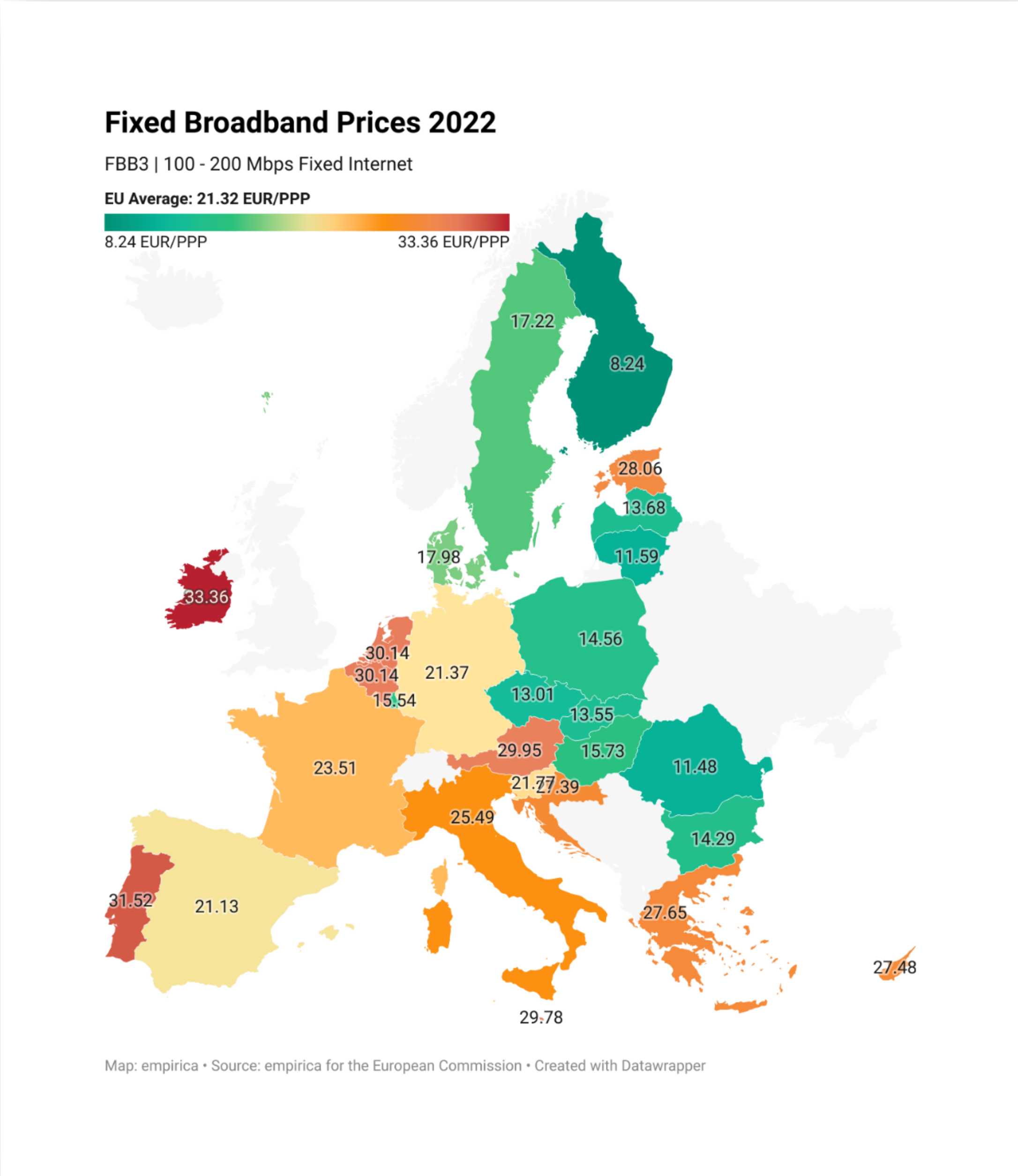
Very similar to FBB1, the map of FBB2 indicates that the best in class, with the least expensive offers across the EU27, are Finland, Romania, Lithuania, and Bulgaria. The lowest price found is €8.24, which is less than half of the EU average (€19.96) and more than four times lower than the highest price found.

Map 2 – FBB2 | 30 - 100 Mbps fixed internet



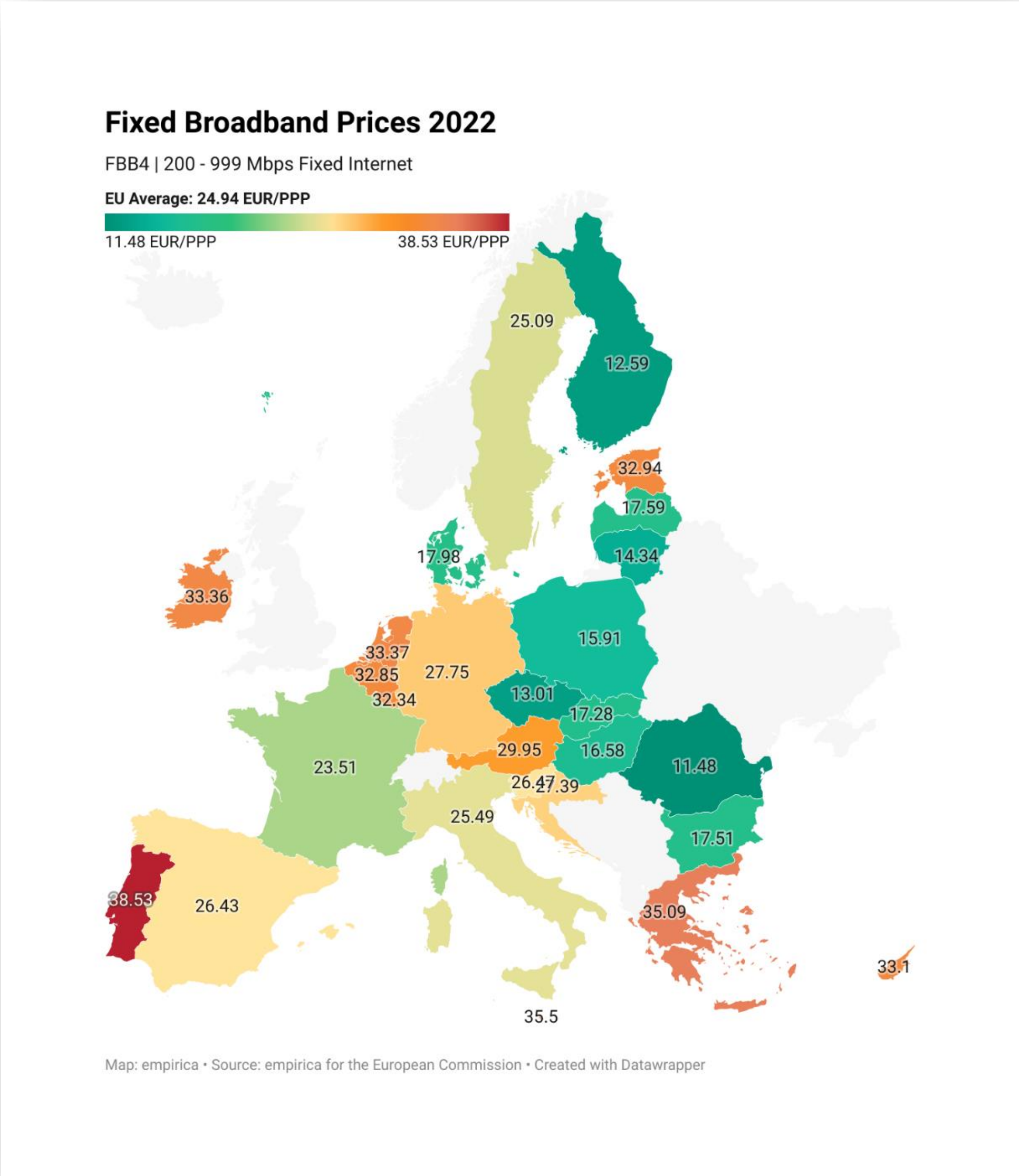
The FBB3 basket shows a similar pattern to the lower download speed baskets. The best-in-class group of countries are Finland, Romania, Lithuania, and Czechia.

Map 3 – FBB3 | 100 - 200 Mbps fixed internet



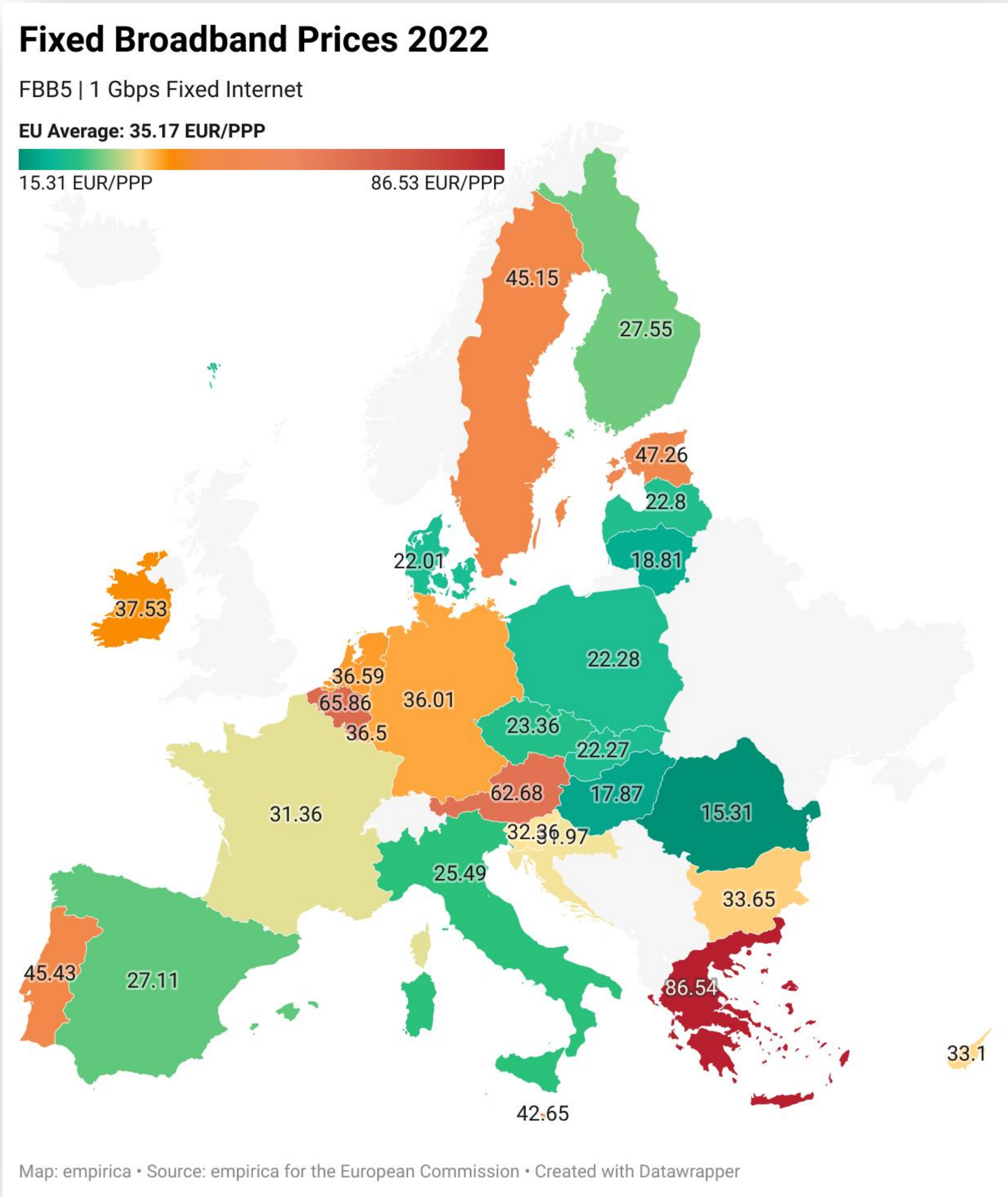
The lowest prices for FBB4 basket are found in Romania, Finland, Czechia, and Lithuania. The ranking shows some changes in pattern compared to the lower speed baskets.

Map 4 – FBB4 | 200 - 999 Mbps fixed internet



In FBB5, the Gigabit basket, the best in class, with the least expensive offers across the EU27, are Romania, Hungary, Lithuania and Denmark. The lowest price found is €15.31, while the highest price is €86.54, more than five times as high.

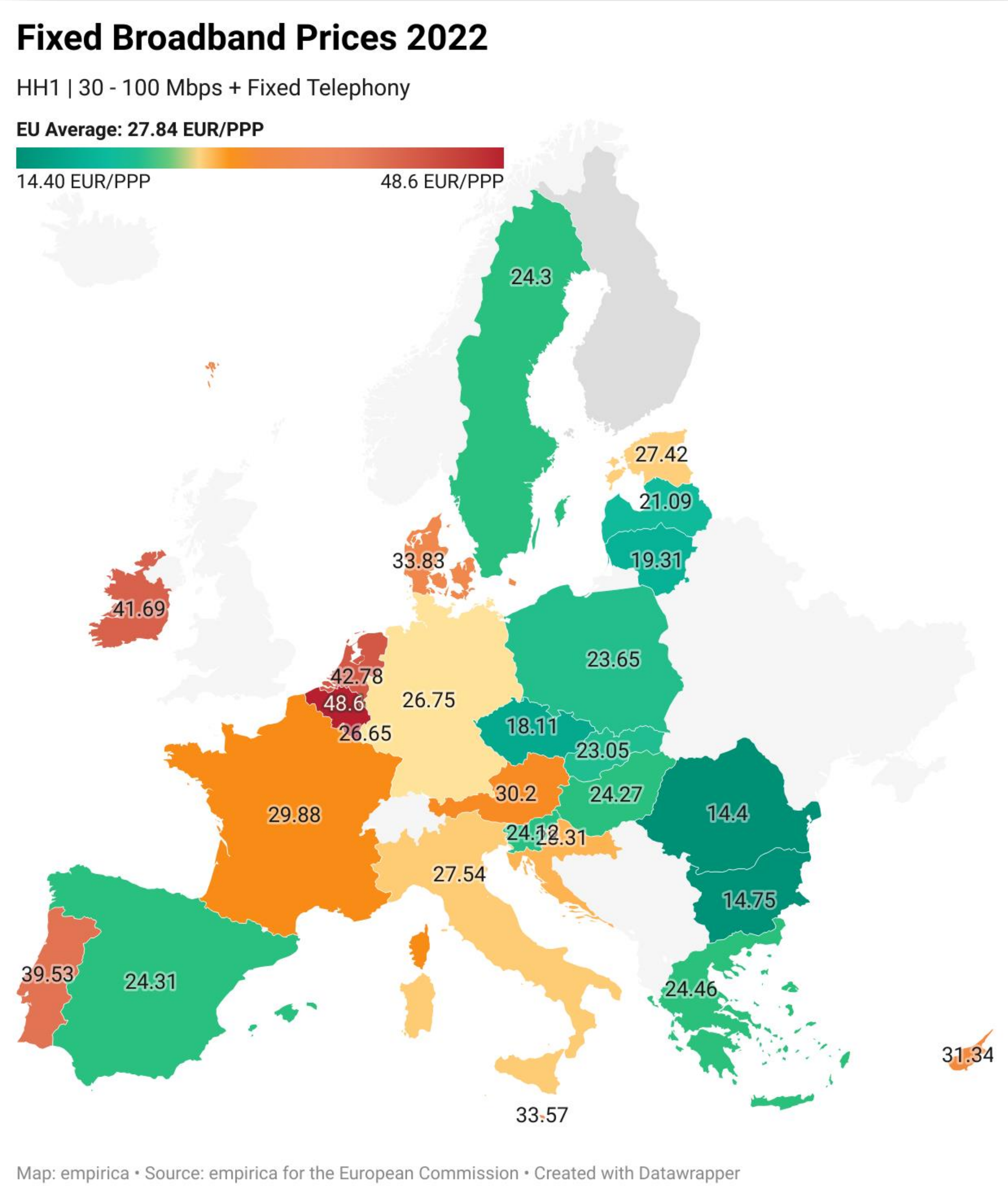
Map 5 – FBB5 | ≥ 1 Gbps fixed internet



4.1.4. Double Play with fixed telephony across Europe, HH1 – HH4

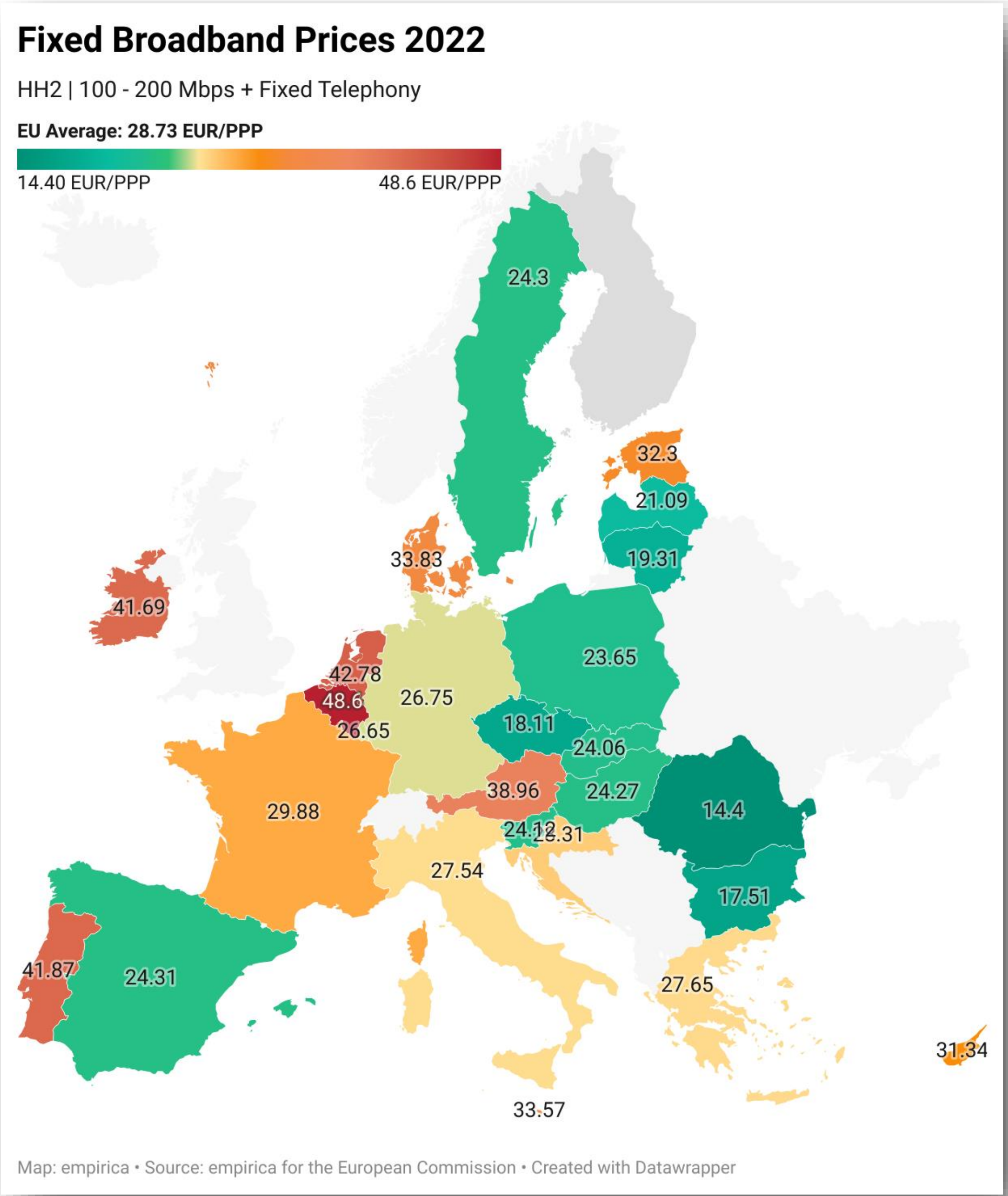
Best in class for HH1 are Romania, Bulgaria, Czechia, and Lithuania. The least expensive offer in the EU27 for this offer category is €14.40, which is nearly half the EU27 average (€27.84).

Map 6 – HH1 | 30 - 100 Mbps fixed internet with fixed phone



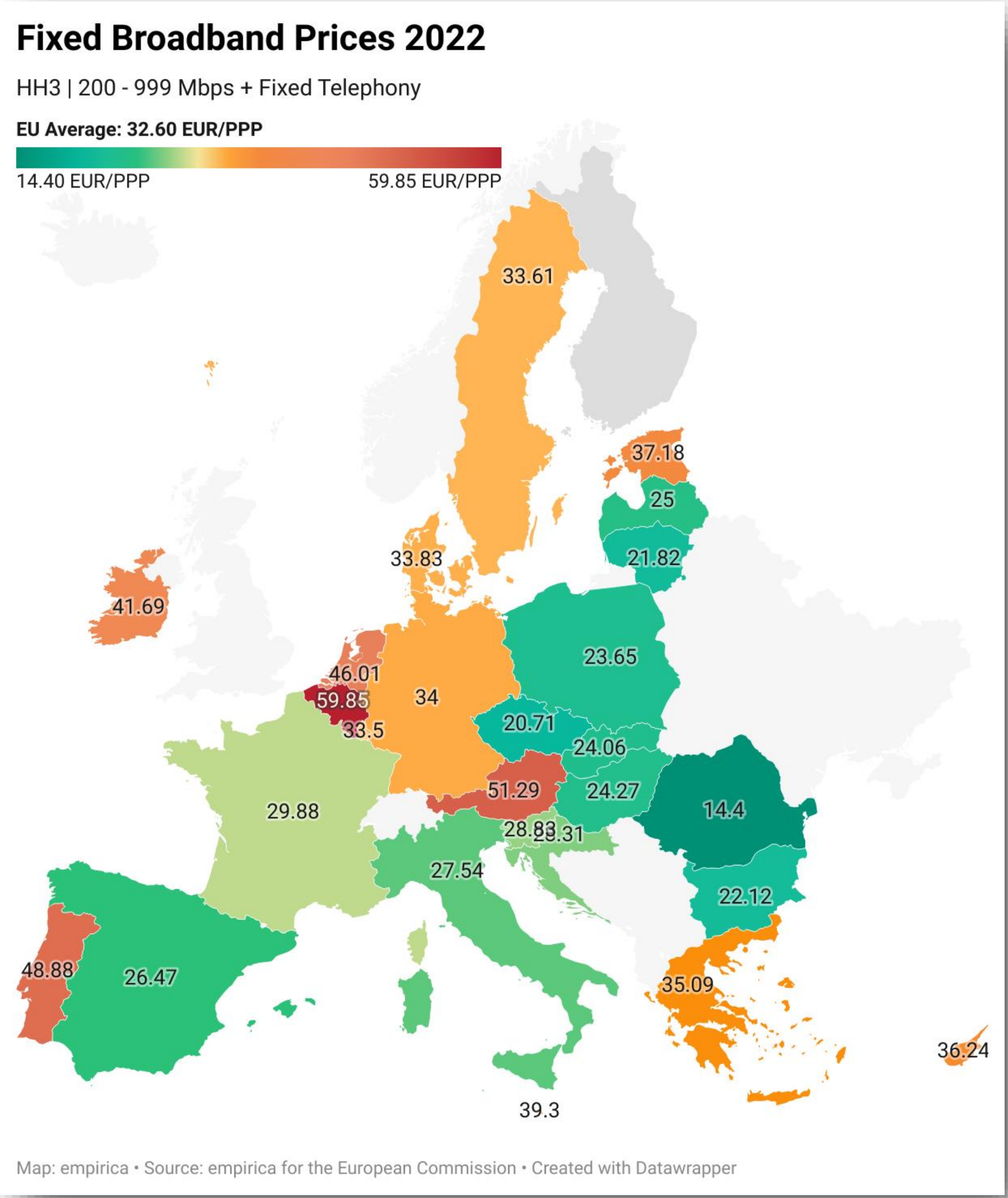
The EU27 average of lowest prices per country for HH2 is €28.73. The best in class in this bundle/basket offer category are, as in HH1, Romania, Bulgaria, Czechia, and Lithuania.

Map 7 – HH2 | 100 - 200 Mbps fixed internet with fixed phone



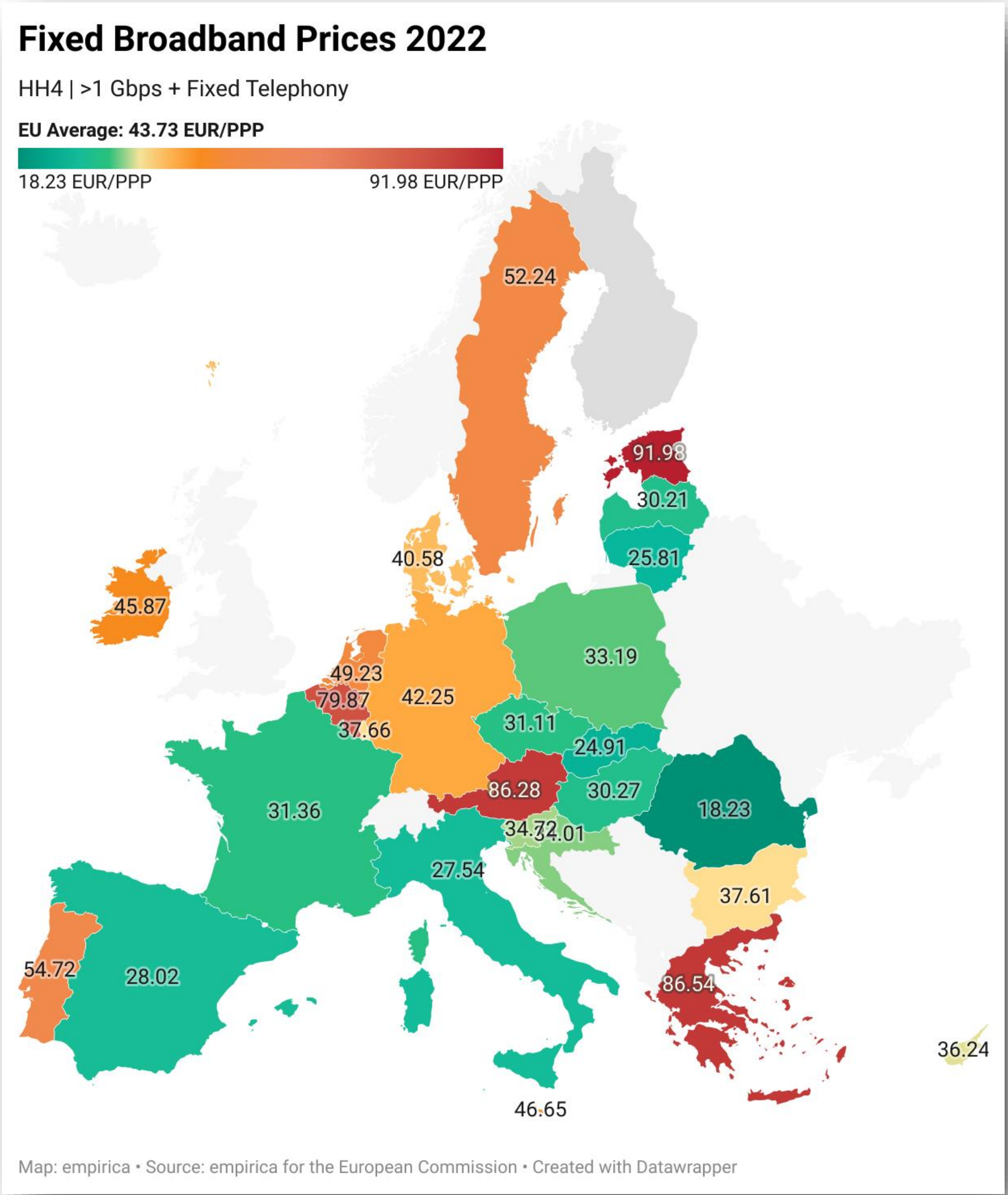
For HH3, the range of European lowest prices is from €14.40 to €59.85. The best in class are Romania, Czechia, Lithuania, and Bulgaria.

Map 8 – HH3 | 200 - 999 Mbps fixed internet with fixed phone



Best in class for the top download speed category of ≥ 1 Gbps fixed internet with fixed phone, HH4, are Romania, Slovakia, Lithuania, and Italy. The least expensive offer in the EU27 for this household basket is €18.23, less than half the EU27 average (€43.73) and around five times lower than the highest price found – the largest ratio in any HH basket in this study.

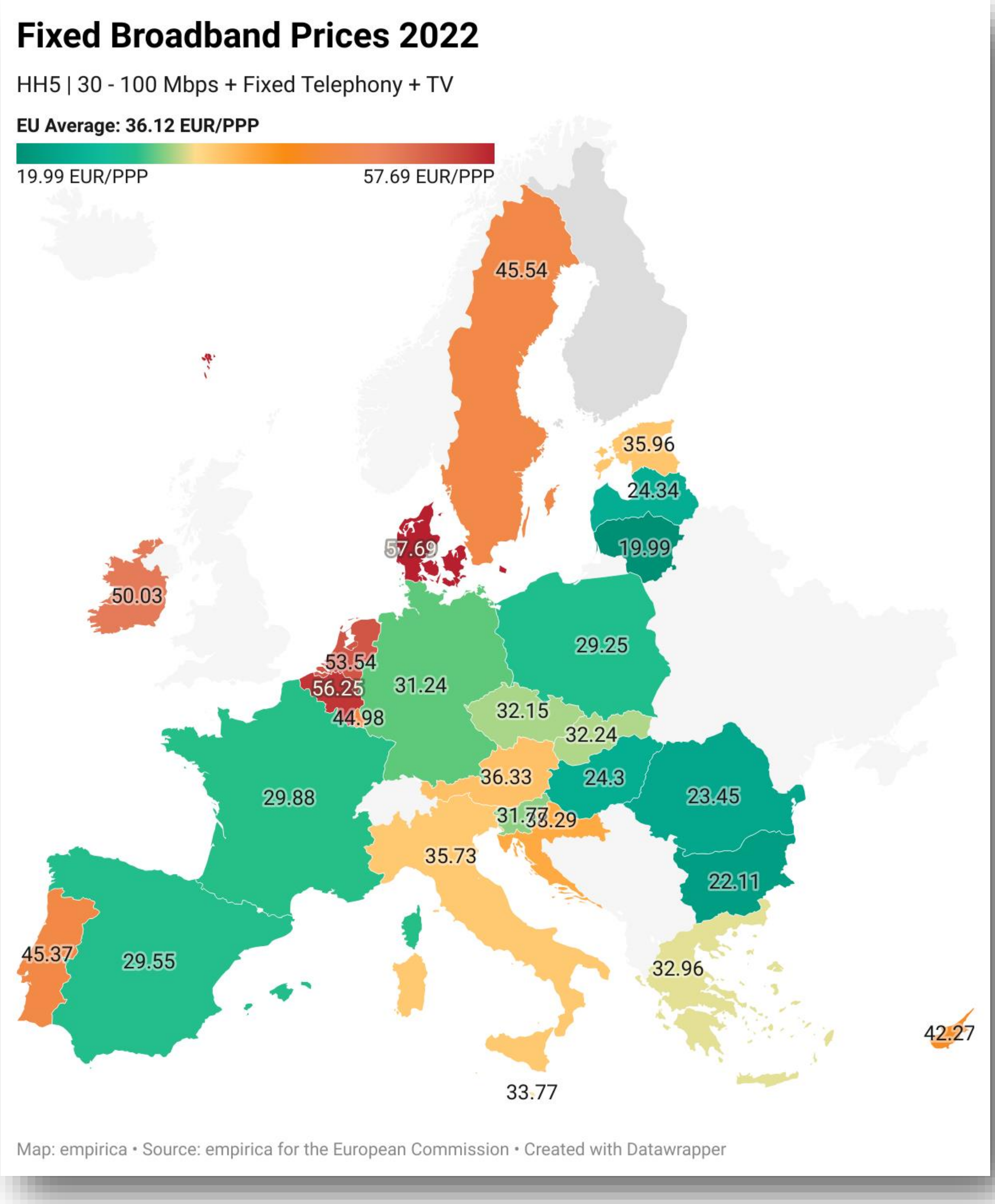
Map 9 – HH4 | ≥ 1 Gbps fixed internet with fixed phone



4.1.5. Triple Play across Europe, HH5-HH8

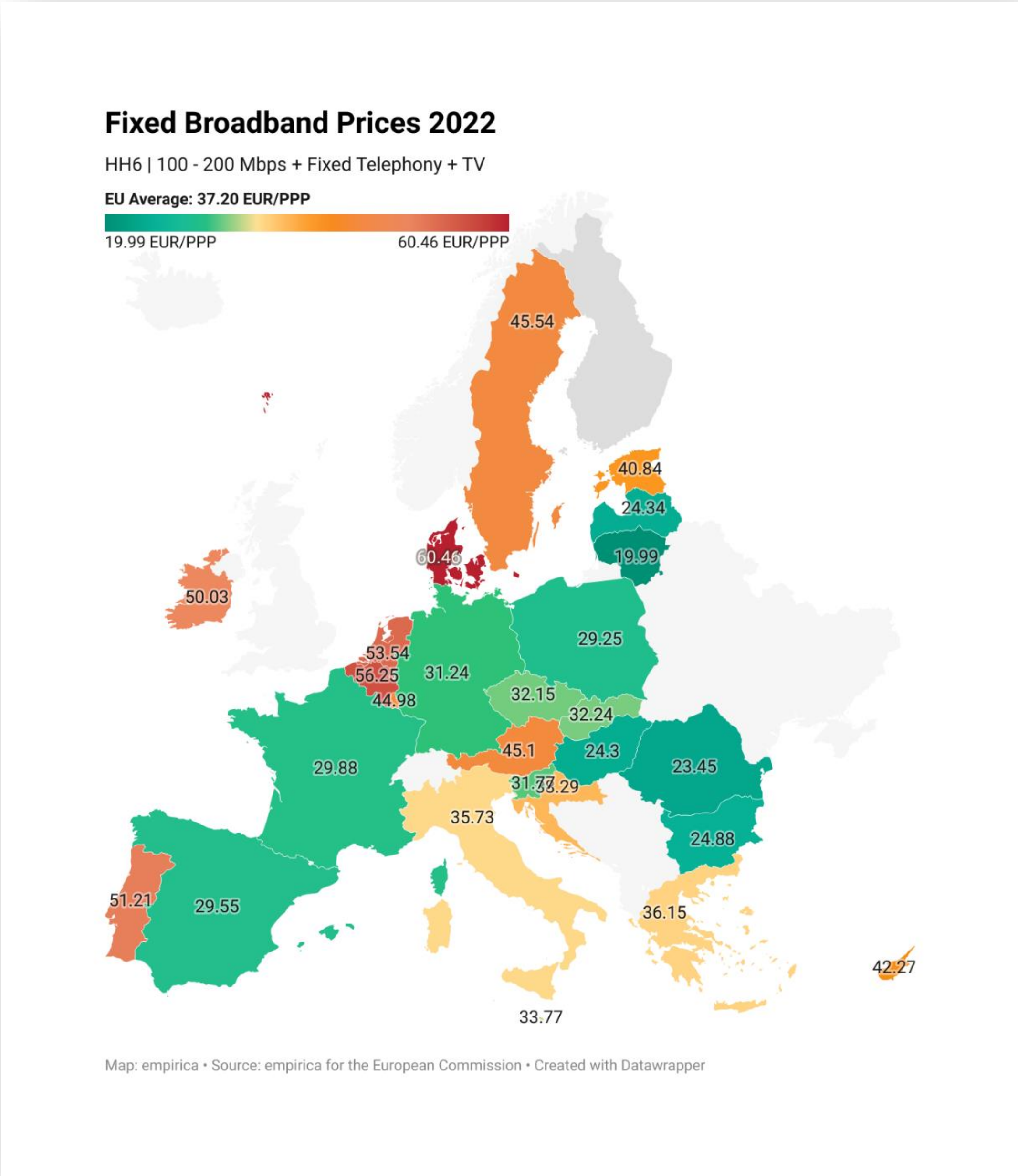
In the least expensive price cluster for Triple Play in HH5, Lithuania is accompanied by Bulgaria, Romania, and Hungary. The least expensive offer is €19.99, around half of the EU27 average.

Map 10 – HH5 | 30 - 100 Mbps Triple Play



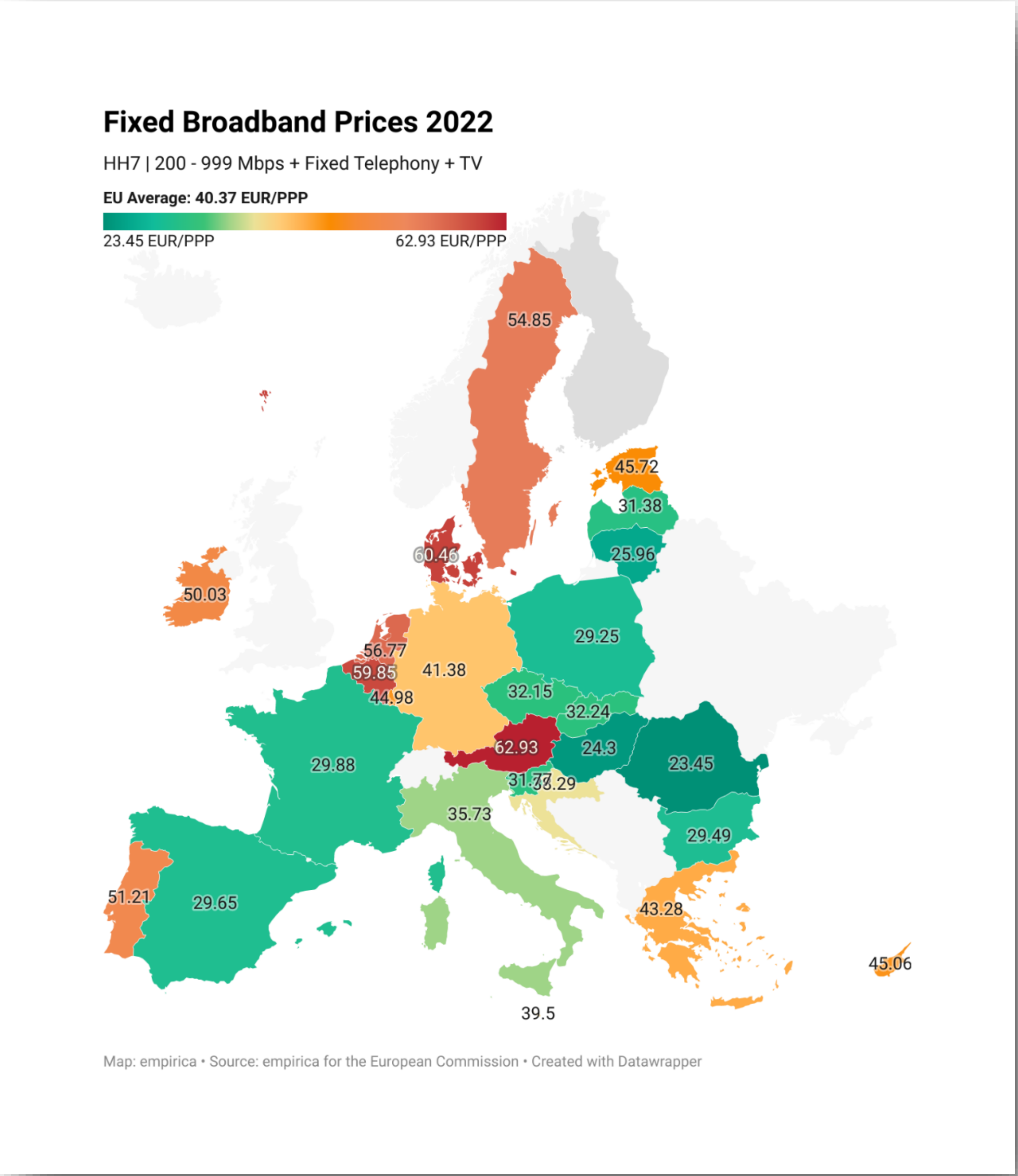
The best in class in HH6 are Lithuania, Romania, Hungary, and Latvia. The average price across the EU27 for this category stands at €37.20, which is almost twice the price of the least expensive offer found at €19.99.

Map 11 – HH6 | 100 - 200 Mbps Triple Play



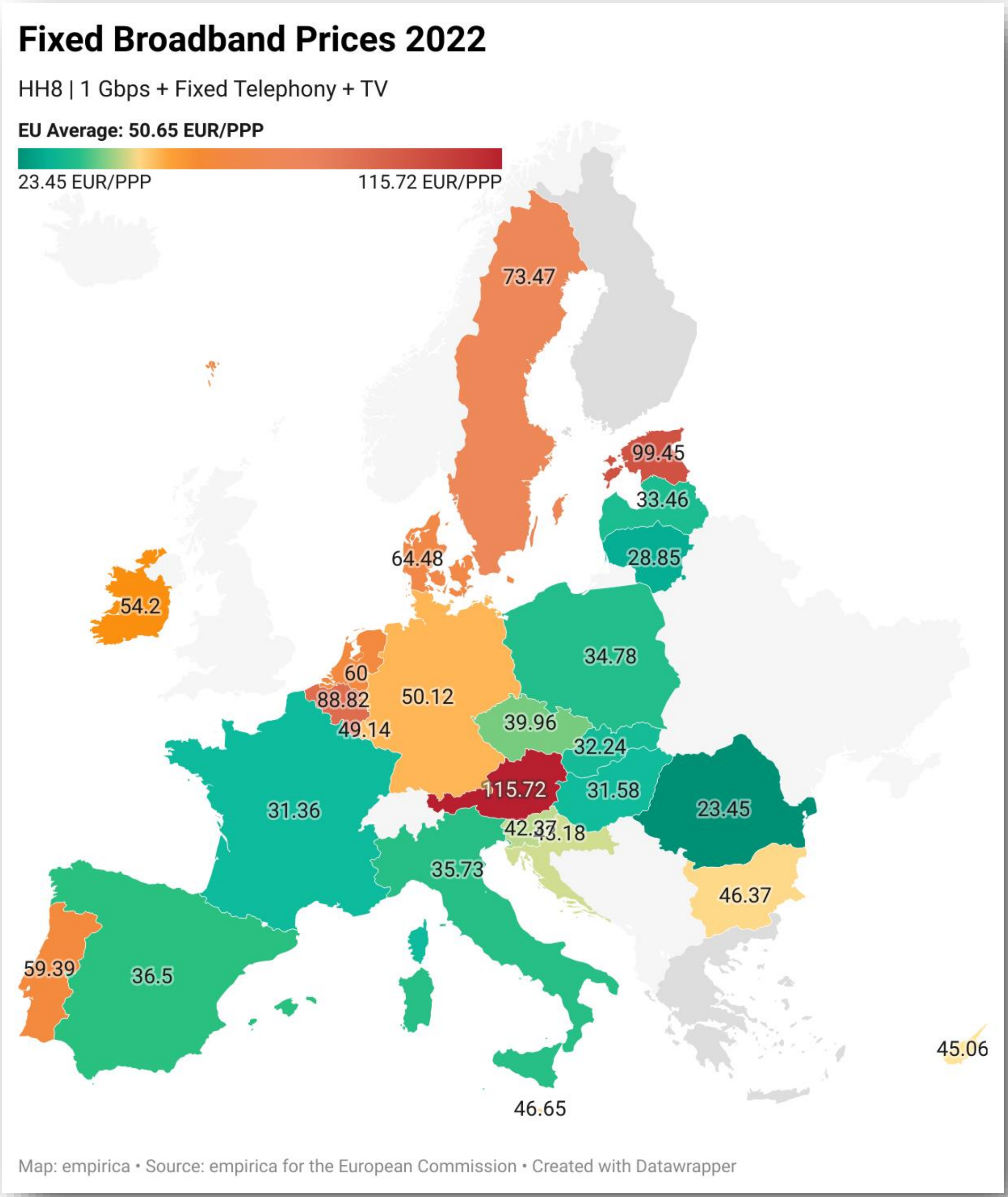
The best in class in HH7 are Romania, Hungary, Lithuania, and Poland. The EU27 average is €40.37, which is slightly less than twice the price of the least expensive offer found at €23.45.

Map 12 – HH7 | 200 - 999 Mbps Triple Play



The best in class in HH8, the Triple Play Gigabit basket, are Romania, Lithuania, France, and Hungary. Among the EU27 countries, the range of lowest prices varies from €23.45 to €115.72, making it the second most extensive price range among all HH baskets.

Map 13 – HH8 | ≥ 1 Gbps Triple Play



4.1.6. Price trends

Has fixed broadband got cheaper since last year?

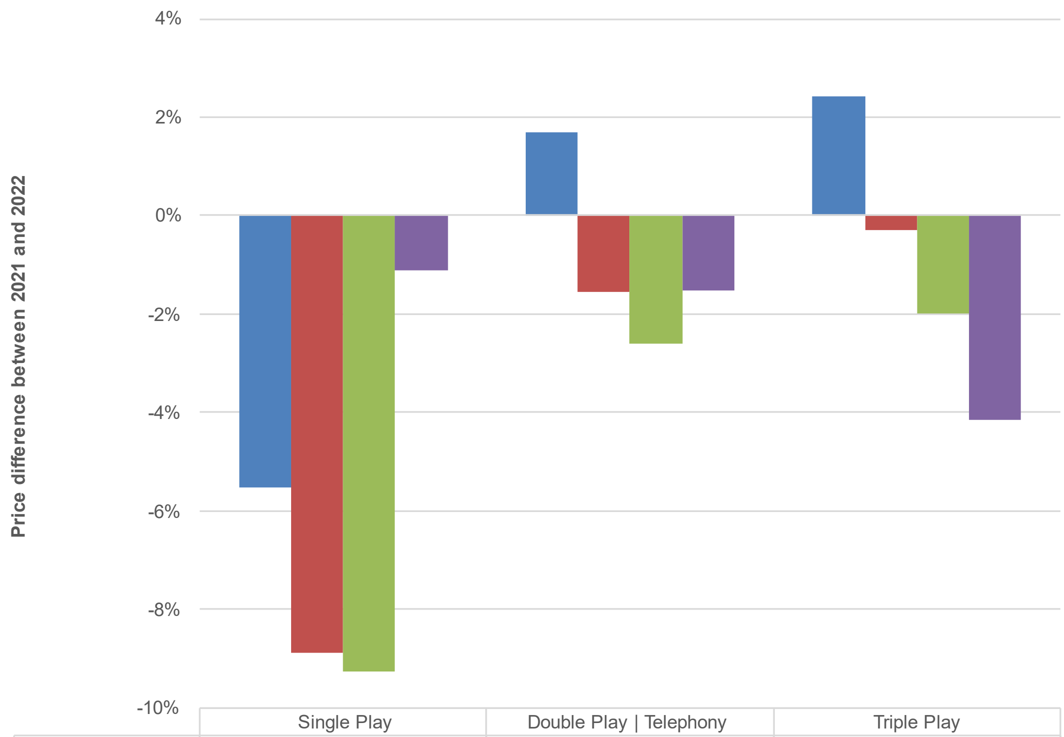
All baskets, including Single Play, Double Play, and Triple Play, have witnessed changes in prices. On the EU level, there has been an overall decrease in prices compared to last year for offers in the speed category of ≥100 Mbps.

Figure 22 shows a price decline for Single Play (30 - 100 Mbps), while Double Play and Triple Play offers (30 - 100 Mbps) experienced a slight increase (1.69% and 2.42% respectively) in comparison to last year.

The most notable changes can be observed in Single Play offers with speeds ranging from 100 Mbps to 999 Mbps, where prices have decreased by approximately 9%.

In the gigabit category, Triple Play offers have experienced a more significant decrease, with prices dropping by approximately 4.14%.

Figure 22 – Price changes in least expensive broadband prices, EU level (2021-2022)



	Single Play	Double Play | Telephony	Triple Play
≥30 - <100 Mbps	-5,52%	1,69%	2,42%
≥100 - <200 Mbps	-8,87%	-1,55%	-0,29%
≥200 - <999 Mbps	-9,27%	-2,61%	-1,99%
≥ 1 Gbps	-1,10%	-1,51%	-4,14%

4.1.7. The bigger picture: the EU in the world

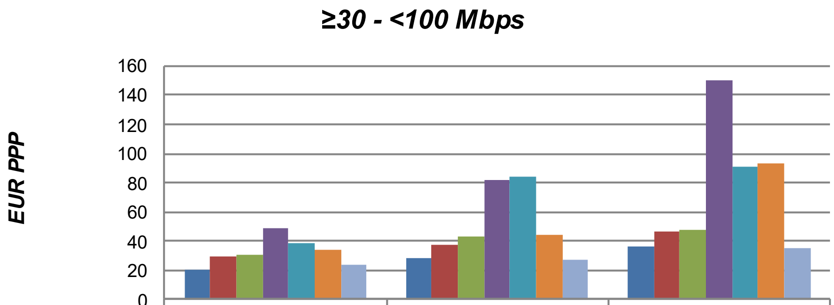
Comparing the EU with the rest of the world in 2021

To give an indication of how prices in the EU compare with the rest of the world, a full set of data on fixed broadband internet offers was collected for each of six non-EU countries, two Asian (Japan and South Korea), the USA, Norway, Iceland, and the United Kingdom. The inclusion of Japan and South Korea is significant as these countries are known for their advanced and high-speed broadband infrastructure. The USA was represented by three states to capture regional variations within the country: New York State (Middle-Atlantic Division), Colorado (Mountain Division), and California (Pacific Division).

By examining the data from these countries, a comprehensive perspective can be obtained to compare broadband internet prices with the EU prices and gain insights into global pricing and variations.

Figure 23 below shows how the mean least expensive prices in the EU27 relate to those in the selected non-EU countries.

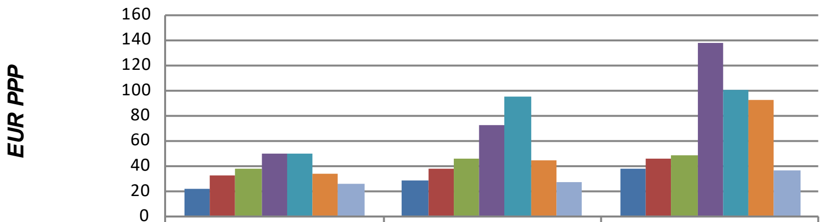
Figure 23 – EU27 mean least expensive prices compared to other countries in the world (expressed in EUR/PPP, VAT included) [47]



	Single Play	Double Play	Triple Play
EU27	19.96	27.84	36.12
Japan	29.11	37.72	46.42
South Korea	30.82	43.48	47.18
USA	49.25	81.48	150.31
Norway	38.26	83.50	90.47
Iceland	34.33	43.81	92.97
UK	23.50	27.12	35.29

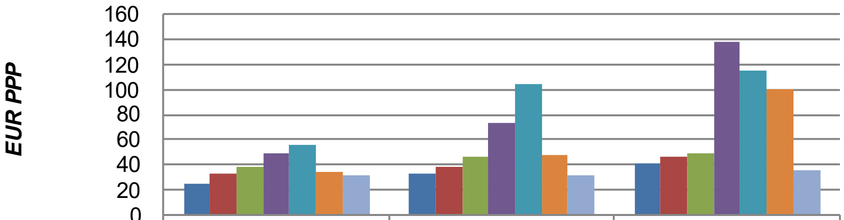
[47] Prices given for the USA are calculated as the average of the least expensive offers found in each of the states California, Colorado and New York.

≥100 - <200 Mbps



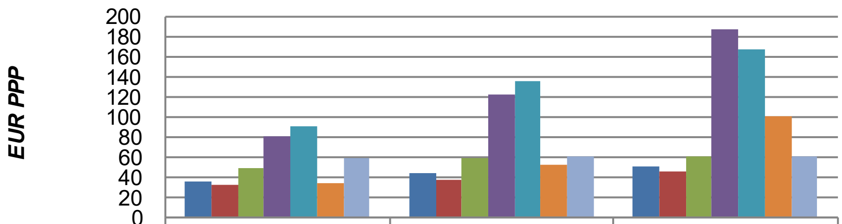
	Standalone	Double Play | Phone	Triple Play
EU27	21.32	28.73	37.20
Japan	32.93	37.72	46.42
South Korea	37.69	45.75	48.92
USA	49.25	72.91	138.08
Norway	49.42	94.65	100.92
Iceland	34.33	43.81	92.97
UK	26.07	27.12	36.16

≥200 - <999 Mbps



	Standalone	Double Play | Phone	Triple Play
EU27	24.94	32.60	40.37
Japan	32.93	37.72	46.42
South Korea	37.69	45.75	48.92
USA	49.25	72.91	138.08
Norway	55.69	104.41	114.86
Iceland	34.33	48.23	100.77
UK	30.96	32.01	36.16

≥ 1 Gbps



	Standalone	Double Play | Phone	Triple Play
EU27	35.17	43.73	50.65
Japan	32.93	37.72	46.42
South Korea	49.38	59.30	60.23
USA	80.08	121.50	186.67
Norway	90.54	135.77	167.83
Iceland	34.33	52.66	100.77
UK	59.35	60.40	60.40

When comparing the EU27 with other countries worldwide, a consistent pattern emerges across all download speed categories. The EU27 region tends to offer the most affordable prices, particularly for Single Play offers below 999 Mbps. Japan stands out with the most attractive prices for gigabit Single, Double, and Triple Play offers, closely followed by the EU27. For offers below 999 Mbps, UK prices are slightly lower than those in the EU27, with a difference ranging from €0.59 to €4.21.

It is worth noting that when looking at bundled offers across all speed categories, the EU27 generally offers more affordable prices compared to countries such as the USA, South Korea, Norway, and Iceland.

This analysis suggests that in terms of broadband affordability, the EU27 has competitive pricing. However, when it comes to high-speed offerings, Japan takes the lead in terms of attractive prices.

4.1.8. Speed premiums

When it comes to higher data speeds, the infrastructure required to support them is more expensive. Therefore, it is natural to expect that the prices for plans with higher advertised download speeds will be higher than those with lower speeds. To assess the cost difference, a speed premium[48] was calculated for each country in 2022. This was done by comparing the prices of offers in neighbouring speed baskets. The price considered was that of the least expensive offer for the respective basket/bundle combination in the country. A speed premium is an amount that a consumer must pay when upgrading from one speed basket to another. For instance, if a customer wants to upgrade from a Double Play bundle with telephony services in the 30-100 Mbps range to a similar service in the 100-200 Mbps basket, they will have to pay a speed premium.

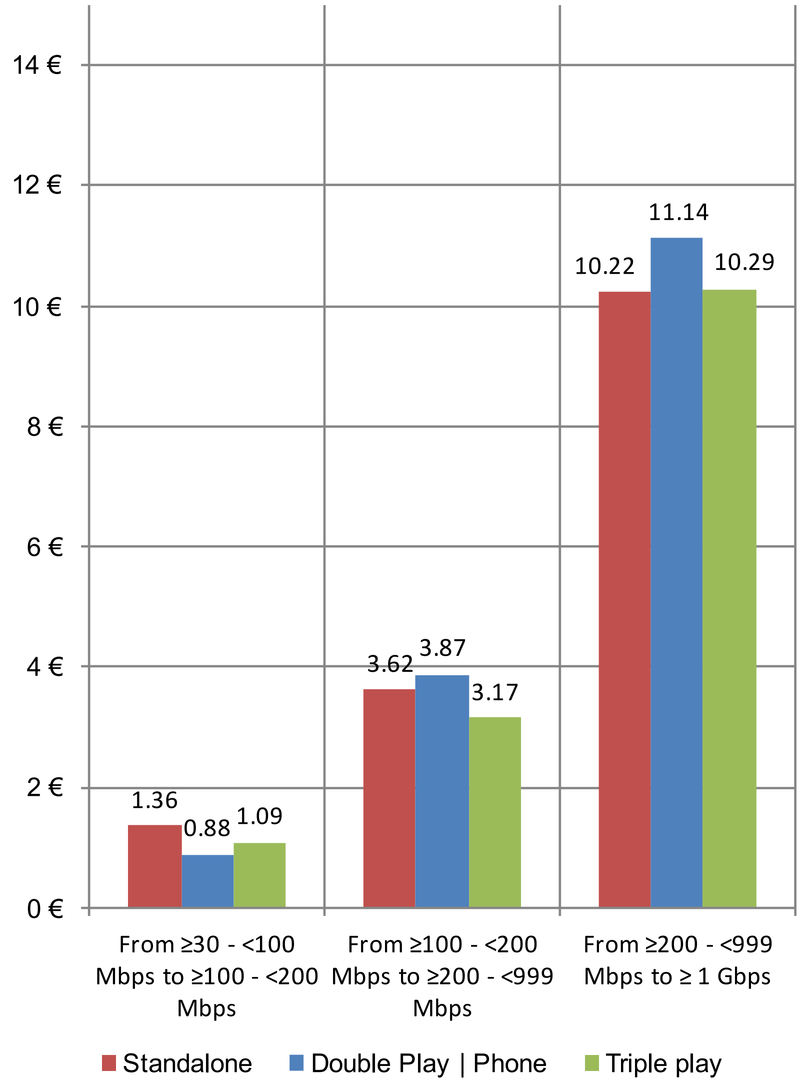
[48] Similarly, calculated price differences have been referred to previously as "high speed premiums". Using this term confuses the idea of a high (download) speed with the price comparison at hand. The comparison of prices for the speed premium is of two speed baskets, one *higher* than the other, but in many cases, *both* properly referred to as *high speed*. (High) speed premiums do not represent the price for high-speed internet but the additional price for (more) speed.

The average speed premiums across the EU for each service bundle are shown in Figure 24.

Figure 25, Figure 26 and Figure 27 provide more detailed information on the speed premiums per country[49] and per service bundle for the basket transition (upgrade) from 30 - 100 Mbps to 100 - 200 Mbps, 100 - 200 Mbps to 200 - 999 Mbps and from 200 - 999 Mbps to the top speed basket ≥ 1 Gbps.

Compared to data from 2021, the speed premiums are significantly lower, especially when upgrading from 30 - 100 Mbps to 100 - 200 Mbps, for standalone, Double and Triple Play offers.

Figure 24 – EU27 average speed premiums by service bundle and speed transition



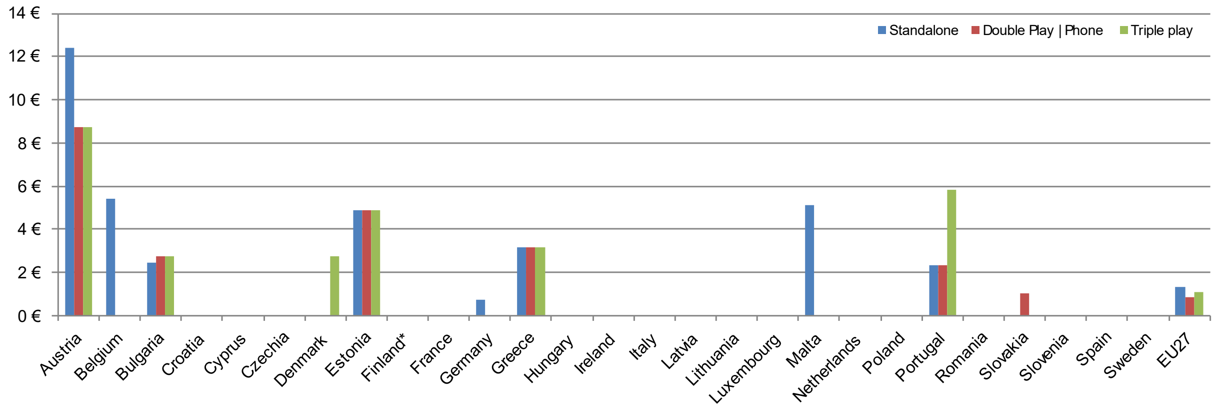
In certain cases, it has been observed that for several service bundles in various countries, offers in a lower download speed basket are priced higher than the cheapest offer available in

[49] An asterisk indicates that no offer was found on the market in the particular bundle/basket offer category in the respective country.

the next higher speed basket. This means that upgrading to the next higher speed tier is more cost-effective for consumers compared to opting for a lower speed option.

In these scenarios, the same offer is considered the cheapest for consumers seeking services in either speed basket. This means that the price for the higher speed option is the same or even lower than the price for the lower speed option. In such cases, the speed premium is zero because there is no additional cost associated with upgrading to the higher speed tier.[50]

Figure 25 - Speed premiums from 30 - 100 Mbps to 100 - 200 Mbps by country



In the EU, averaging all three bundle types, customers pay approximately €1.1 extra for a 100-200 Mbps broadband offer compared to a 30-100 Mbps offer.

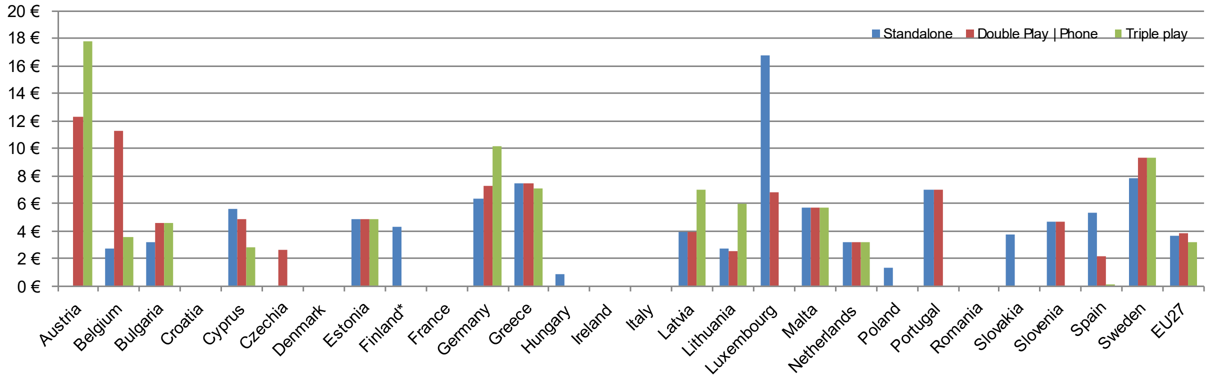
However, it is worth noting that the speed premium can vary slightly depending on the specific bundle type. For example, for Double Play bundles that include phone services, the speed premium is around €0.88. On the other hand, for standalone baskets without additional services, the speed premium is slightly higher at around €1.36.

These figures give an indication of the average price difference between different speed tiers in the EU market. They highlight the additional cost customers can expect to pay for higher speed broadband connections, providing insights into the pricing structure of broadband offers across different speed categories and bundle types.

The calculated EU average includes many cases of zero premiums, including sixteen countries with all service bundles at zero premiums. It is therefore unsurprising that, where a premium must be paid, it is often significantly higher than the average. In Austria, Estonia and Greece, the market exhibits particularly higher premiums from 30-100 Mbps to 100-200 Mbps.

[50] This is represented by an empty column in the figure, e.g., for all service bundles in Italy.

Figure 26 – Speed premiums from 100 - 200 Mbps to 200 - 999 Mbps by country

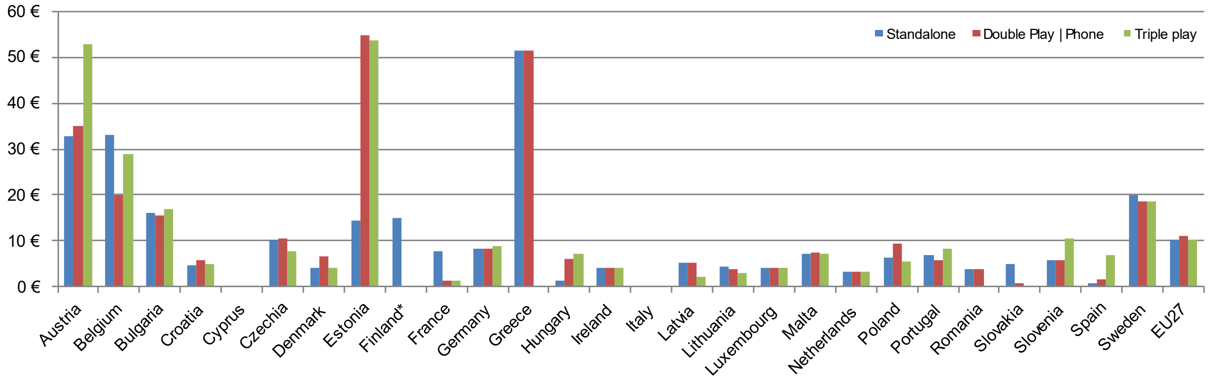


Speed premiums, shown in Figure 26, for upgrading from 100-200 Mbps to 200-999 Mbps differ significantly from those for the lower speed transition (between 30-100 and 100-200 Mbps, Figure 25). For this transition from 100-200 Mbps to 200-999 Mbps, the EU average speed premium varies depending on the service bundles. If a consumer chooses a standalone internet package, they will typically pay an additional €3.62 for the upgrade. For Double Play offers, which include internet and another service such as phone or television, the additional cost is around €3.87. In the case of Triple Play offers, which include internet, fixed phone, and television services, the speed premium is approximately €3.17.

There are fewer cases of zero premiums overall in this basket transition than in the lower speed transition. Only Croatia, Denmark, France, Ireland, Italy, and Romania have zero premiums across all service bundles. Usually, the least expensive 100-200 Mbps offer is an offer with an advertised download speed belonging to the 200-999 Mbps basket[51].

Consumers in Austria, Germany, Greece, Luxembourg, and Sweden face high speed premiums for this transition, with consumers having to pay significantly above the European average.

Figure 27 – Speed premiums from 200 - 999 Mbps to ≥ 1 Gbps by country



The data presented in Figure 27 reveals that the cost of transitioning to the top speed basket differs greatly among EU countries. It appears that consumers in Austria, Belgium, Estonia, Greece, and Sweden appear to have to pay high speed premiums, which are often significantly higher than the EU average of €10.55 across the EU.

[51] The offer promises the fastest download speed possible technically available at the customer's premises.

These countries exhibit a higher cost for upgrading to the top speed tier, indicating that there may be market-specific factors (e.g. low fibre coverage, high usage of FWA services etc.) influencing pricing strategies and competition in the broadband industry. The higher premiums in these countries suggest that the cost of accessing the highest speed tier is relatively higher for consumers compared to the EU average.

It's important to note that these premium variations can be influenced by factors such as market competition, infrastructure development, and local regulations. Consumers in these countries may need to consider the trade-off between the higher cost of accessing the top speed tier and the benefits they derive from faster internet speeds.

4.1.9. Bundle premiums

The bundle premiums calculated and reported here represent the increase in price that consumers face for upgrading a standalone internet (Single Play offer) to one including fixed telephony or fixed telephony and TV services, without a change in the download speed basket of the fixed broadband internet service. For example, the bundle premium for Double Play with fixed telephony represents the additional cost a consumer must pay for adding fixed telephony to a standalone fixed broadband offer.

To give a first overview, EU averages for all the bundle premiums are shown in Figure 28.

Figure 28 – EU27 average bundle premiums by speed basket and added service(s)

On average, adding telephony services to a broadband package costs €7.44 for all speed baskets. If both telephony and additional services (such as television) are added, the average cost increases to around €15.82.

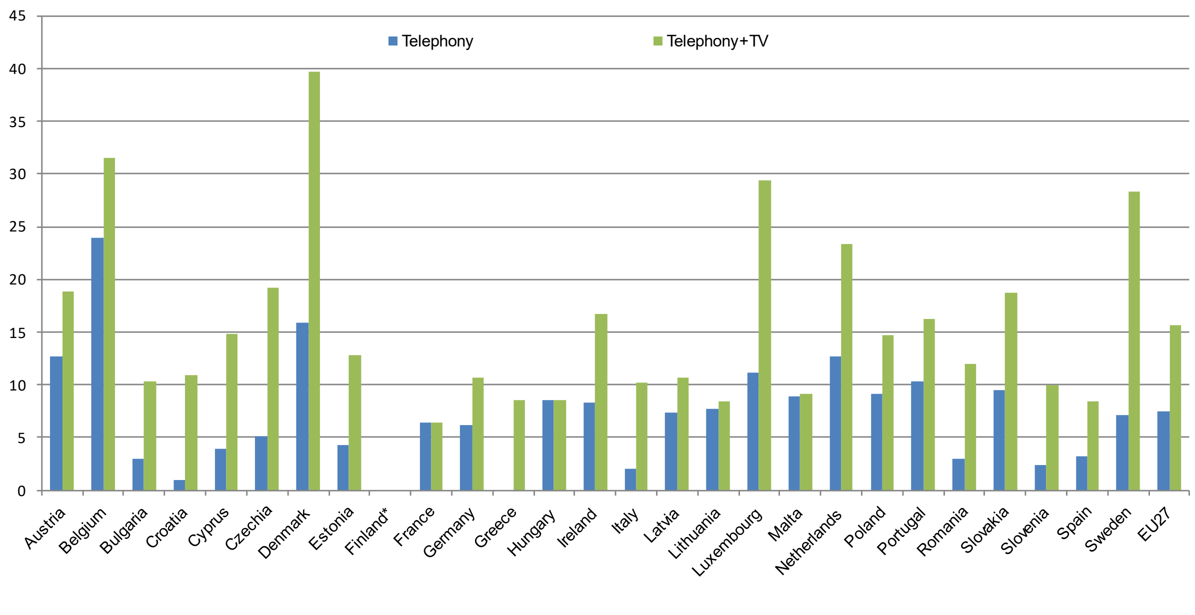
Remarkably, there is no clear trend indicating that adding services becomes cheaper in the higher speed baskets. This suggests that the bundle premium does not necessarily correlate with the speed of the broadband package.

Adding services in the 30 - 100 Mbps basket

Figure 29 shows the bundle premium for adding services in the 30 - 100 Mbps basket.

- **Fixed telephony**
    - The prices for adding telephony services to broadband packages show significant variation among the EU27 countries. In Greece, for example, the least expensive standalone offer already includes telephony services, eliminating the need for an additional premium. In other countries, the premium for adding telephony varies, with the lowest premium of €0.92 found in Croatia and the highest premiums exceeding €20 observed in Belgium.
    - On average, across the EU27 countries, the premium for adding telephony services is €7.44. No offer including fixed telephony was found in Finland[52].
- **Fixed telephony and TV services**
    - The bundle premiums for fixed telephony and TV services range from €6.36 in France to €39.7 in Denmark. The premium in Denmark is more than double the EU27 average, which stands at €15.7. No offer including telephony services was found in Finland.

Figure 29 - Bundle premiums 30 - 100 Mbps by country [in EUR PPP]



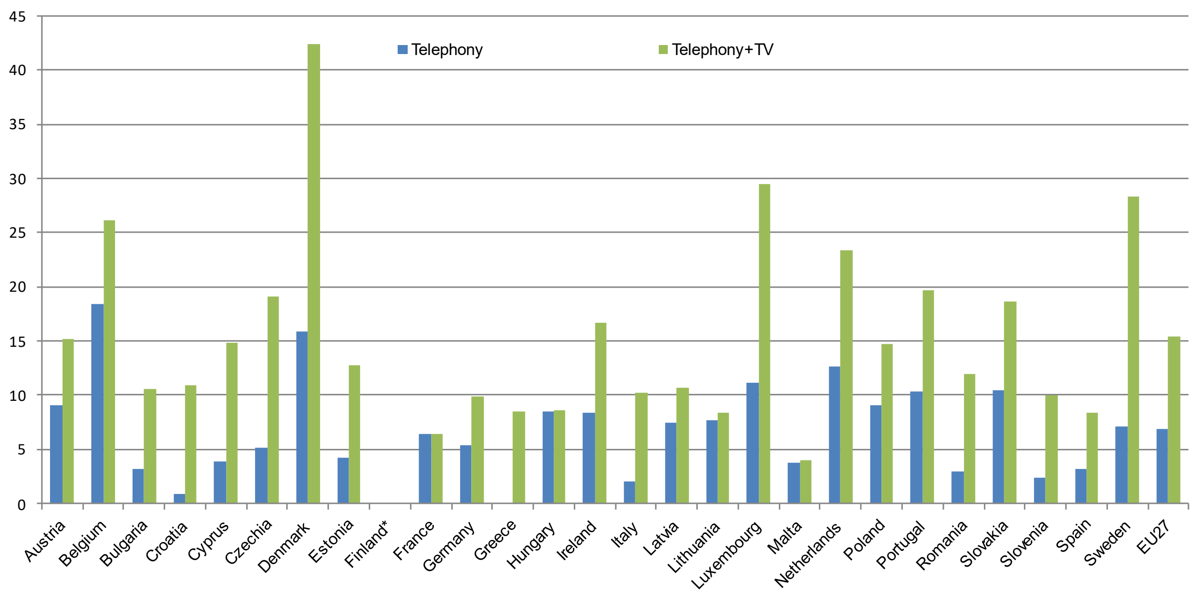
[52] According to Digital Economy and Society Index (DESI) 2022 Finland 'the voice call market is witnessing a switch from fixed-to-mobile as there are only 224 000 fixed telephone lines left (of which 158 000 are business subscriptions)'.

Adding services in the 100 - 200 Mbps basket

Figure 30 shows the bundle premium for adding services in the 100 - 200 Mbps basket.

- **Fixed telephony**
  - In Greece, the least expensive standalone offer already includes fixed telephony services. For the rest of the countries, the premium ranges between €0.92 in Croatia and €18.45 in Belgium. The EU27 on average is at €6.9. No offer including telephony was found in Finland.
- **Fixed telephony and TV services**
  - The premiums for bundling fixed internet (100-200 Mbps) with both fixed telephony and TV services range between €4 in Malta and €42.47 in Denmark. The EU27 on average is at €15.38. No offer including telephony services was found in Finland.

Figure 30 – Bundle premiums 100 - 200 Mbps by country [in EUR PPP]



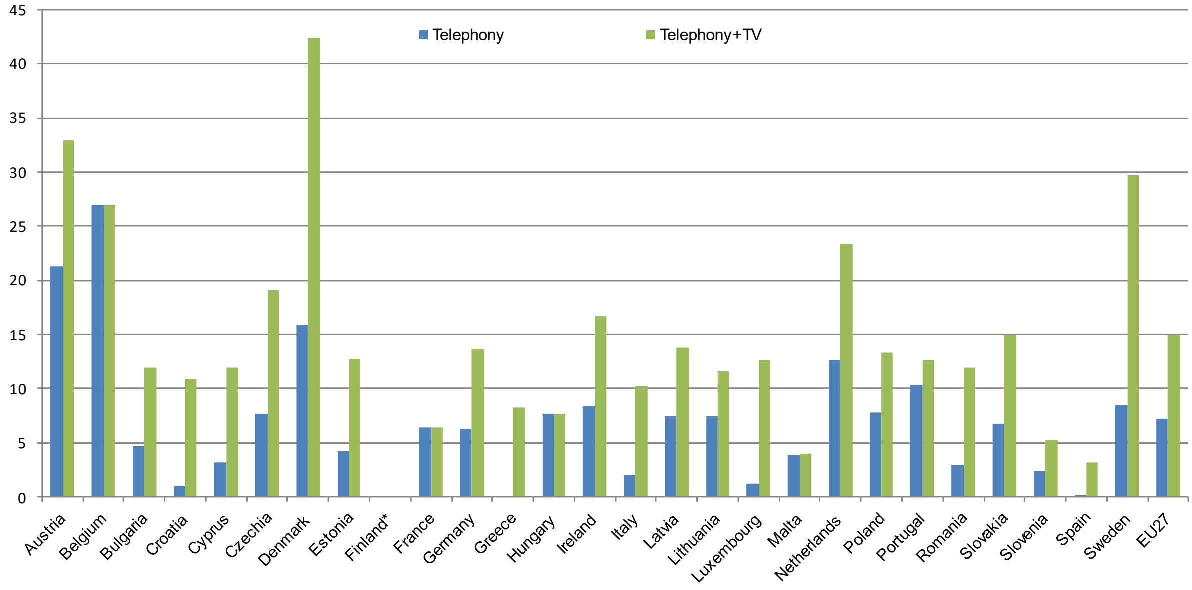
Adding services in the 200 - 999 Mbps basket

Figure 31 shows bundle premiums for adding services in the 200 - 999 basket.

- **Fixed telephony**
  - The premium for adding a fixed telephony service to the 200 – 999 Mbps fixed internet standalone basket is between €0.42 in Spain and around €27 in Belgium. The EU27 on average is at €7.18. No offers in this basket including telephony were found in Finland.
- **Fixed telephony and TV services**
  - The premiums for bundling fixed internet (200-999 Mbps) with both fixed telephony and TV services range between €3.22 in Spain and €42.47 in

Denmark. The EU27 on average is at €14.95. No offers in this basket including telephony were found in Finland.

Figure 31 – Bundle premiums 200 - 999 by country [in EUR PPP]

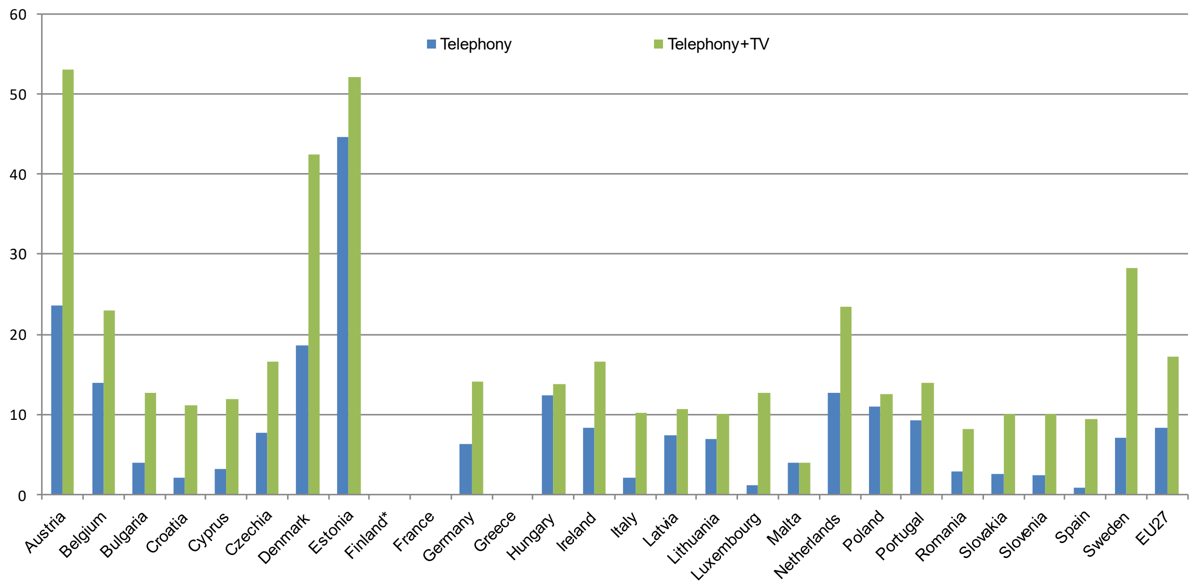


Adding services in the ≥ 1 Gbps basket

Figure 32 below shows bundle premiums for adding services in the ≥ 1 Gbps basket.

- **Fixed telephony**
  - In France and Greece, the least expensive standalone offers in this speed basket category already include fixed telephony services. For the other countries, the premium ranges between €0.91 in Spain and €44.71 in Estonia. The EU27 on average is at €8.27. No offers in this basket including telephony were found in Finland.
- **Fixed telephony and TV services**
  - The premiums for adding fixed telephony and TV services to a ≥ 1 Gbps internet servicerange between €4 in Malta and €53.04 in Austria. The EU27 on average is at €17.24. No Triple Play offers in this speed basket were found in Greece. No offers in this basket including telephony were found in Finland.

Figure 32 – Bundle premiums ≥ 1 Gbps by country [in EUR PPP]

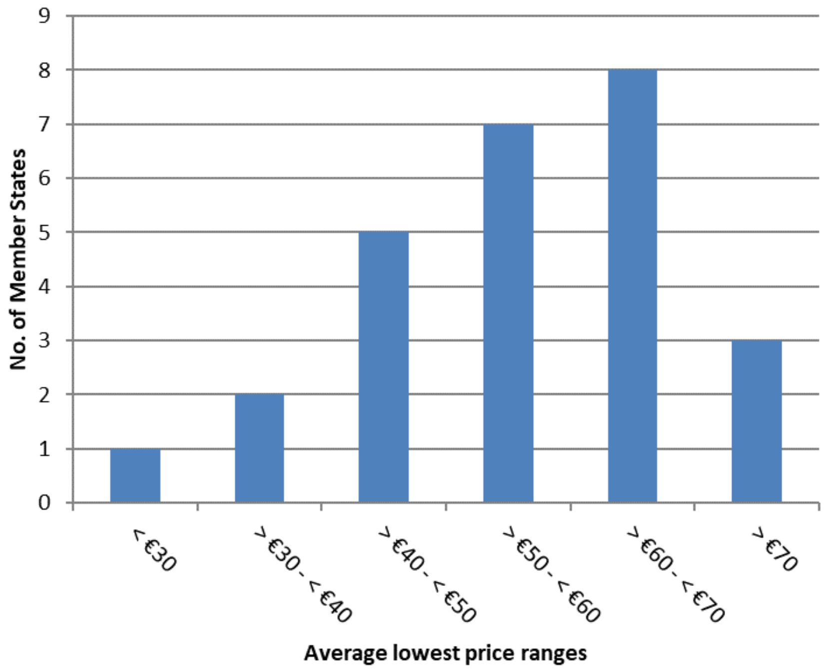


4.2. Converged household baskets

4.2.1. 2022 prices across the EU for converged (fixed & mobile) offers

The fixed – mobile (converged) bundles reported here are a combination of the most affordable mobile component (whether bundled or not) and the most affordable fixed broadband bundle that are available for a typical household. In cases where a household requires both mobile broadband and fixed broadband, and there is no corresponding converged bundle, synthetic offers are identified by combining available offers that can meet the needs of the household. Therefore, the reported offer may not necessarily be from the same provider, but it is the most affordable offer available in the country. According to Figure 33 below, the prices for converged offers across Europe vary significantly. The average lowest price across nine offer categories (five Triple Play offers and four Quadruple Play offers) was calculated for each country. Only one Member State has an average lowest price under €30. In two other countries, consumers can find average prices below €40 from the most competitive large suppliers. Most EU national markets have average prices below €60. However, there are eleven markets with relatively higher averages above €60. Extremely high average prices starting from €70 are exhibited in three Member States. Average prices range from €23.66 to 73.86 with an average of €55.5.

Figure 33 – Country averages across 9 lowest price offers, EU27

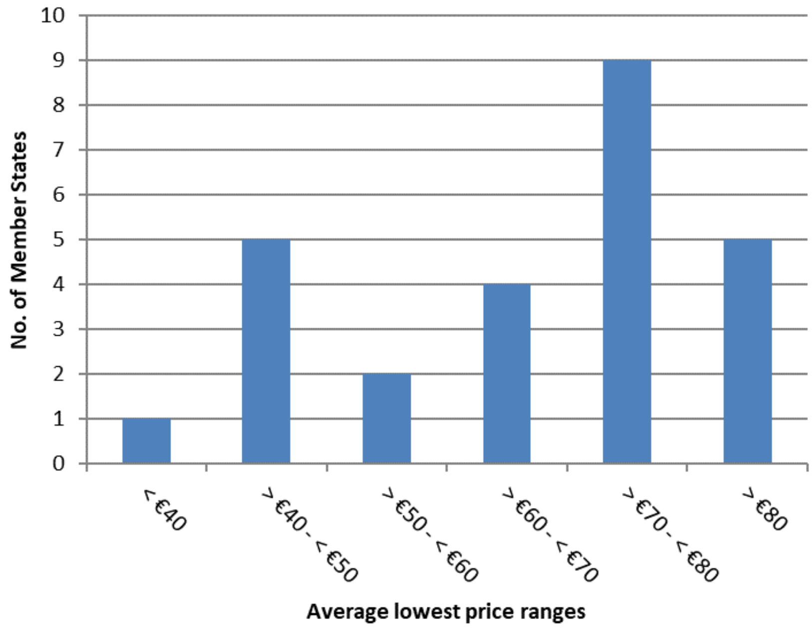


The study monitored in 2019 for the first time Quadruple Play offers, which comprise combinations of fixed broadband (FBB), television, fixed telephony, and mobile services within a service bundle. Figure 34, below, shows the distribution of the cheapest prices found for Quadruple Play offers[53], which indicates unequally populated price categories.

The prices of Quadruple Play offers in Member States vary widely. In six Member States, the lowest prices are less than €50. However, in five Member States, the lowest prices exceed €80. Out of all EU national markets, twelve exhibit average prices below €70, while fourteen have higher average prices. The overall average of the prices across all Member States is €66.03.

[53] The average price among four Quadruple Play offers considered in the study: ≥100 - <200 Mbps fixed internet with fixed phone and TV with 1-SIM, 100 calls and 10 GB mobile; ≥200 - <999 Mbps fixed internet with fixed phone and TV with 1-SIM, 300 calls and 20 GB mobile; ≥200 - <999 Mbps fixed internet with fixed phone and TV with 2-SIM, 300 calls and 20 GB mobile; Gigabit fixed internet with fixed phone and TV with 1-SIM, 300 calls and 20 GB mobile.

Figure 34 – Distribution of lowest prices for Quadruple Play offers EU27



To provide a more comprehensive understanding of the pricing trends, but without introducing the distraction of small price differences, four clusters of countries were identified[54] in each category of offer, that is, for each combination of service bundle and speed basket, based on the prices of the least expensive offer in the bundle/basket category in each country. Figure 35 shows the results.

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[54] k-means clustering was used with k=4; observations (offer categories) are assigned to clusters so as to minimise the average squared Euclidean distance of observations to each cluster centroid.

Figure 35 - Price variation per offer category across the EU, country clusters (converged offers)

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
	≥30 - <100 Mbps fixed internet with fixed phone with 1-SIM, 30 calls 5 GB mobile	≥100 - <200 Mbps fixed internet with fixed phone with 1-SIM, 30 calls 5 GB mobile	≥100 - <200 Mbps fixed internet with fixed phone with 2-SIM, 100 calls 10 GB mobile	≥100 - <200 Mbps fixed internet with fixed phone and TV with 1-SIM, 100 calls 10 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone with 1-SIM, 100 calls 10 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone with 1-SIM, 300 calls 20 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone and TV with 1-SIM, 300 calls 20 GB mobile	≥200 - <999 Mbps fixed internet with fixed phone and TV with 2-SIM, 300 calls 20 GB mobile	≥ 1 Gbps fixed internet with fixed phone and TV with 1-SIM, 300 calls 20 GB mobile
RO	1	1	1	1	1	1	1	1	1
LT	1	1	2	1	1	1	2	2	2
BG	1	1	2	1	1	1	2	2	3
ES	2	2	2	2	1	1	1	1	2
PL	2	2	2	2	1	1	1	1	2
SI	2	2	2	2	1	1	2	1	2
IT	2	2	3	2	1	1	2	2	2
FR	3	3	3	2	2	1	2	1	2
LV	3	3	3	2	2	2	3	3	2
SK	2	2	4	3	3	2	3	3	2
CY	3	3	3	3	2	2	3	3	3
DK	3	3	3	4	2	1	4	2	3
SE	2	2	3	3	3	2	4	3	3
DE	3	3	3	3	3	2	3	3	3
IE	4	4	3	3	3	2	3	2	2
LU	2	2	3	3	2	3	4	4	3
MT	3	3	3	2	3	3	3	3	3
HR	3	3	4	3	3	2	3	3	3
EE	2	3	3	3	3	3	4	3	4
HU	3	3	4	3	3	2	3	4	3
AT	3	4	3	3	3	2	4	3	4
EL	3	3	3	3	3	3	4	4	-
CZ	3	3	4	4	3	3	4	4	3
NL	4	4	4	4	4	3	4	3	3
PT	4	4	4	4	4	4	4	3	3
BE	4	4	4	4	4	4	4	4	3
FI	-	-	-	-	-	-	-	-	-

Cluster Centres [EUR]

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
1	23.64	24.57	22.02	31.95	32.20	37.13	36.27	49.62	28.30
2	34.00	33.88	41.20	42.71	44.97	54.16	45.53	67.98	51.59
3	41.29	41.75	56.92	55.39	51.55	64.42	62.05	91.43	76.18
4	53.94	53.17	76.92	67.17	65.33	79.76	74.22	107.61	129.41

Number of cases in each cluster

	HH9	HH10	HH11	HH12	HH13	HH14	HH15	HH16	HH17
1	3	3	1	3	7	9	3	5	1
2	8	7	5	7	5	9	5	5	9
3	11	11	13	11	11	6	8	11	13
4	4	5	7	5	3	2	10	5	2

Dark green symbol 1 – inexpensive cluster
Light green symbol 2 - relatively inexpensive cluster
Yellow symbol 3 – relatively expensive cluster
Red symbol 4 – expensive cluster

In the following, general country groupings can be observed:

- Romania has the most attractive prices for converged offers in the EU. All the offers in this country belong to the least expensive cluster.
- The majority of offers in Lithuania and Bulgaria belong to the cluster of the least expensive in the respective baskets.
- Spain, Poland, Slovenia, and Italy follow. Spain and Poland have particularly low prices for Triple Play and Quadruple Play offers in the 200 - 999 Mbps speed category.
- Greece, Czechia, the Netherlands, Portugal, and Belgium have no offers belonging to the two less expensive clusters.

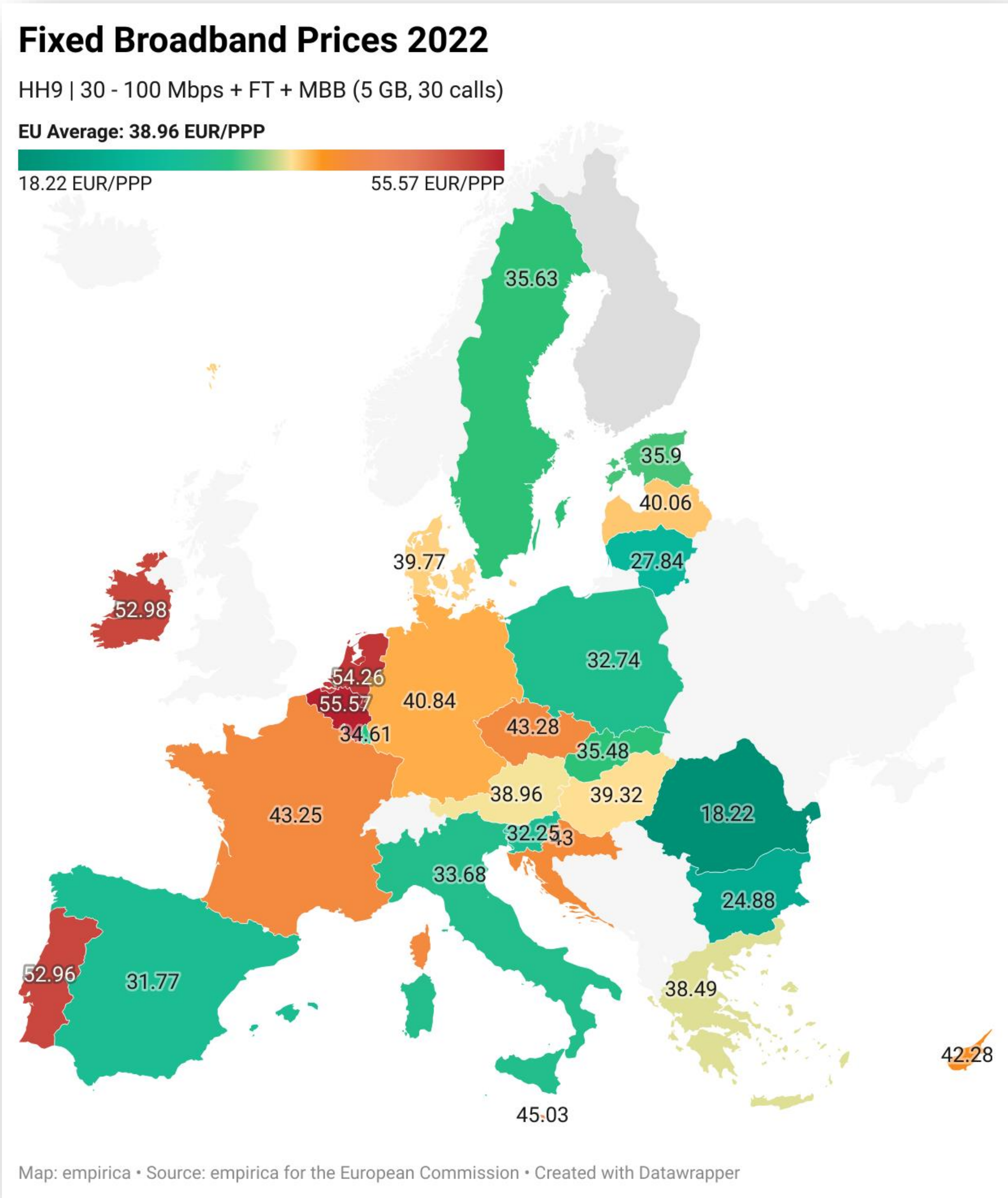
4.2.2. Who is best in class in the EU?

The maps in the following sections show the prices in EU27 countries of the least expensive offers found on the market for each converged/synthetic bundle - Triple Play, Quadruple Play. Each country's comparative level of prices is indicated by a certain colour in the range from dark green (representing the least expensive country) to dark red (representing the most expensive country).

4.2.3. Basket HH9 – 30 - 100 Mbps, fixed telephony, 1 SIM, 30 calls, 5 GB mobile data

The best in class for HH9 are Romania (€18.22), Bulgaria (€24.88), Lithuania (€27.84), and Spain (€31.77), The EU27 average is €38.96.

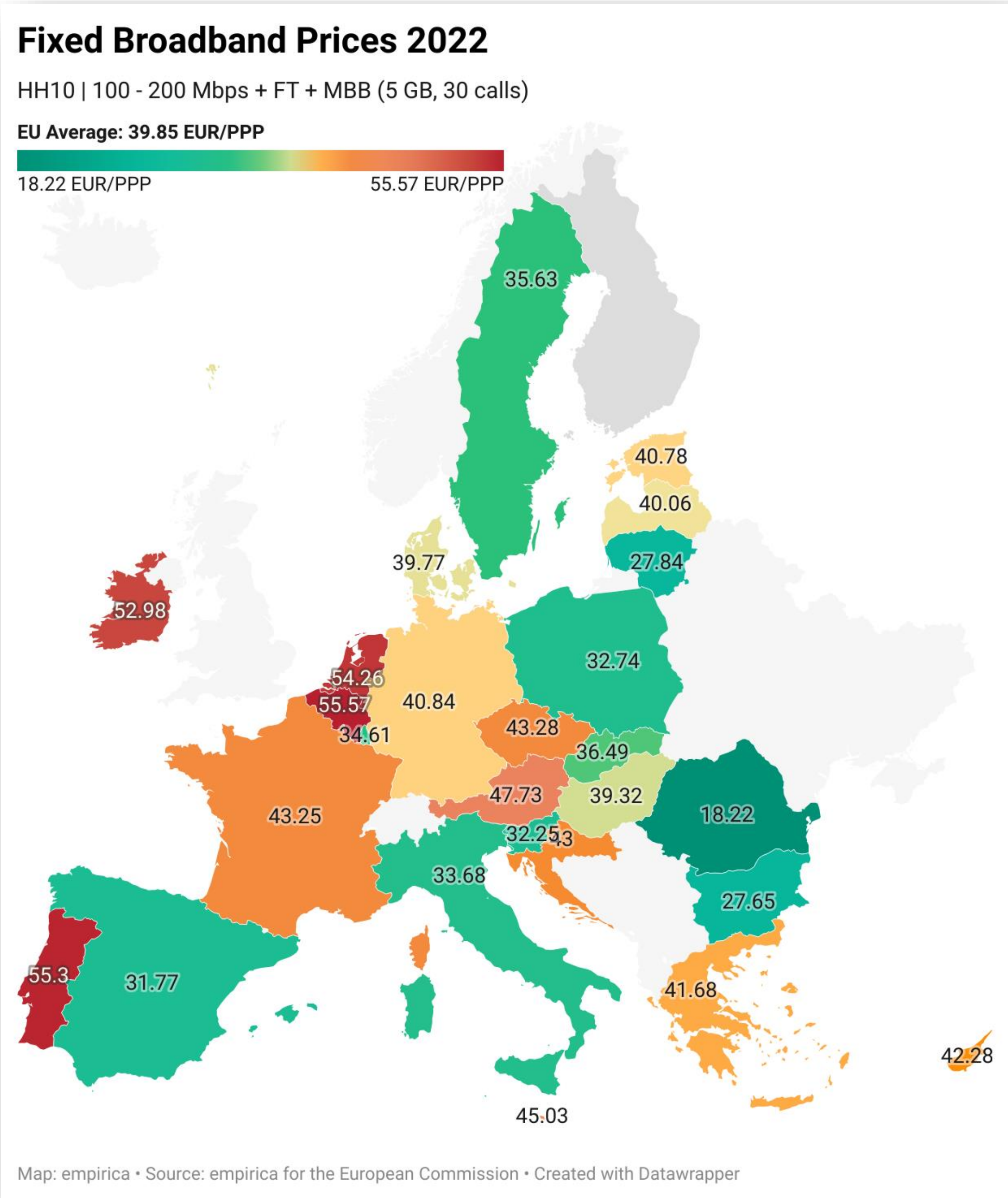
Map 14 – HH9 | – 30 - 100 Mbps, fixed voice, 1 SIM, 30 calls, 5 GB mobile data



4.2.4. Basket HH10 – 100 - 200 Mbps, fixed telephony, 1 SIM, 30 calls, 5 GB mobile data

Romania (€18.22), Bulgaria (€27.65), Lithuania (€27.84), and Spain (€31.77) stand out as the countries providing the most affordable offers for HH10 basket. The average price for HH10 is €39.85.

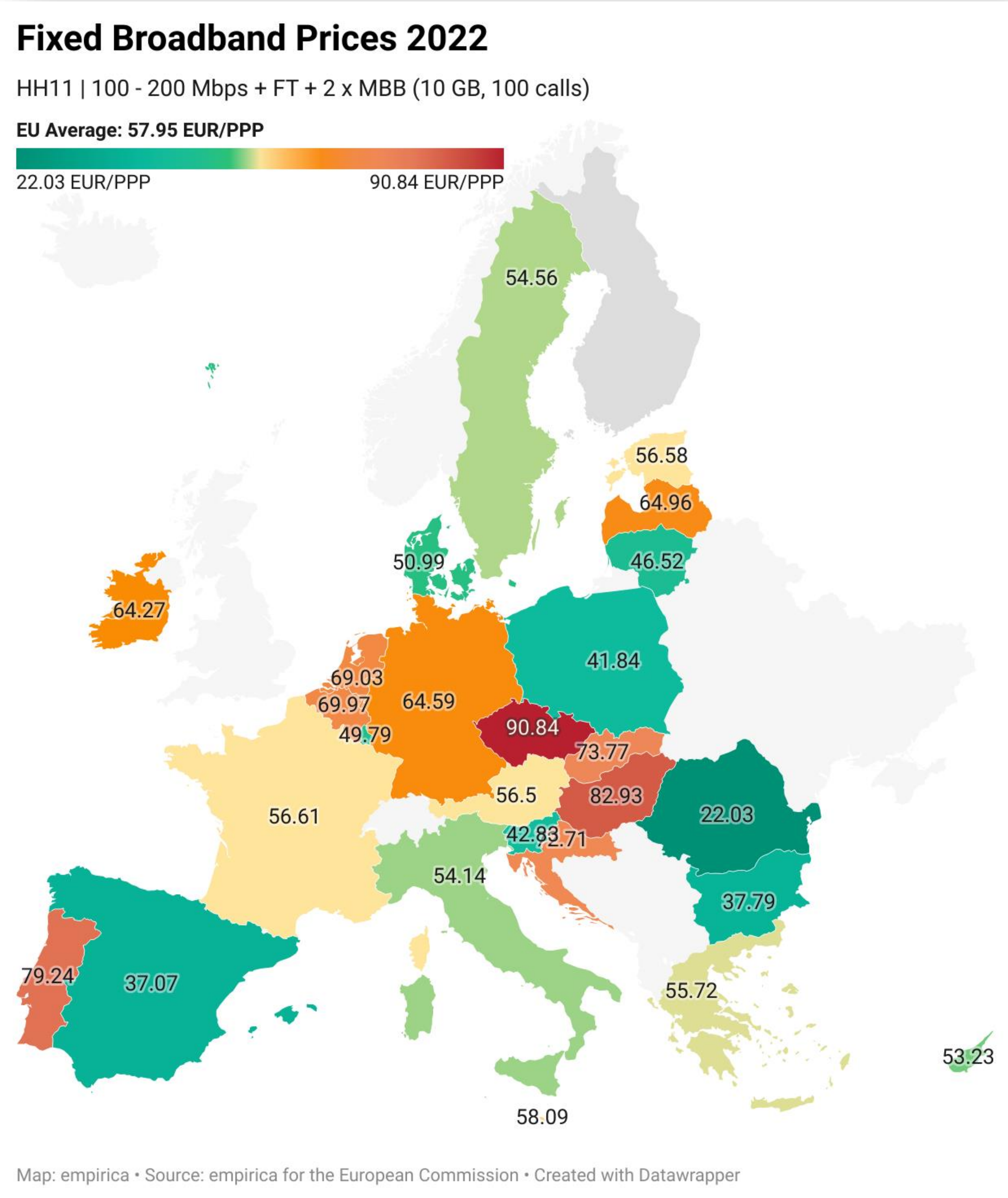
Map 15 – HH10 | 100 - 200 Mbps, fixed telephony, 1 SIM, 30 calls, 5 GB mobile data



4.2.5. Basket HH11 – 100 - 200 Mbps, fixed telephony, 2 SIMs, 100 calls, 10 GB mobile data

The EU27 average in HH11 is €57.95. The best in class in this service bundle are Romania (€22.03), Spain (€37.07), Bulgaria (€37.79), and Poland (€41.84).

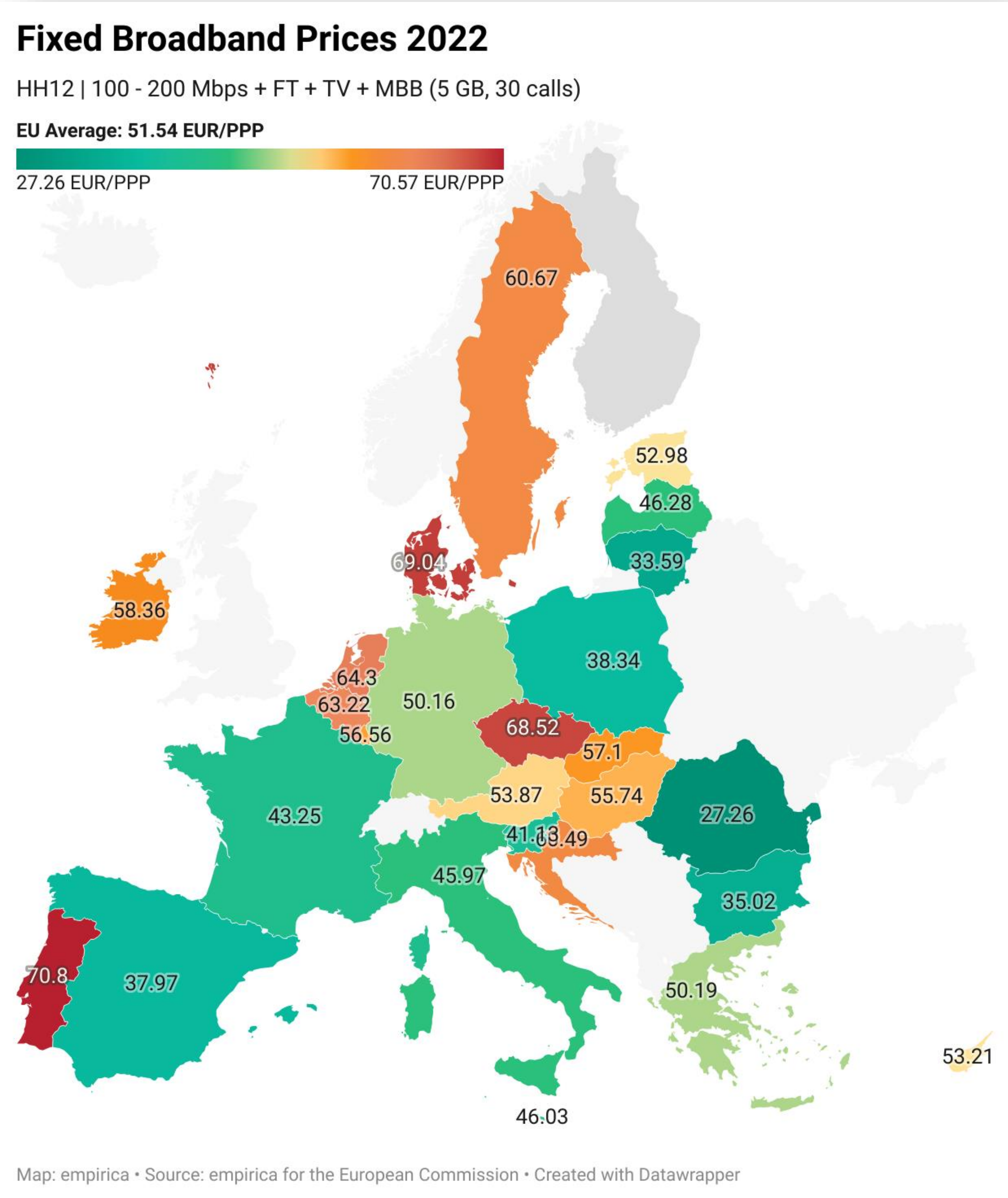
Map 16 – HH11 | 100 - 200 Mbps, fixed telephony, 2 SIMs, 100 calls, 10 GB mobile data



4.2.6. Basket HH12 – 100 - 200 Mbps, fixed telephony and TV, 1 SIM, 100 calls, 10 GB mobile data

In HH12, the smallest Quadruple Play basket, Romania (€27.26) leads the list of the least expensive offers. It is followed by Lithuania (€33.59), Bulgaria (€35.02), and Spain (€37.97). The EU27 average for this category is €51.54.

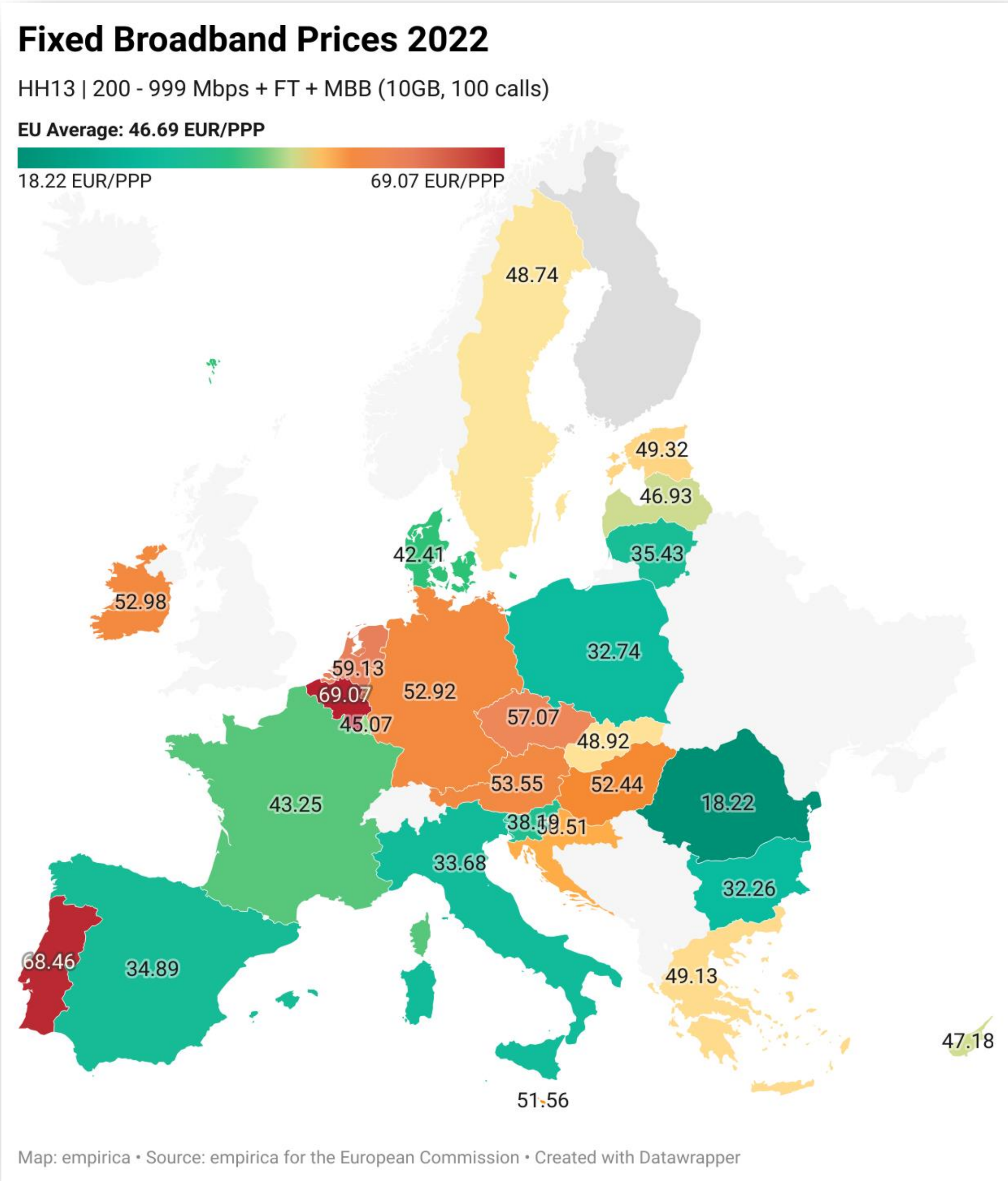
Map 17 – HH12 | 100 - 200 Mbps, fixed telephony and TV, 1 SIM, 100 calls, 10 GB mobile data



4.2.7. Basket HH13 – 200 - 999 Mbps, fixed telephony, 1 SIM, 100 calls, 10 GB mobile data

Romania (€18.22) takes the lead as the best in class, followed by Bulgaria (€32.26), Poland (€32.74) and Italy (€33.68). The EU27 average for this basket is €46.69, which is more than double the lowest price found.

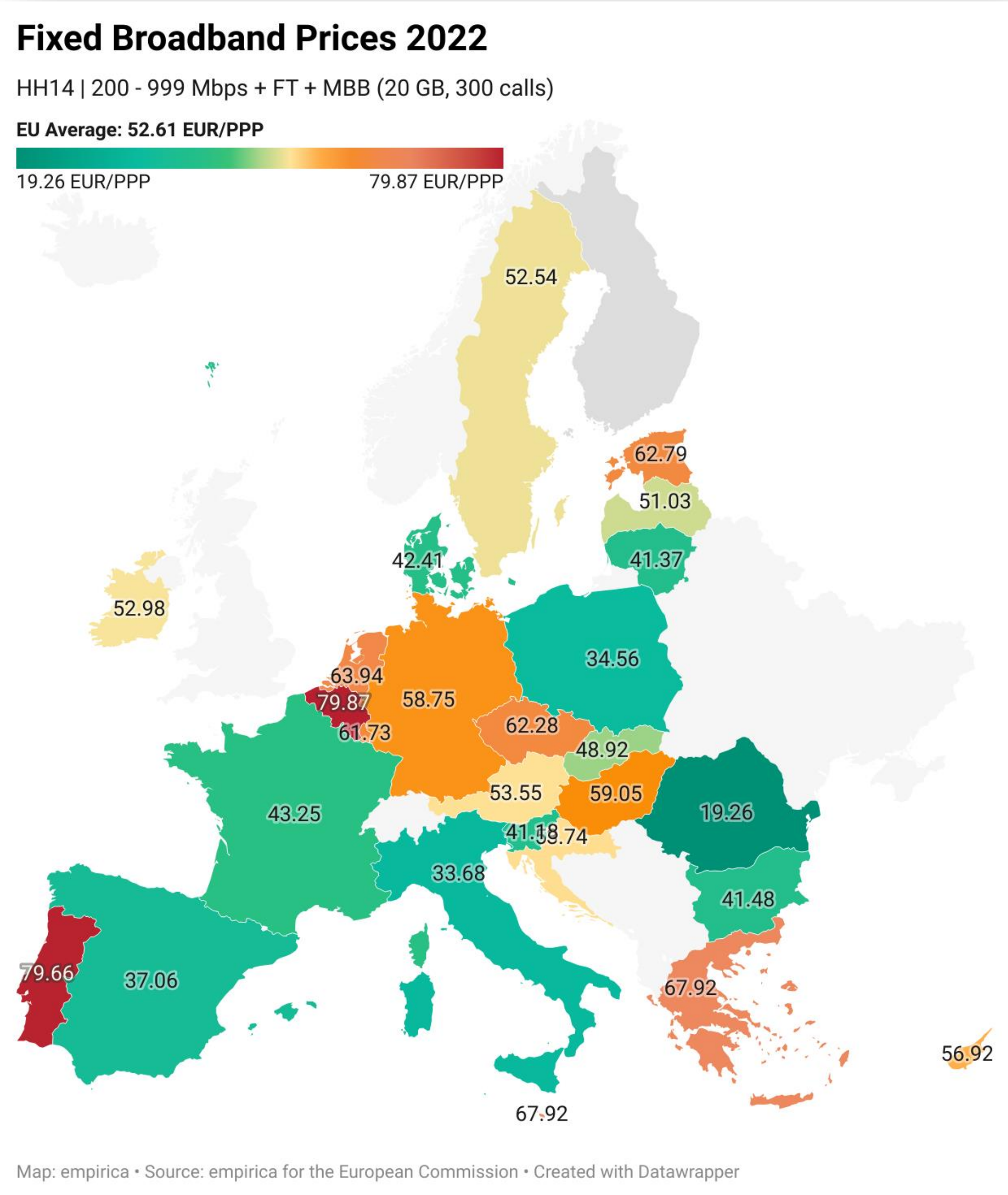
Map 18 - Triple Play with fixed telephony, 10 GB mobile data and 100 calls (1 SIM), 200 – 999 Mbps



4.2.8. Basket HH14 – 200 - 999 Mbps, fixed telephony, 1 SIM, 300 calls, 20 GB mobile data

The price pattern for basket HH14 differs slightly from the HH13 service bundle. Romania (€19.26) remains at the top of the table, but Italy (€33.68), Poland (€34.56), and Spain (€37.06) are the following countries with the most affordable prices. However, the EU27 average price for this bundle is significantly higher - €52.61, which is more than twice the lowest price found.

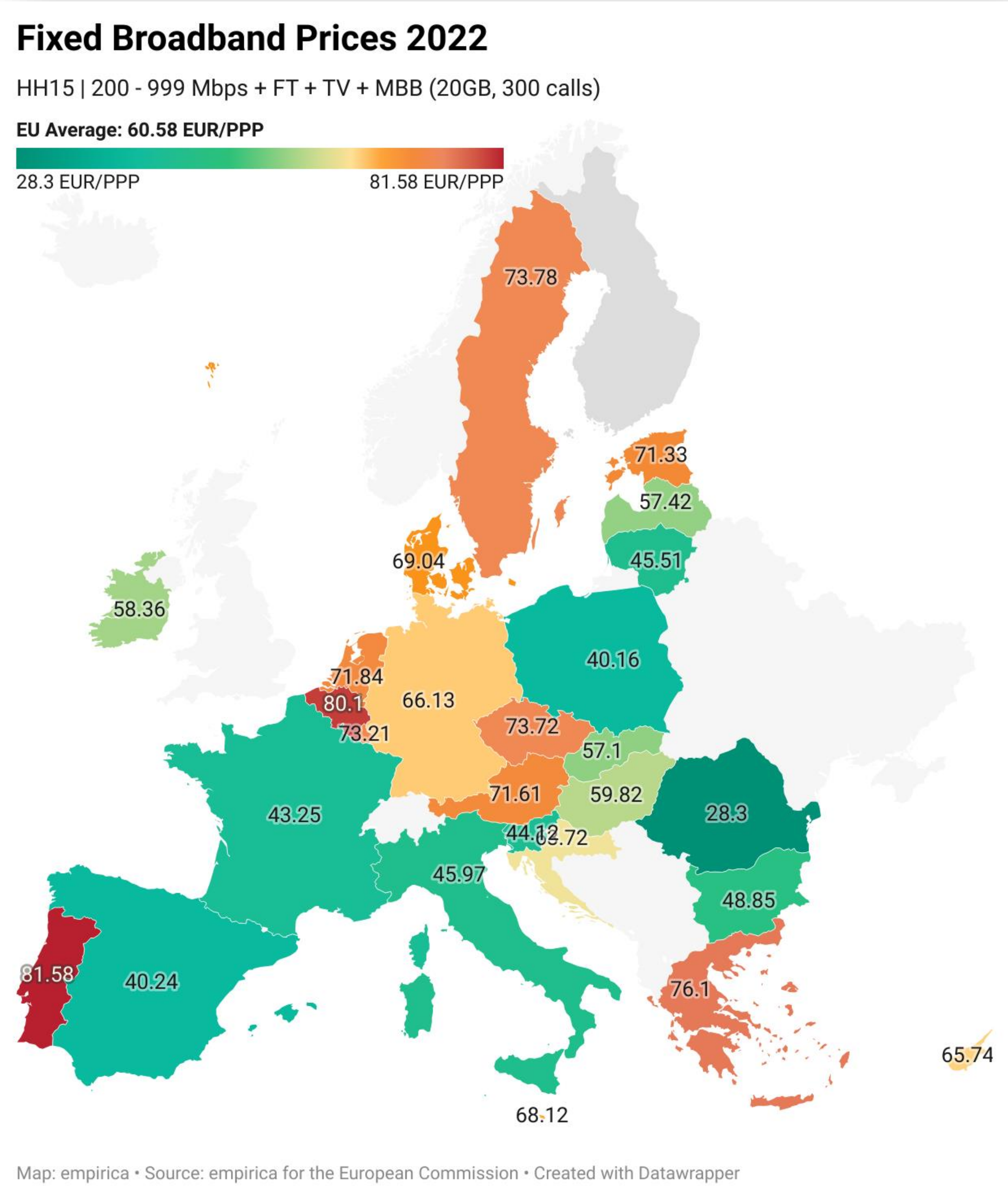
Map 19 – HH14 | 200 - 999 Mbps, fixed telephony, 1 SIM, 300 calls, 20 GB mobile data



4.2.9. Basket HH15 – 200 - 999 Mbps, fixed telephony and TV, 1 SIM, 300 calls, 20 GB mobile data

Romania (€28.30) is the only country that currently offers HH15 basket at a price below €30. In contrast, other affordable offers such as the ones found in Poland, Spain, and France are provided at prices over €40. The average price of HH15 services for EU27 is €60.58.

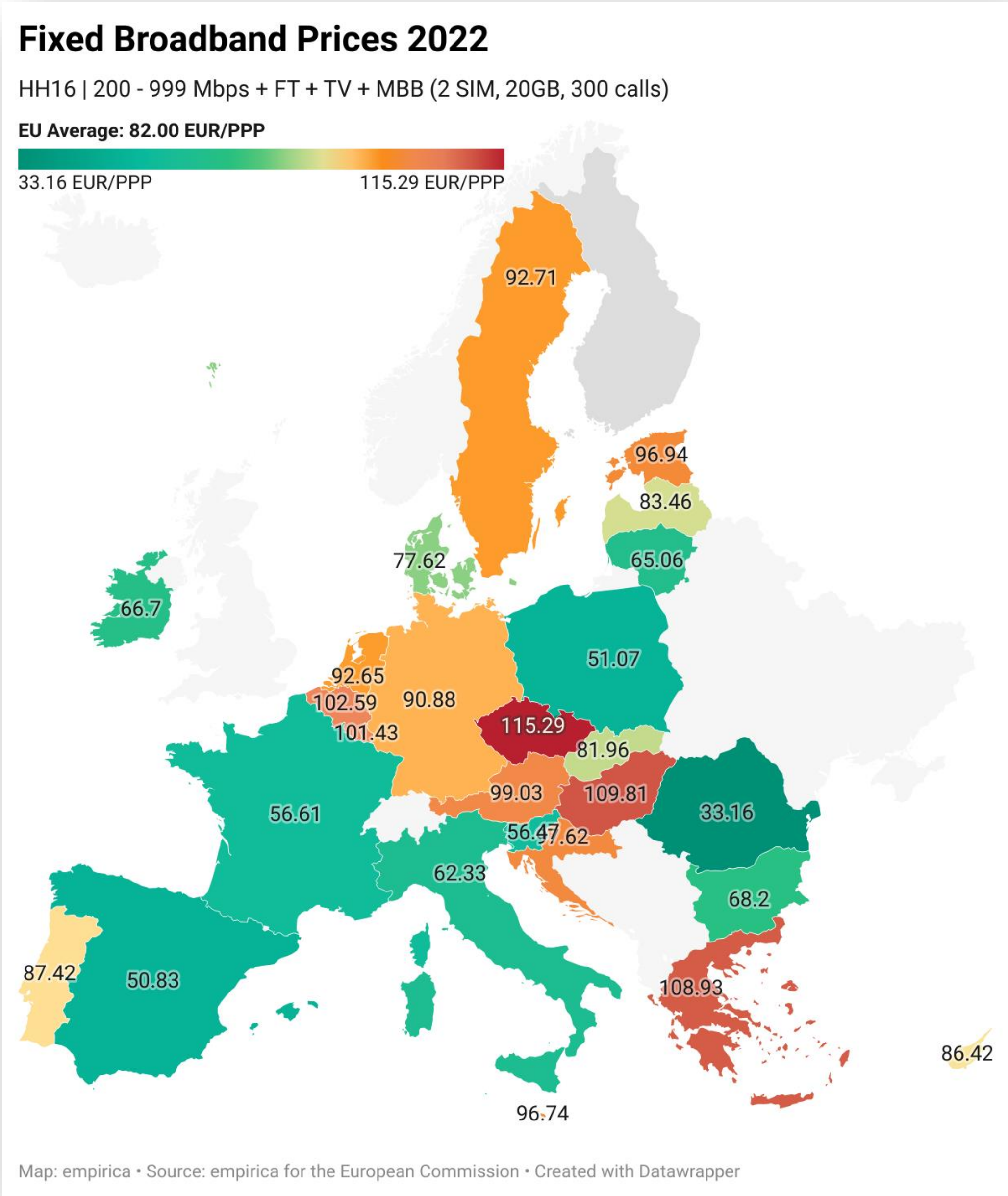
Map 20 - Quadruple Play with fixed telephony, TV, 20 GB mobile data and 300 calls (1 SIM), 200 – 999 Mbps



4.2.10. Basket HH16 – 200 - 999 Mbps, fixed telephony and TV, 2 SIMs, 300 calls, 20 GB mobile data

Among the EU Member states, only Romania offers the HH16 services for less than €40, specifically at €33.16. The next least expensive offers are above €50 - in Spain (€50.83), Poland (€51.07), and Slovenia (€56.47). The EU27 average for this service bundle is considerably higher - €82.

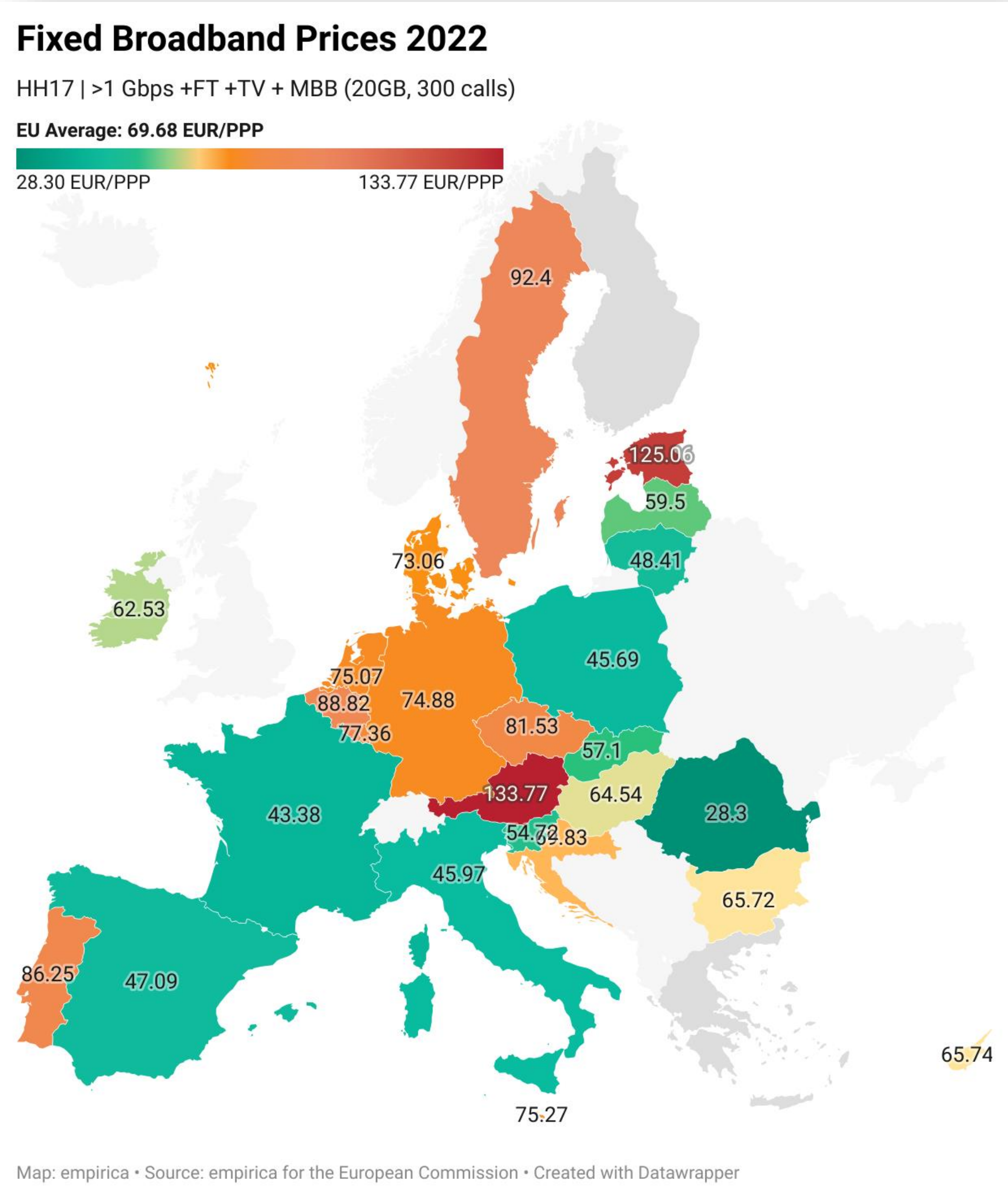
Map 21 – HH16 | 200 - 999 Mbps, fixed telephony and TV, 2 SIMs, 300 calls, 20 GB mobile data



4.2.11. Basket HH17 – ≥ 1 Gbps, fixed telephony and TV, 1 SIM, 300 calls 20 GB mobile data

In HH17, the most advanced Quadruple Play basket, the range of European lowest prices is from €28.30 to €133.77. The best in class are, again, Romania (€28.30), France (€43.38), Poland (€45.69), and Italy (€45.97). The EU27 average is at €69.68.

Map 22 – HH17 | ≥ 1 Gbps, fixed telephony and TV, 1 SIM, 300 calls 20 GB mobile data



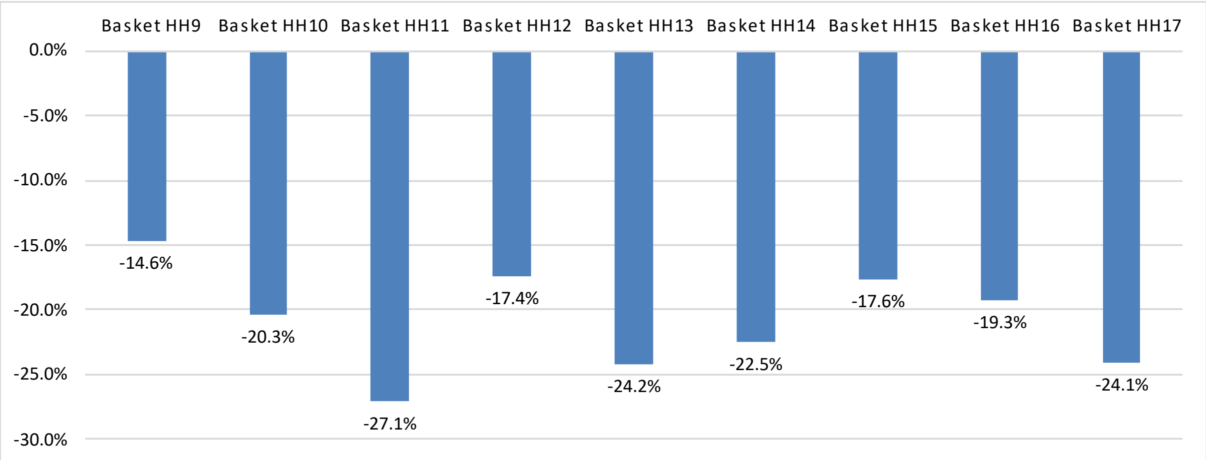
4.2.12. Price trends

Overall, prices for converged offers decreased among all household baskets compared to the previous year.

The most significant changes in pricing can be observed in basket HH11, which includes a fixed internet connection with a speed range of 100 - 200 Mbps, along with a fixed phone service and a mobile package with 2-SIM, 100 calls, and 10 GB of mobile data. In this basket, the prices have decreased by 27.1%. Similarly, basket HH13, which includes a fixed internet connection with a speed range of 200 - 999 Mbps, a fixed phone service, and a mobile package with 1-SIM, 100 calls, and 10 GB of mobile data, has seen a significant average price decrease of 24.2%.

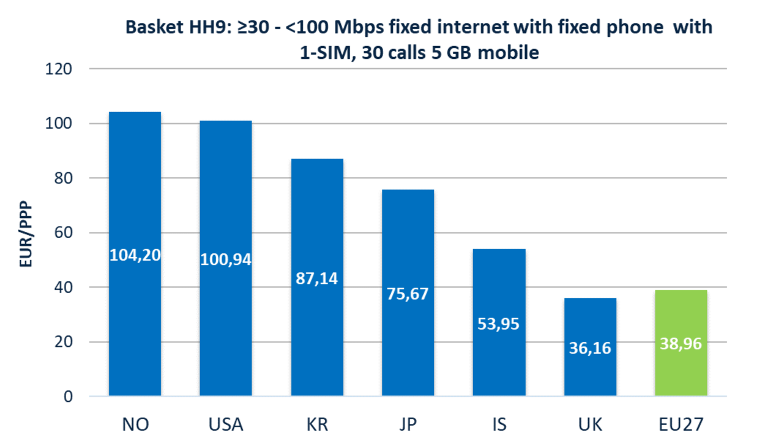
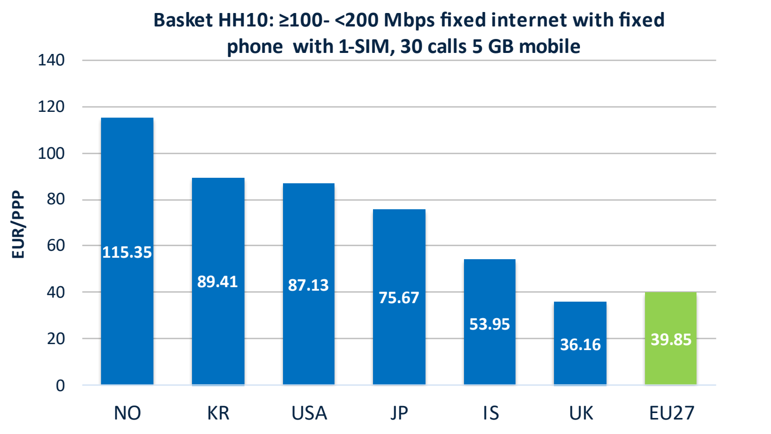
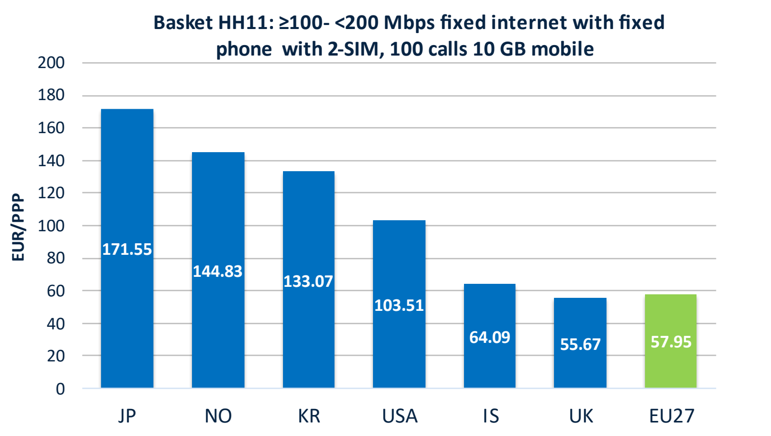
In addition to the significant price decreases in baskets HH11 and HH13, three more household baskets (HH10, HH14 and HH17) have experienced price reductions of over 20%. The price decrease for the rest of the household baskets ranges from 14.6% in HH9 (30 - 100 Mbps fixed internet with fixed phone with 1-SIM, 30 calls and 5 GB mobile data) to 19.3% in HH16 (200 – 999 Mbps fixed internet with fixed phone and TV with 2-SIM, 300 calls and 20 GB mobile data). These reductions in prices indicate a positive trend towards more affordable options for households seeking specific combinations of fixed internet, phone, TV, and mobile services.

Figure 36 - Price changes in least expensive converged household prices, EU level (2021-2022)

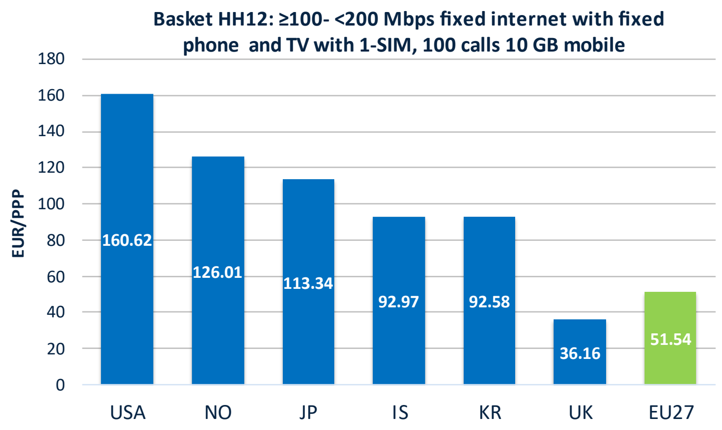


4.2.13. The bigger picture: the EU in the world

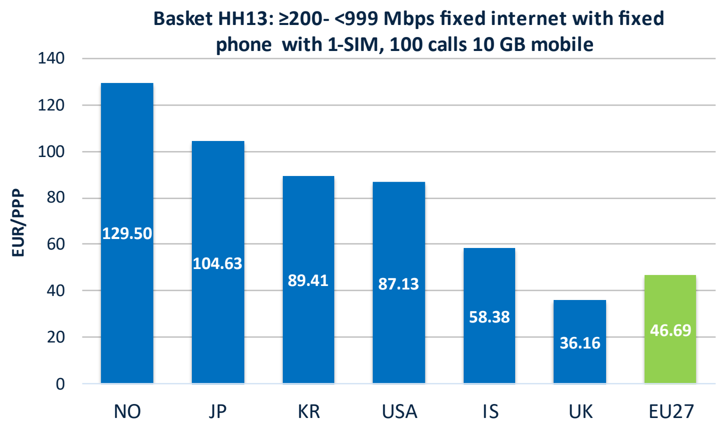
The following charts illustrate how the prices in EU27 compared with South Korea, the United States, Iceland, Norway and the United Kingdom for given converged/synthetic service bundles.

	The EU27 has on average the least expensive offers in this usage basket (38.96 EUR/PPP). Only UK offers are even less expensive while Iceland, Japan are more expensive, followed by South Korea, USA and Norway. However, it's important to note that when considering the mobile component of this service bundle, some offers include a data volume exceeding 5 GB. For example, there are offers in the USA and EU countries with a data volume of 16 GB. This means that in these countries, no less expensive offer was found that includes only 5 GB of mobile data.
	The EU27 average price for this basket is 39.85 EUR/PPP. The price for HH10 in the UK is slightly lower (36.15 EUR/PPP), while in the rest of the countries the offers provided are at significantly higher prices.
	The EU27 offers a Triple Play service at a lower price than Japan, Norway, South Korea, the USA, and Iceland, with an average price of 57.95 EUR/PPP. Among all the countries considered, the price in the UK stands out as the least expensive option, with an average price of 55.67 EUR/PPP. It's worth noting that the UK's offering includes a mobile component bundled with the Triple Play service, which provides a generous data volume of 20 GB. This can contribute to the overall value for customers who

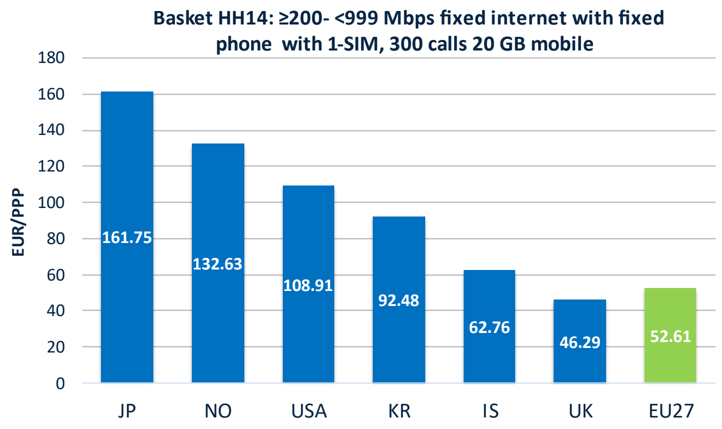
require a significant amount of mobile data.



The UK emerges as the country with the least expensive prices for this Quadruple Play service bundle, with an average price of 36.16 EUR/PPP. The EU27 follows with an average price of 51.54 EUR/PPP. Both providers in the UK and EU27 offer significantly lower prices, on average, compared to the other countries included in the analysis.

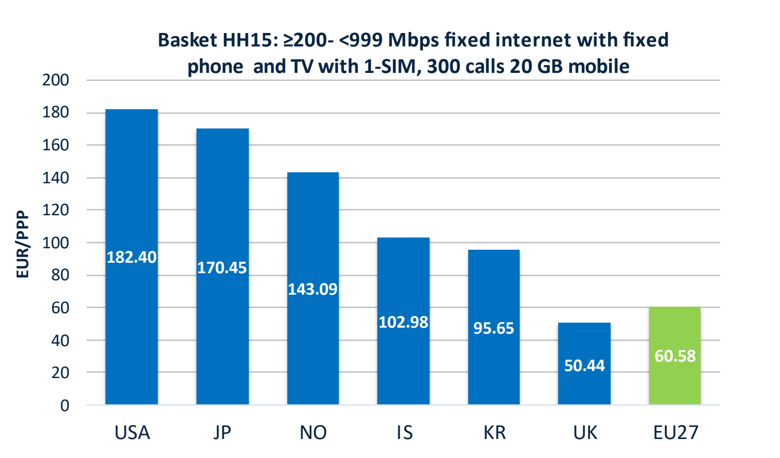


The EU27, with an average price of 46.69 EUR/PPP, offers a Triple Play service at a lower price compared to Norway, Japan, South Korea, the USA, and Iceland. Among the countries considered, the UK stands out as the least expensive option, with an average price of 36.16 EUR/PPP.



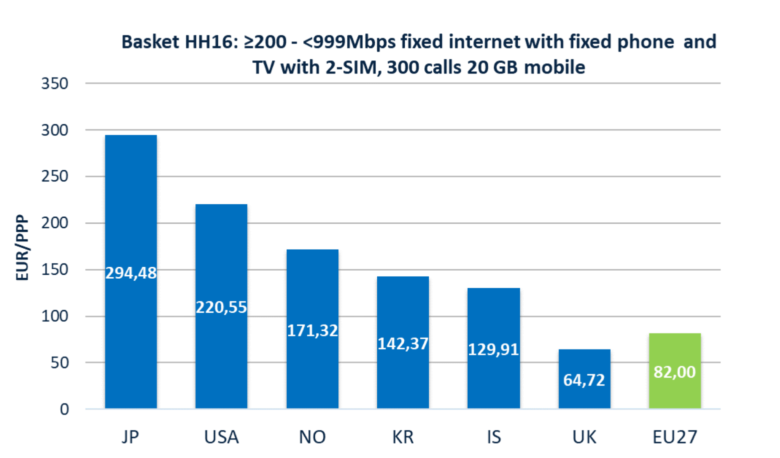
The EU27, with an average price of 52.61 EUR/PPP, offers this Triple Play service bundle at a lower price compared to most of the other countries considered. The only exception is the UK has a lower average price.

When upgrading the mobile component in the Triple Play offer from 10 GB mobile data and 100 calls to 20 GB mobile data and 300 calls, the premium varies across countries. It ranges from 3.07 EUR/PPP in South Korea to 57.12 EUR/PPP in Japan. This indicates that the cost of upgrading the mobile component can significantly vary depending on the country.

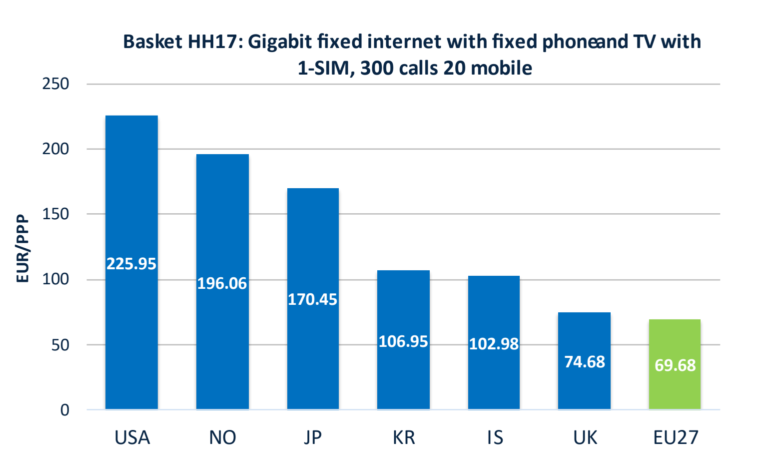


The data for this Quadruple Play offer show that the UK has the lowest average price at 50.44 EUR/PPP. The EU27 follows with an average price of 60.58 EUR/PPP.

In contrast, prices in other countries considered are significantly higher, ranging from 95.65 EUR/PPP in South Korea to 182.4 EUR/PPP in the USA.



The EU27 exhibits the lowest prices in comparison with the rest of the countries except the UK. The premium for adding a second SIM to the Quadruple Play offer with fixed voice, TV, 20 GB mobile data and 300 calls in the 200 - 999 Mbps speed category lies between 14.28 EUR/PPP in the UK and 124 EUR/PPP in Japan.



The EU27 (69.68 EUR/PPP) show the lowest prices in this top speed basket, followed by the UK, Iceland, and South Korea. Prices in the USA, Norway and Japan are significantly more expensive. The speed premium for the upgrade from 200 - 999 Mbps to the Gigabit Quadruple Play service bundle ranges from 9.10 EUR/PPP in the EU27 to 52.97 EUR/PPP in Norway. Consumers in Iceland and Japan pay no extra cost for the upgrade.

4.3. Mobile prices at a glance

4.3.1. 2022 prices across the EU for mobile broadband offers

Figure 37 - Major clusters of countries by price level in each usage basket (mobile broadband)

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
	1 GB mobile data with no calls	5 GB mobile data with no calls	10 GB mobile data with no calls	20 GB mobile data with no calls	50 GB mobile data with no calls	1 GB mobile data with 30 calls	5 GB mobile data with 30 calls	10 GB mobile data with 100 calls	20 GB mobile data with 300 calls	50 GB mobile data with 300 calls	20 GB mobile data with 30 calls	50 GB mobile data with 100 calls
RO	1	1	1	1	1	1	1	1	1	1	1	1
DK	1	1	1	1	2	1	1	1	1	1	2	1
FI	2	2	1	1	1	2	1	2	2	2	1	1
PL	1	2	1	2	2	3	2	1	1	1	2	1
ES	1	2	2	2	2	3	2	1	1	1	2	1
SI	2	3	1	2	2	2	2	1	1	1	2	2
IT	4	3	2	2	2	4	3	2	1	1	2	1
LT	2	3	3	2	2	2	2	2	2	2	3	2
FR	4	4	3	2	2	3	3	2	1	1	2	1
IE	4	4	2	2	2	4	3	2	1	1	2	1
BG	3	3	2	3	3	3	2	1	2	2	3	2
EE	1	1	2	3	4	1	2	2	3	3	4	3
LU	1	2	2	3	4	1	2	2	3	3	4	3
AT	2	3	2	3	4	3	2	1	2	3	3	3
CY	2	3	2	3	3	4	3	2	2	2	3	2
NL	3	4	3	2	3	3	3	2	2	2	2	2
SK	1	3	3	3	3	2	3	3	3	2	3	2
SE	3	3	3	2	3	2	3	2	2	3	3	3
EL	2	2	1	2	3	4	3	2	3	4	4	4
BE	2	4	3	3	4	3	3	2	2	3	3	3
DE	2	4	4	3	4	1	3	3	3	3	4	3
LV	3	3	2	2	3	4	4	3	3	3	4	3
HR	1	4	3	3	3	4	4	3	3	4	4	3
MT	4	4	3	4	4	4	3	2	3	3	4	3
PT	3	4	3	3	4	3	3	3	3	4	4	4
HU	2	3	3	3	4	3	4	4	4	4	4	4
CZ	2	4	4	4	4	4	4	4	4	4	4	4

Cluster Centres [EUR]

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
1	3.14	4.53	6.20	6.10	4.86	4.11	5.21	8.31	10.65	12.54	4.86	11.75
2	5.23	5.97	10.18	11.94	12.06	6.50	8.69	12.76	19.63	22.07	11.64	20.73
3	7.80	9.33	14.12	20.03	19.24	9.18	12.47	21.49	27.92	30.05	19.95	30.70
4	10.55	13.09	22.08	33.03	30.77	12.15	19.00	36.80	42.16	43.54	28.76	44.03

Number of cases in each cluster

	MBB1	MBB2	MBB3	MBB4	MBB5	I1	I2	I3	I4	I5	I6	I7
1	8	3	6	3	2	5	3	7	8	8	2	8
2	10	5	9	11	8	5	8	13	8	6	8	6
3	5	10	10	11	8	9	12	5	9	8	7	9
4	4	9	2	2	9	8	4	2	2	5	10	4

Dark green symbol 1 – inexpensive cluster
Light green symbol 2 - relatively inexpensive cluster
Yellow symbol 3 – relatively expensive cluster
Red symbol 4 – expensive cluster

- Romania, Denmark, and Finland have the most attractive prices overall, with an average cluster membership score of 1.5 or less. Romania has all its offers belonging to the inexpensive cluster.
- Poland, Spain, Slovenia, Italy, Lithuania, France, Ireland, Bulgaria, Estonia, and Luxembourg follow with an average cluster membership score of 2.5 or less. Poland, Spain, and Slovenia have at least four offers belonging to the least expensive cluster.
- France and Ireland show particularly attractive prices for the high and very high individual handheld mobile baskets (20 GB and >100 voice calls).
- The **relatively expensive** offers are found in the following countries: Luxembourg, Austria, Cyprus, the Netherlands, Sweden, Slovakia, Greece, Belgium, Germany, Latvia, and Croatia.
- The **expensive** cluster is made up of Portugal, Malta, Hungary, and Czechia.

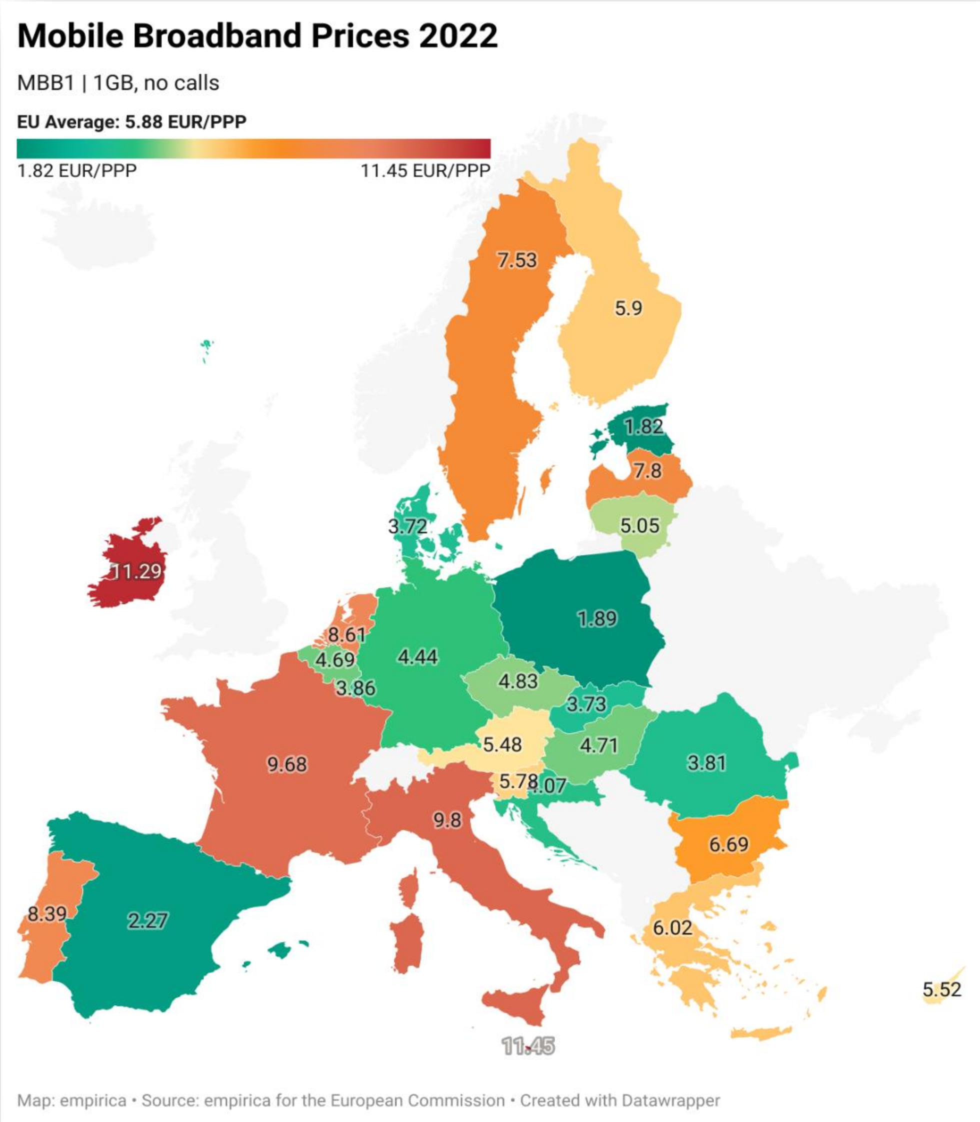
4.3.2. Who is best in class?

The maps in the following sections show the prices for the least expensive offer found on the market for each mobile broadband usage basket in all EU27 countries.

4.3.3. Basket MBB1 – 1 GB mobile data only

The most affordable option in MBB1 is available in Estonia at €1.82, which is only seven cents lower than the price in Poland. Spain and Denmark are close behind with prices of €2.27 and €3.72 respectively. The average price across the EU27 is €5.88. However, Malta, Ireland, and Italy have the highest-priced offerings in this category, with rates of €11.45, €11.29, and €9.80 respectively, because the major mobile network operators in these countries usually don't offer custom plans for such low data volumes. As a result, customers with low data usage are left with plans that offer higher data allowances.[55]

Map 23 –MBB1 | 1 GB mobile data only

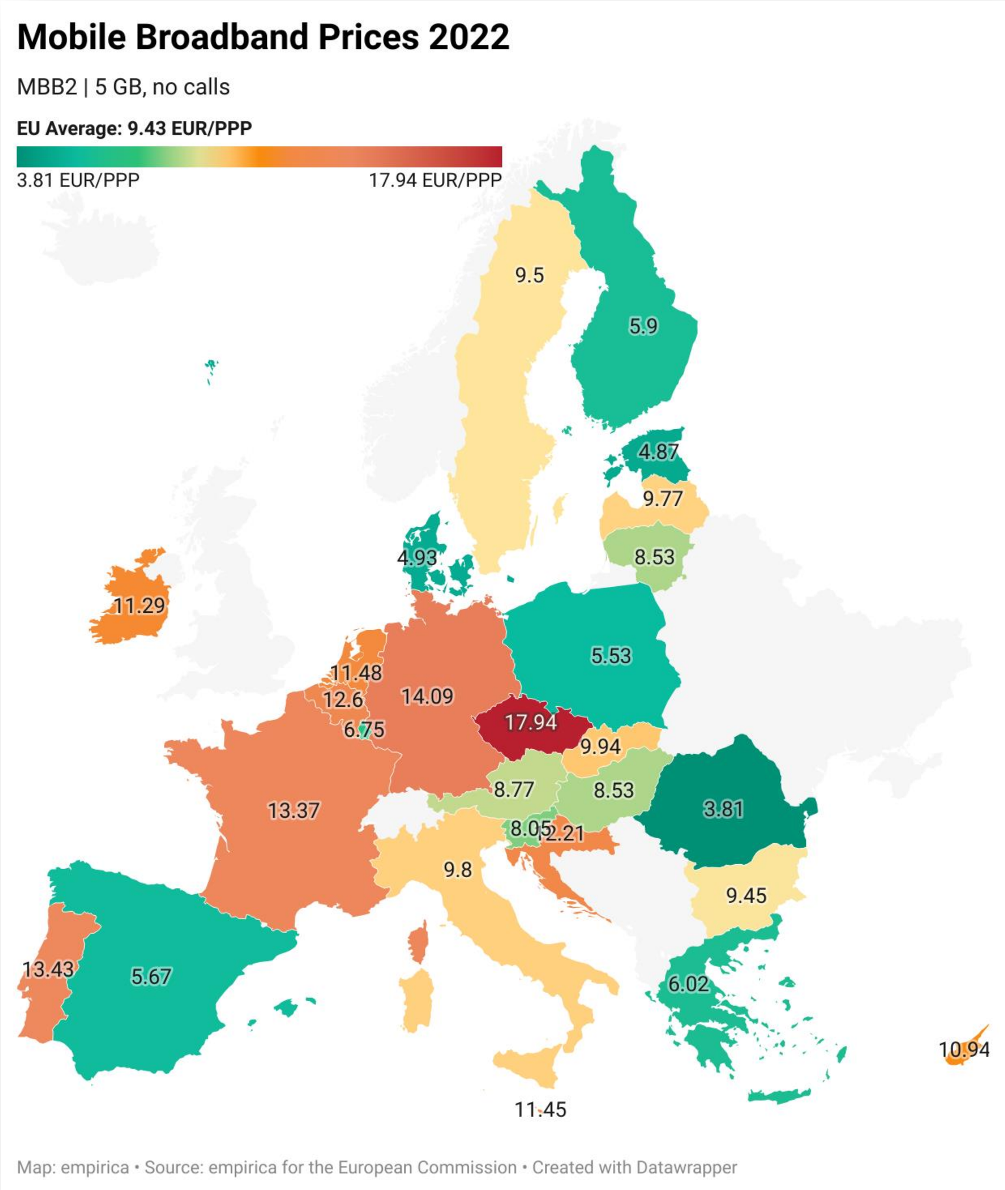


[55] The offer from Malta includes 8 GB data, from Italy 50 GB, and the Irish offer includes unlimited data.

4.3.4. Basket MBB2 – 5 GB mobile data only

Among the EU27 countries, Romania has the least expensive MBB2 offer at €3.81, followed by Estonia at €4.87 and Denmark at €4.93. Poland is also on the list of the least expensive countries, with a price of €5.53. The average price for MBB2 across the EU27 is €9.43.

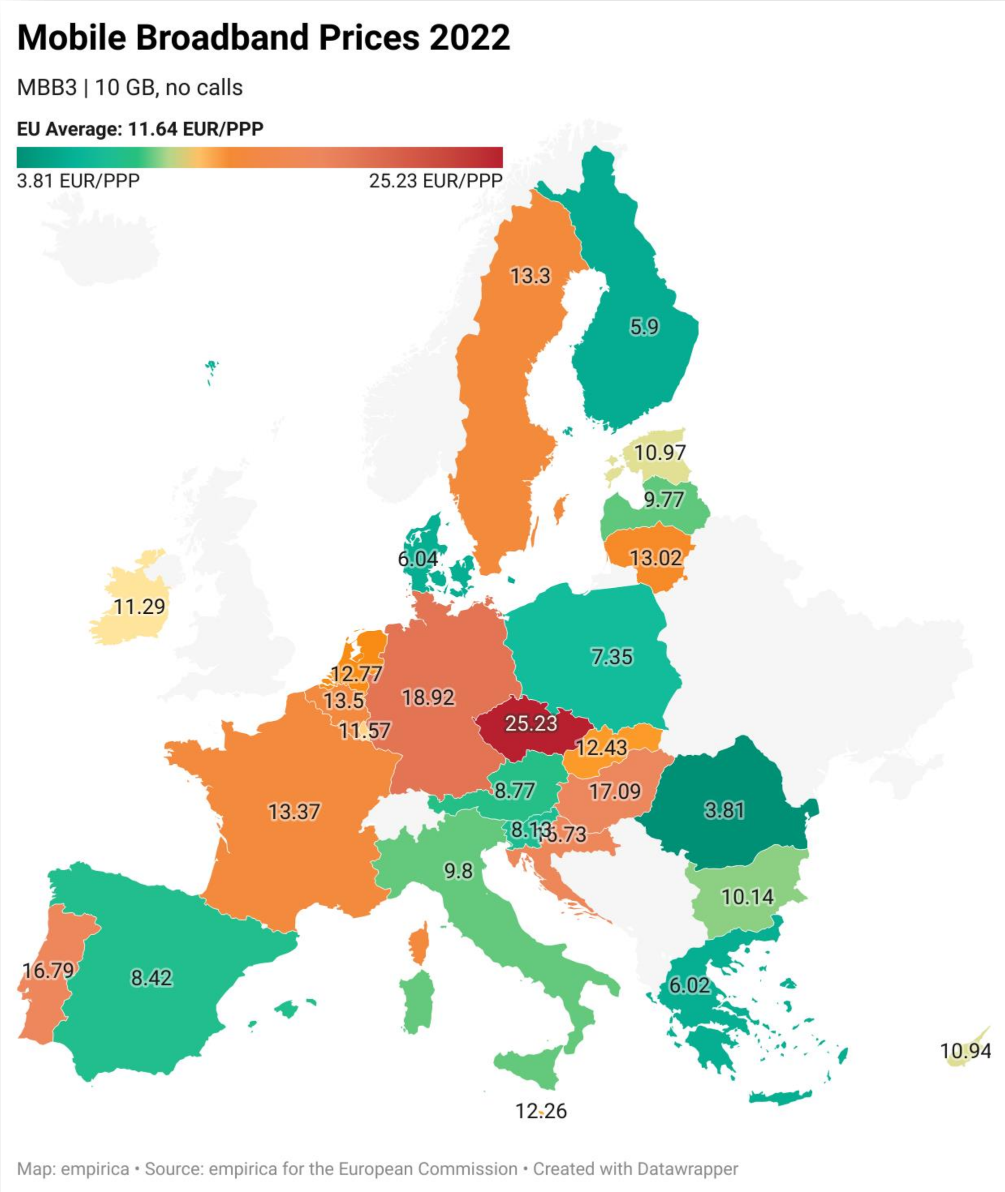
Map 24 – MBB2 | 5 GB mobile data only



4.3.5. Basket MBB3 – 10 GB mobile data only

Romania leads the MBB3 basket (€3.81), Finland (€5.90) has the second most affordable offer, followed by Greece (€6.02), and Denmark (€6.04). The EU27 average price stands at €11.64.

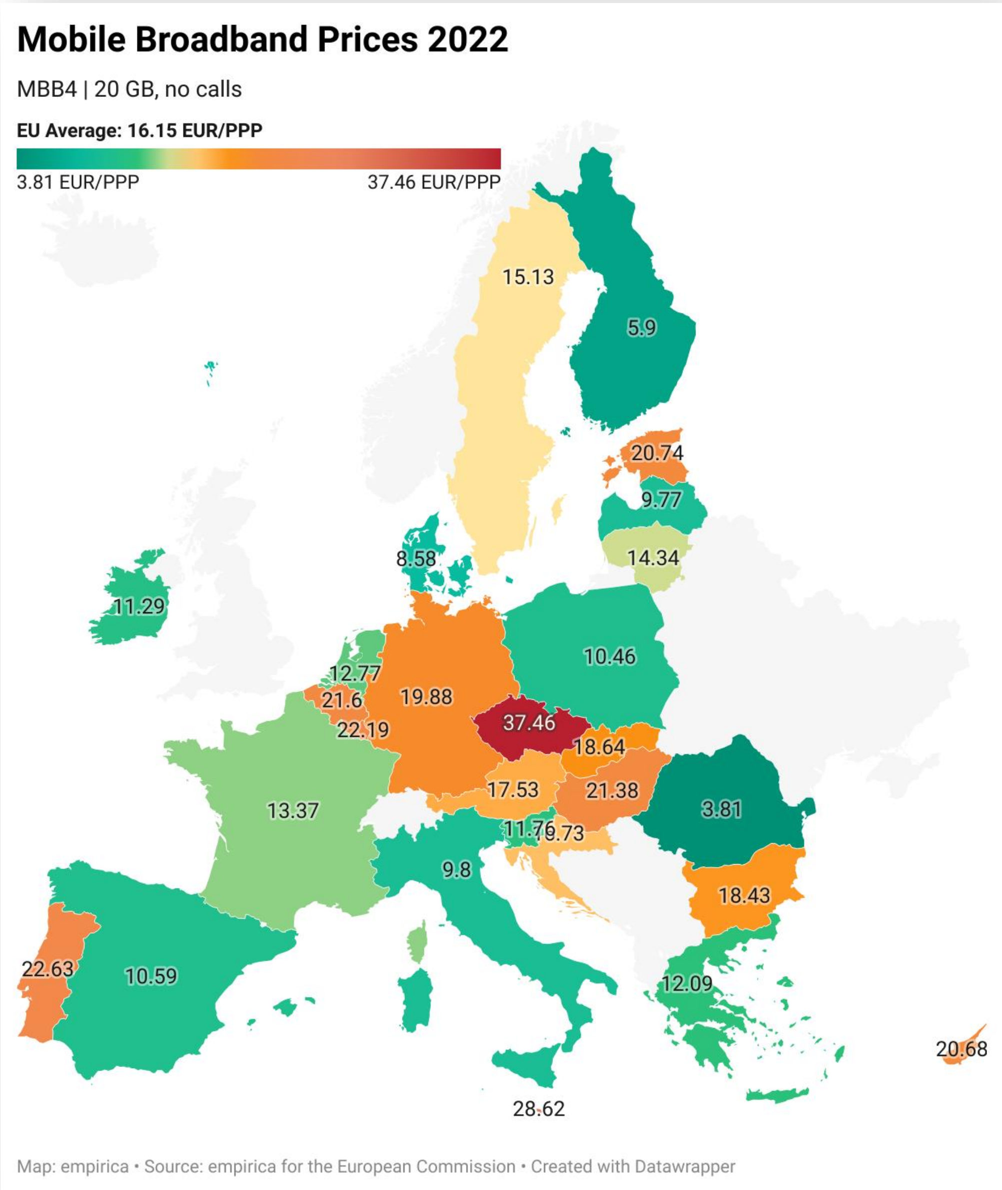
Map 25 – MBB3 | 10 GB mobile data



4.3.6. Basket MBB4 – 20 GB mobile data only

The lowest price in MBB4 is found in Romania (€3.81), followed by Finland (€5.90), Denmark (€8.58), and Latvia (€9.77). The EU27 average stands at €16.15.

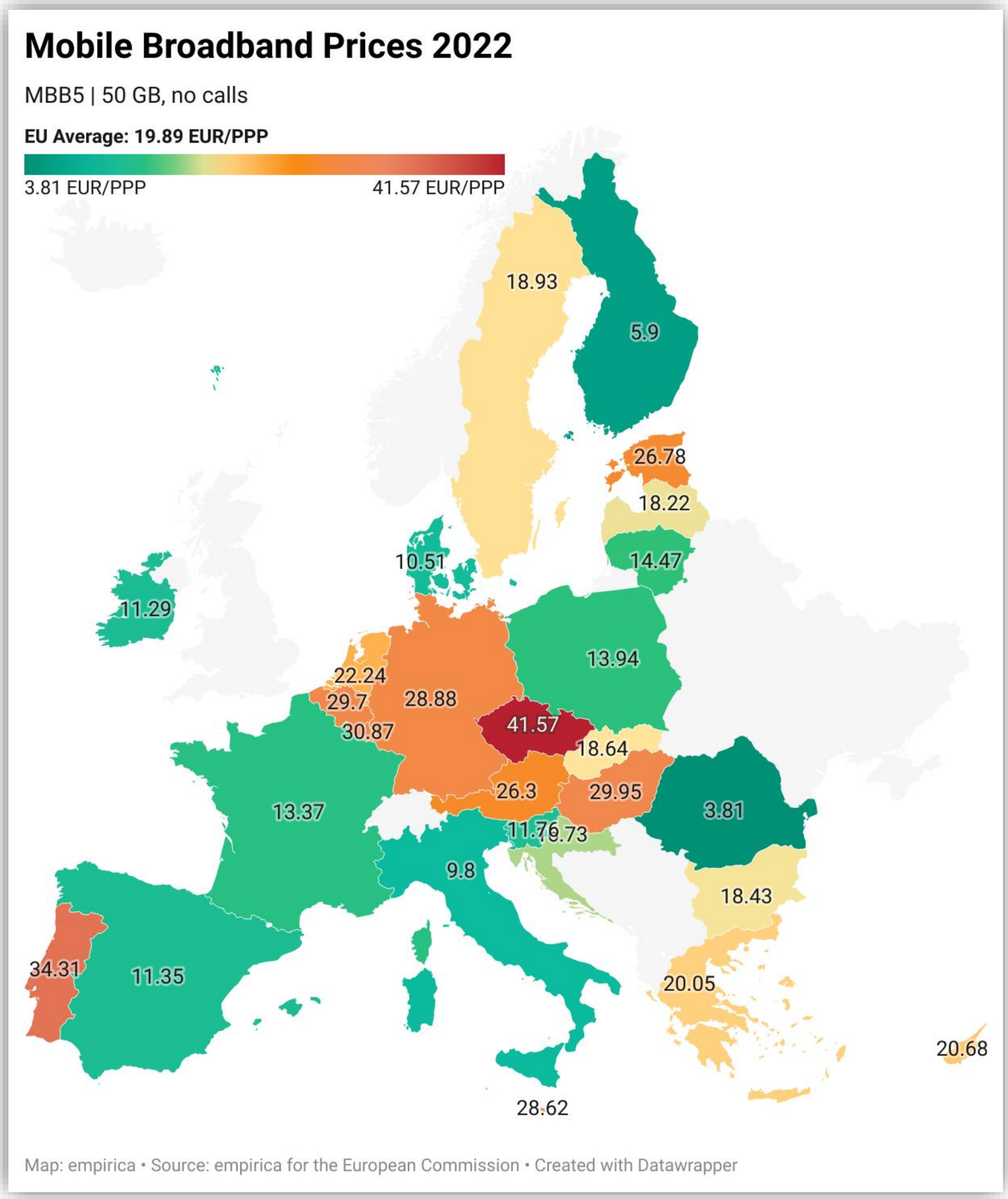
Map 26 – MBB4 | 20 GB mobile data



4.3.7. Basket MBB5 – 50 GB mobile data only

The lowest price for MBB5 is found in Romania (€3.81), followed by Finland (€5.90), Italy (€9.80), and Denmark (€10.51). The most expensive offer in this category reaches a significant €41.57, which is more than ten times higher than the lowest price and more than double the EU27 average price of €19.89.

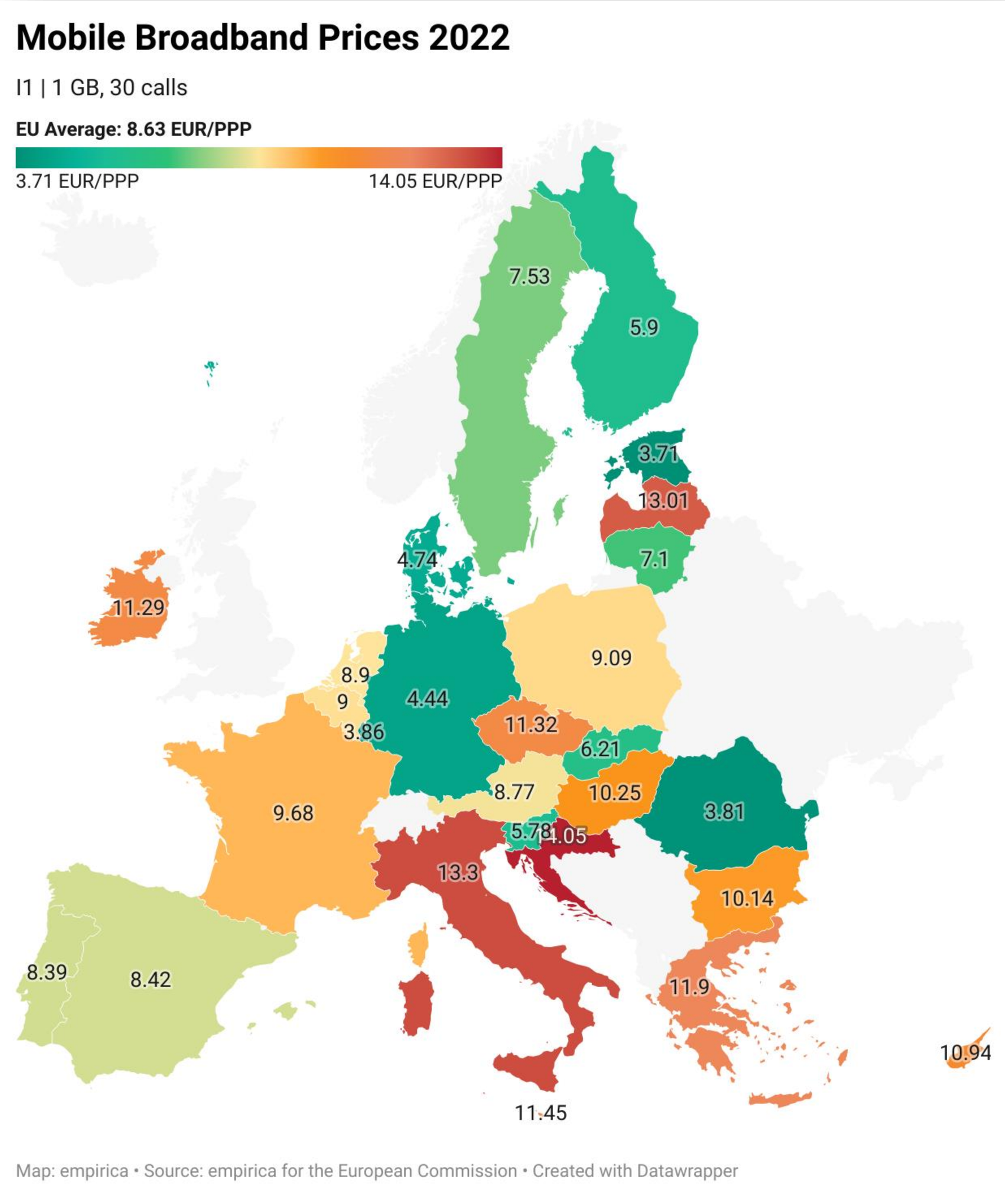
Map 27 – MBB5 | 50 GB mobile data only



4.3.8. Basket I1 – 1 GB mobile data with 30 calls

The lowest price for I1 can be found in Estonia at €3.71, closely followed by Romania (€3.81), Luxembourg (€3.86), and Germany (€4.44). The EU average in this basket stands at €8.63.

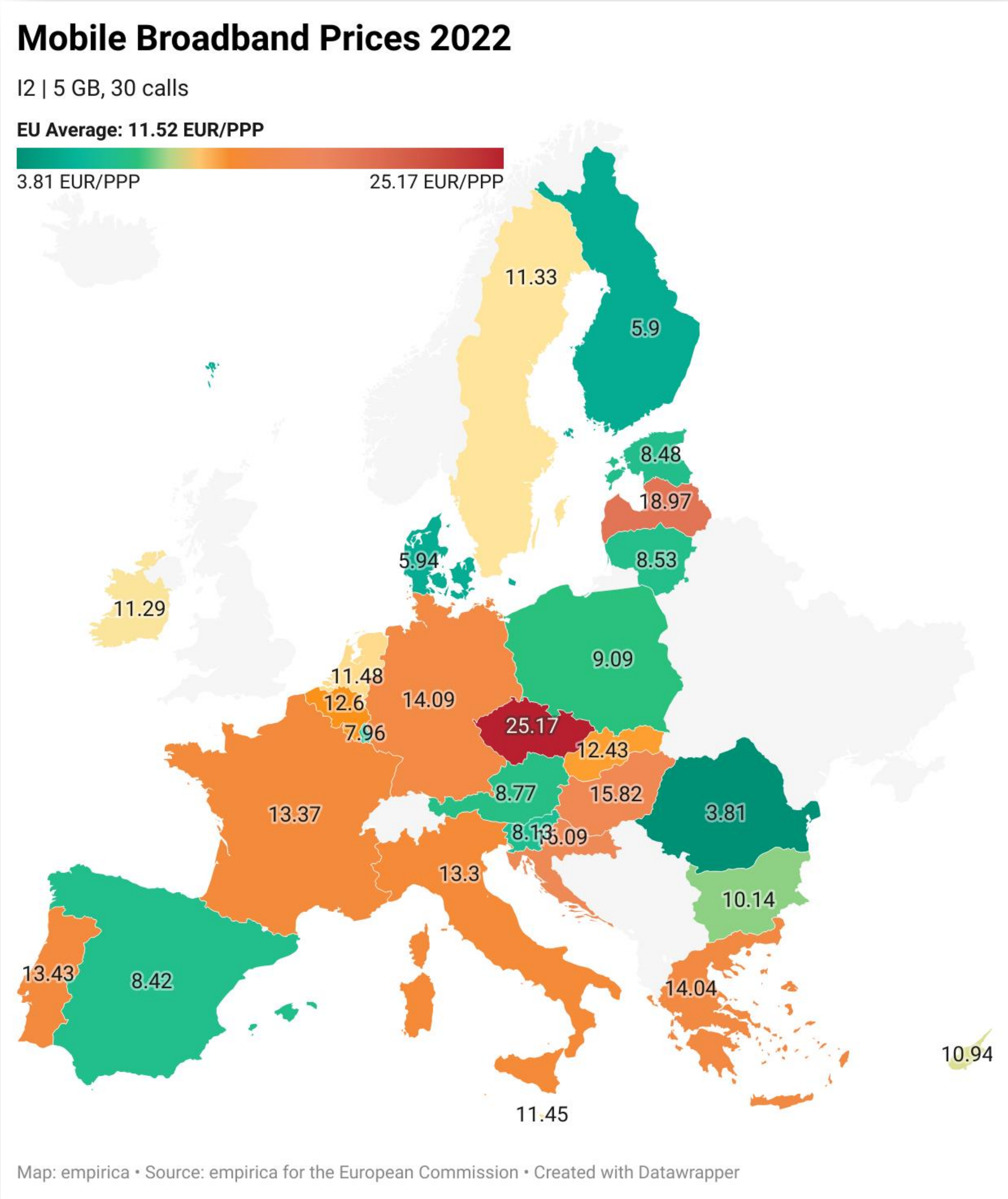
Map 28 – I1 - 1 GB mobile data with 30 calls



4.3.9. Basket I2 – 5 GB mobile data with 30 calls

Sixteen countries in I2 exhibit prices below the EU27 average, which is at €11.52, while another six countries are situated within a range of 2€ above average, signalling that many EU countries show affordable consumer prices. Romania stands out with the least expensive offer at €3.81. Following Finland and Denmark offer competitive prices of €5.90 and €5.94, respectively. Luxembourg follows at a slightly higher price of €7.96.

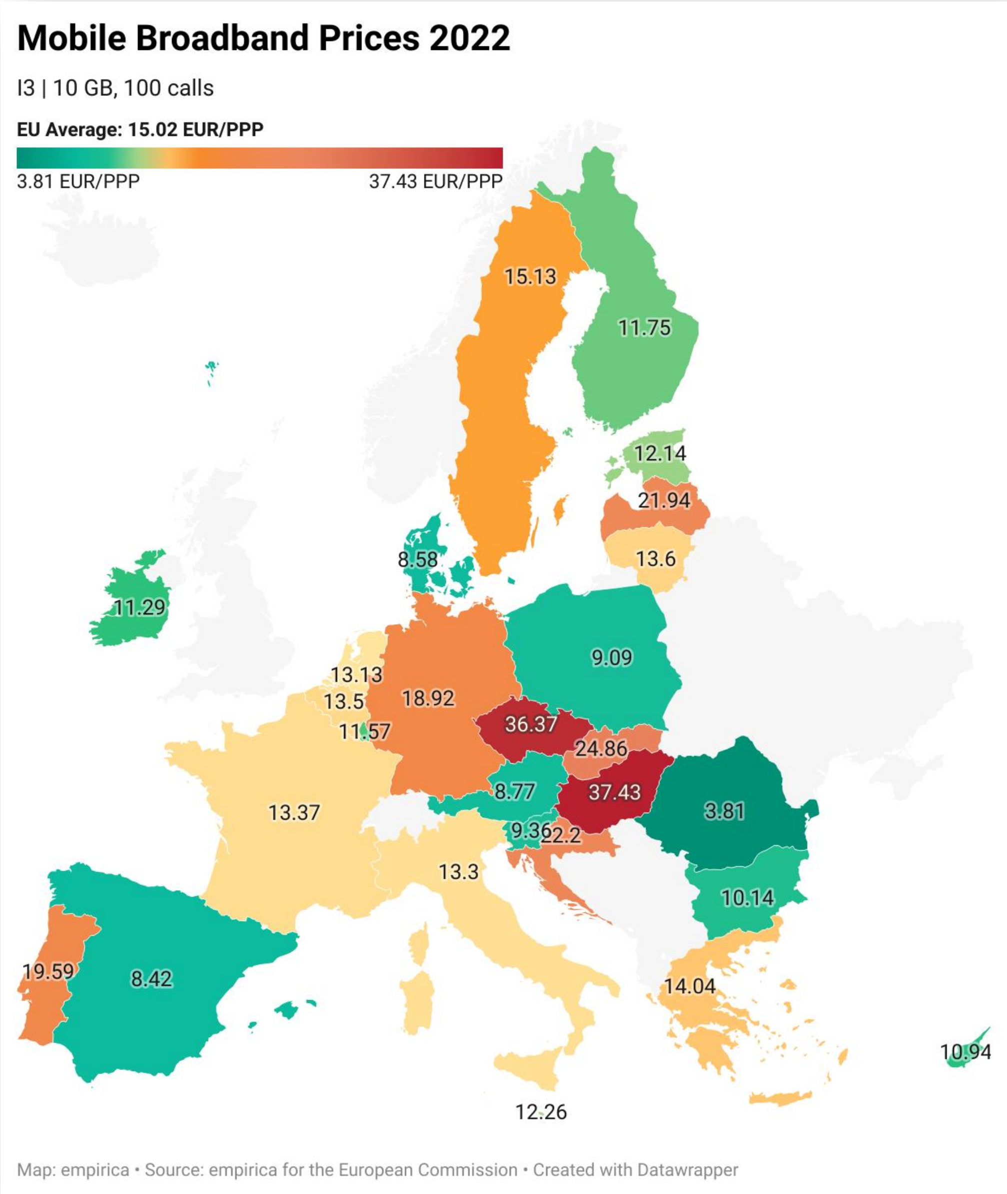
Map 29 – I2 | 5 GB mobile data with 30 calls



4.3.10. Basket I3 – 10 GB mobile data with 100 calls

The lowest price for basket I3 is found in Romania (€3.81). The second least expensive offer (Spain - €8.42) is more than double the price found in Romania. Denmark at €8.58 and Austria at €8.77 follow. Nineteen countries offer prices below the EU27 average of €15.02.

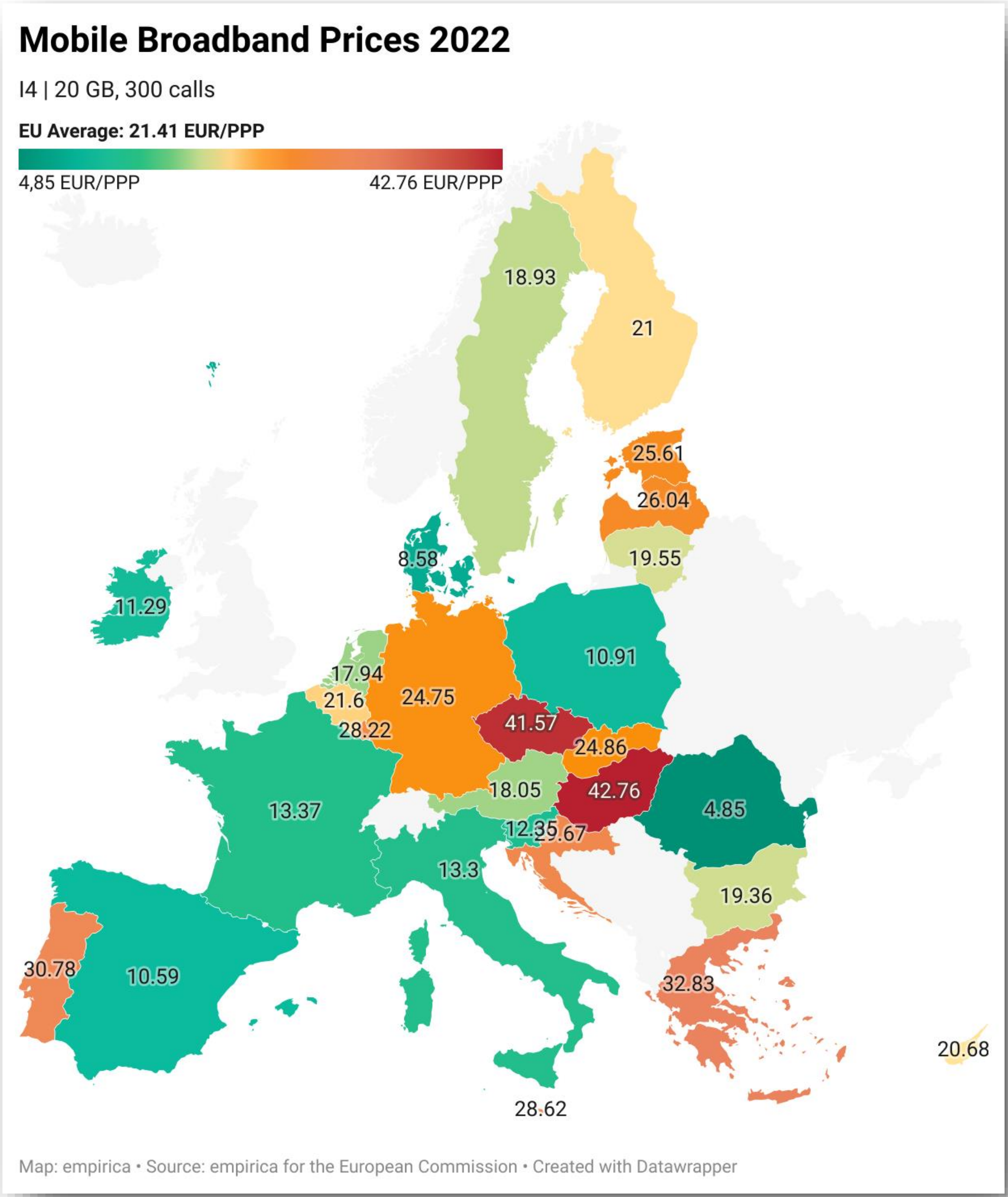
Map 30 –I3 | 10 GB mobile data with 100 calls



4.3.11. Basket I4 – 20 GB mobile data with 300 calls

The lowest price for basket I4 can be found in Romania at €4.85, followed by Denmark (€8.58) and, already in double digits, Spain (€10.59), and Poland (€10.91). The EU27 average is €21.41.

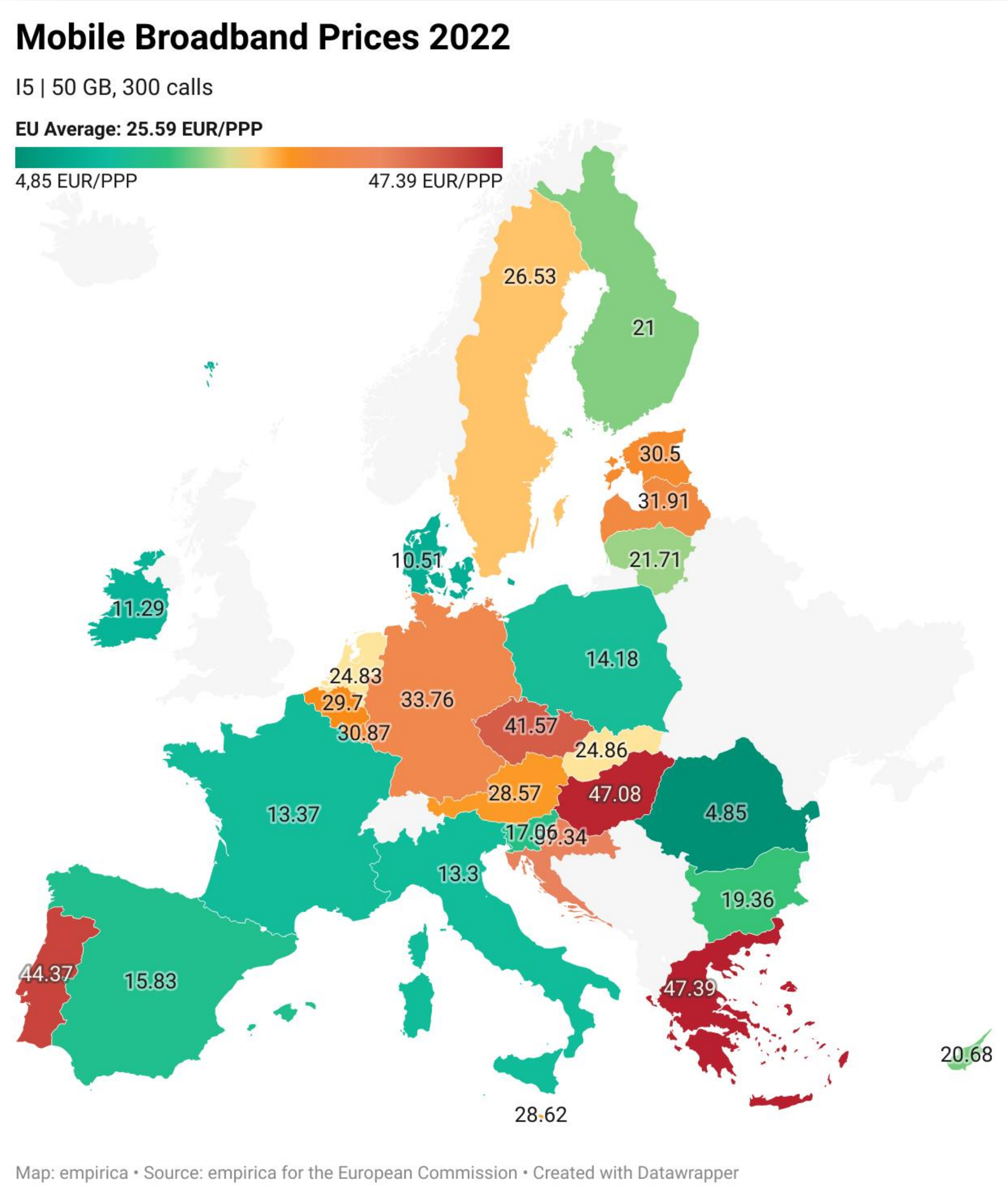
Map 31 – I5 | 20 GB mobile data with 300 calls



4.3.12. Basket I5 – 50 GB mobile data and 300 calls

The least expensive offer in I5, the high-end usage basket with 50 GB and 300 calls, is found in Romania at €4.85 followed by Denmark (€10.51), Ireland (€11.29), and Italy (€13.30). The EU27 average is €25.59.

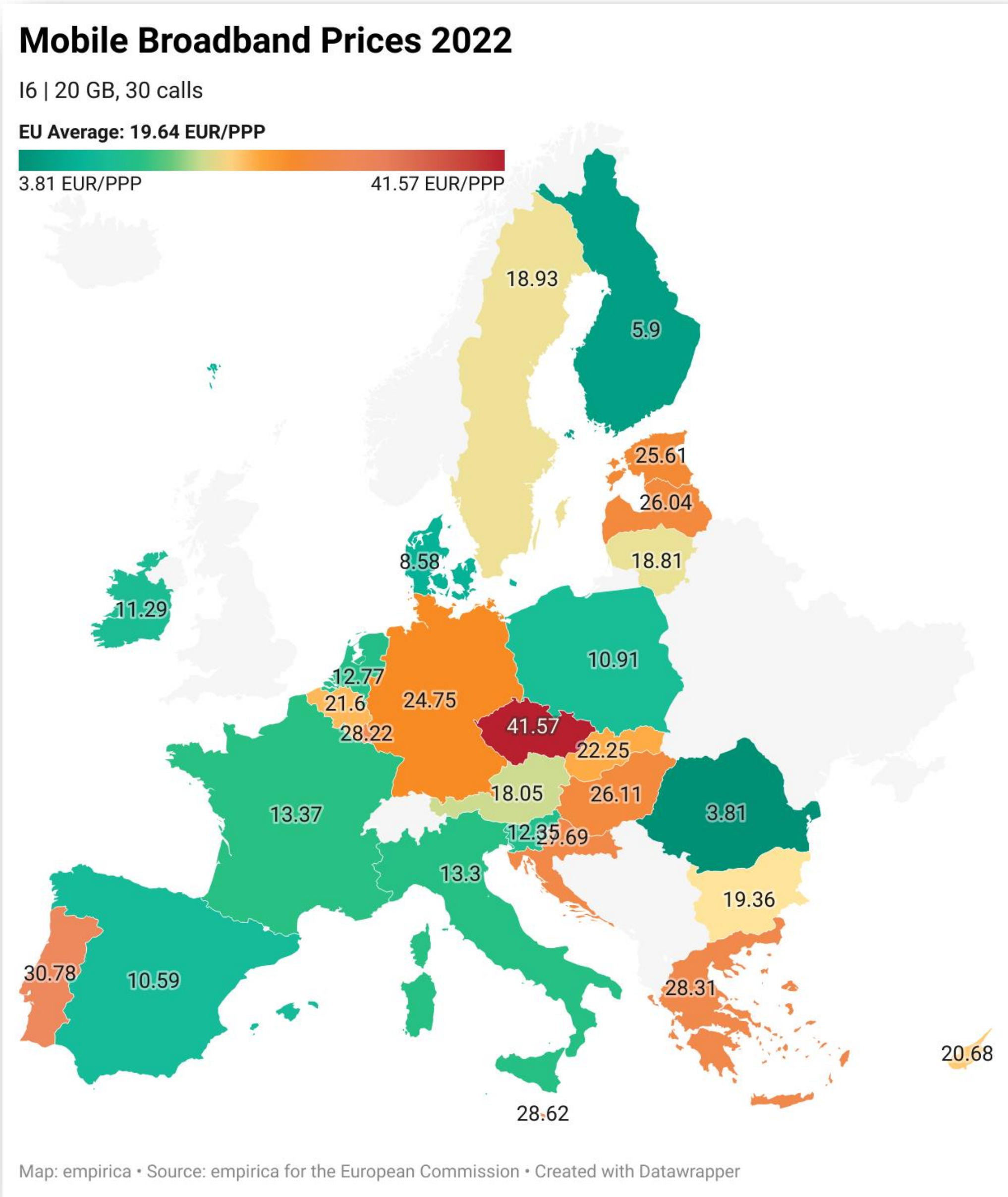
Map 32 – I5 | 50 GB mobile data with 300 calls



4.3.13. Basket I6 – 20 GB mobile data with 30 calls

In I6, Romania maintains its position as the country with the lowest-priced offer at €3.81, followed by Finland (€5.90), Denmark (€8.58), and Spain (€10.59). Similar to MBB5, the most expensive offer in this basket is more than ten times more expensive than the least expensive offer and more than twice the EU27 average of €19.64.

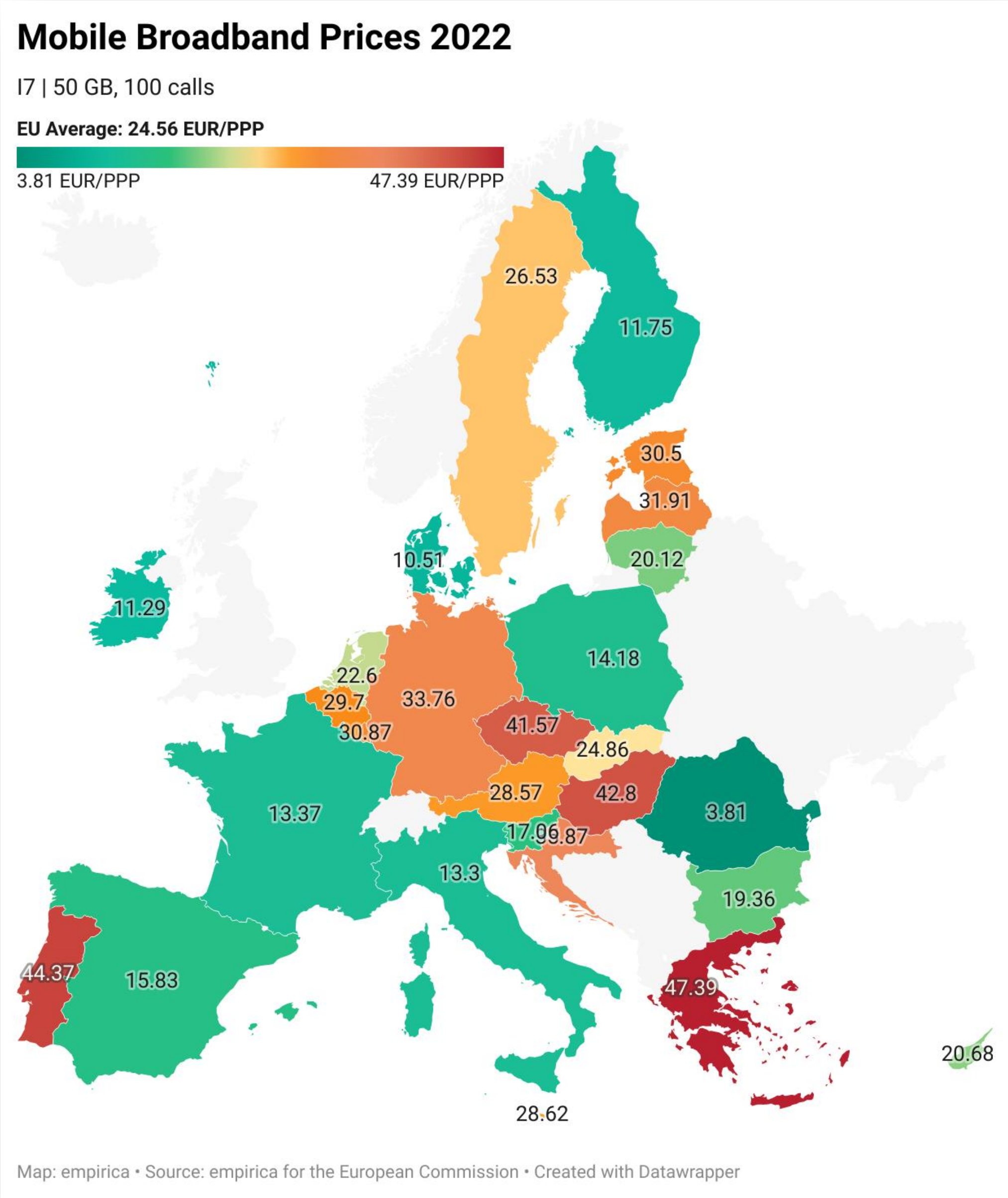
Map 33 – I6 | 20 GB mobile data with 30 calls



4.3.14. Basket I7 – 50GB mobile data with 100 calls

The least expensive offer in I7 is found in Romania (€3.81), followed by Denmark (€10.51), Ireland (€11.29), and Finland (€11.75). Six more countries (Bulgaria, France, Italy, Poland, Slovenia, and Spain) have prices below €20. The most expensive offer is more than twelve times as expensive as the least expensive offer, the highest ratio across all baskets. The EU27 average is €24.86.

Map 34 – 20 GB mobile data with 100 calls



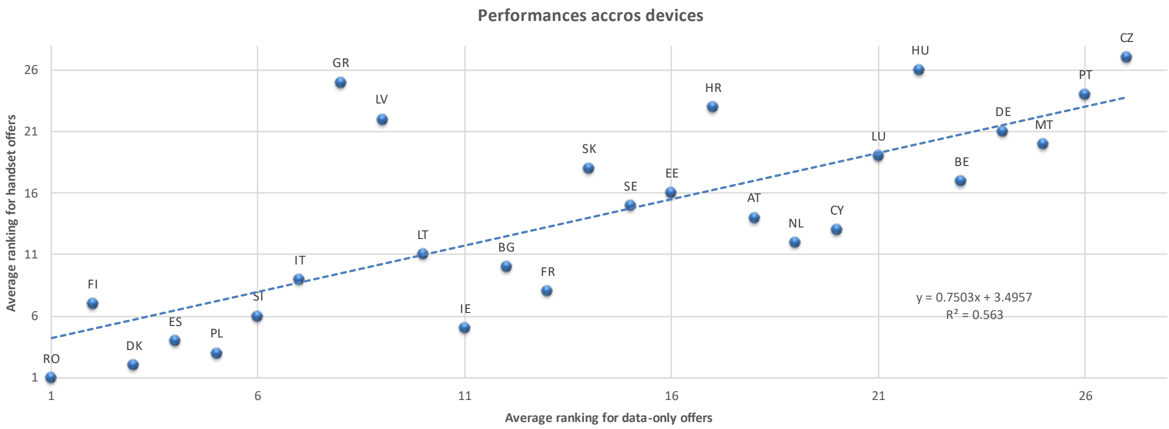
4.3.15. Are performances similar between data-only and handset-based usage baskets?

Figure 38 below indicates the relationship between a Member State's average rank-order in the EU27 regarding the least expensive offer in data-only baskets on the one hand and handset-based baskets on the other hand.

The overall correlation between the rank-order in terms of data-only and handset-based prices is relatively significant (0.56) and higher than in 2021 (0.42). Five countries (Czechia, Estonia, Slovenia, Spain and Sweden) have the same rank-order position in both data-only and handset-based offers. For most of the countries, however, the position does not change significantly. Still, there are some notable exceptions:

- **Greece** (average ranking for data-only offers: 8 | average ranking for handset offers: 25) and **Latvia** (9|22) have much less expensive offers for data-only baskets but are ranked seventeen and thirteen positions behind for handset-based baskets, respectively.
- **Cyprus** (20|13), **the Netherlands** (19|12) and **Ireland** (11|5) have less expensive offers for handset-based baskets but are ranked around seven positions behind for data-only baskets.

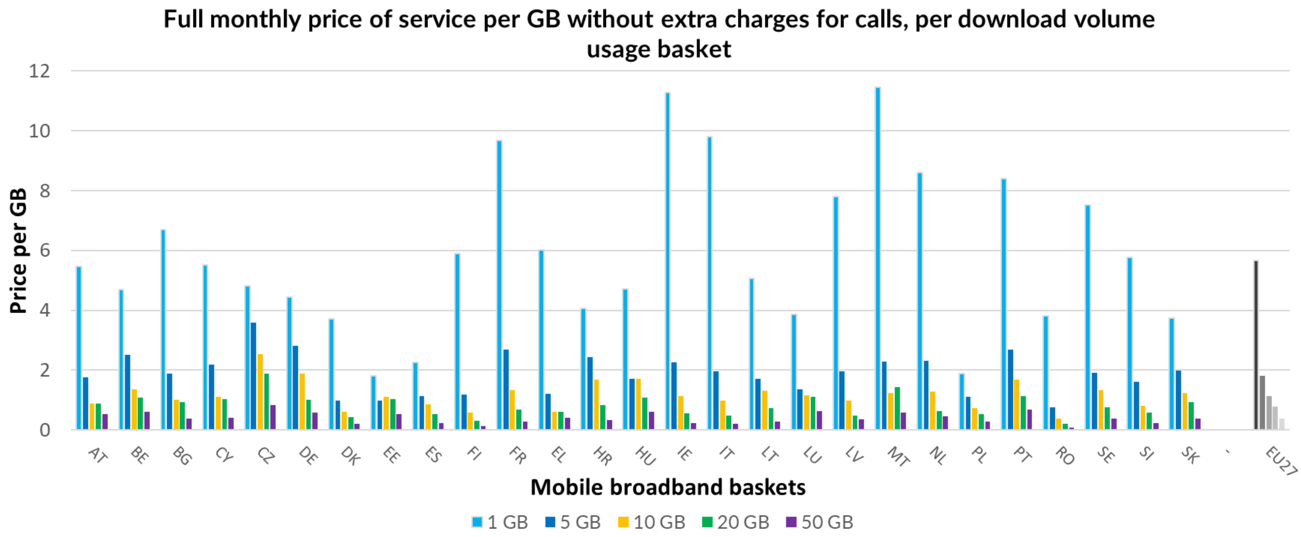
Figure 38 – Performance between data-only and handset-based usage baskets



Is more mobile data more expensive?

When comparing the prices of the cheapest offers per country and usage basket for different data volumes, it is clear that prices steadily rise as data allowances increase. In most markets, the increase in data allowance doesn't result in an equivalent rise in gross price. This means that the price per GB of data falls as the allowance in the selected package gets larger. Consequently, the EUR/PPP per GB ratio of the EU27 average consistently decreases from 5.67 in the 1 GB basket to 1.82 in the 5 GB basket, to 1.12 in the 10 GB basket, to 0.78 in the 20 GB basket and to 0.38 in the 50 GB basket, which also has the smallest ratio.

Figure 39 - Price per GB, per download volume usage basket



The spread of prices per GB across Europe in the different usage baskets is immense, reaching from 0.08 EUR/PPP per GB in Romania (50 GB mobile data basket) to 11.45 EUR/PPP per GB in Malta (1 GB mobile data basket).

4.3.16. Price trends

Using mobile data in the EU is now less expensive than last year. Baskets with data allowances of 20 GB per month saw the most significant decrease in prices.

Data and voice premium in EU27

On average, the premium for mobile services that include data and voice (I1, 1GB + 30 calls upgraded to I3, 10GB and 100 calls) is only 0.63 EUR higher compared to the premium between 1GB (MBB1) to 10GB (MBB3). The difference in premium is more pronounced for baskets with higher data and voice volumes (2.33 EUR).

Price differences between data-only offers with 1GB (MBB1) and 10GB (MBB3) range from zero to 20.41 EUR (average: 5.76 EUR), while the highest premium for an upgrade to 50GB (MBB5) is 19.30 EUR (average: 8.25 EUR). In seven Member States, the price difference between MBB1 and MBB3 is larger than between MBB3 and MBB5 (Croatia, Czechia, Germany, Lithuania, Slovakia, Spain and Sweden). Least expensive offers for MBB1 and MBB3 are identical in four countries (Finland, Ireland, Italy and Romania). The same applies to Croatia, Finland, France, Ireland, Italy and Romania for MBB3 and MBB5. The premium for MBB3 to MBB5 is more than four times more expensive in Austria and Latvia compared to MBB1 to MBB3.

For handheld baskets, the premium for I1 to I3 ranges from zero to 27.17 EUR (average: 6.39 EUR) and from zero to 33.36 EUR for I3 to I5 (average: 10.58 EUR). The price difference between I1 and I3 and I3 and I5 is larger in only four Member States (Czechia, Denmark, Hungary and Slovakia). Least expensive offers for I1 and I3 are identical in eight countries (Austria, Bulgaria, Cyprus, Ireland, Italy, Poland, Romania and Spain). The same applies to France, Ireland, Italy and Slovakia for I3 and I5. The largest difference is observed for Czechia where the premium for I1 to I3 (25.04 EUR) is five times larger compared to I3 to I5 (5.20 EUR).

Mobile broadband got cheaper since last year

According to the information provided in the table below, mobile broadband prices have decreased compared to October 2021. On average, prices for mobile broadband across all baskets are approximately 15% lower. The first two usage baskets (1 GB and 5 GB mobile data only) show significant declines in prices compared to 2021. The 1 GB basket has experienced a price decline of 18.6%, while the 5 GB basket has seen a decline of 13.4%. These reductions indicate more affordable mobile broadband options for consumers with lower consumption. Yet, it appears that the most significant decrease in mobile broadband prices is observed in the highest data allowance basket, with prices approximately 24.1% lower compared to the previous year. This indicates a substantial reduction in prices for mobile broadband plans with higher data allowances, offering more value for consumers.

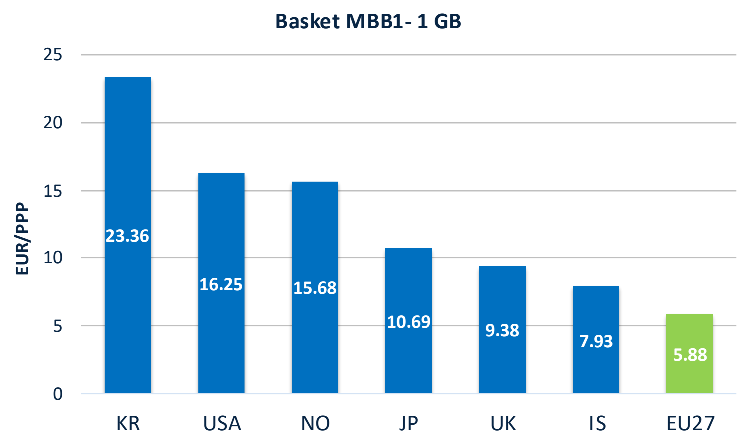
Basket	Least expensive 2022 [EUR/PPP]	EU27 average 2022 [EUR/PPP]	EU27 average 2021 [EUR/PPP]	Variation 2022/21
1 GB	1.81	5.88	6.97	-18.6%
5 GB	3.81	9.43	10.69	-13.4%
10 GB	3.81	11.64	12.78	-9.8%
20 GB	3.81	16.15	17.38	-7.6%
50 GB	3.81	19.89	24.69	-24.1%

Comparing the EU27 average in the handset baskets reveals a similar trend. Prices are significantly lower than in 2021 in all baskets, ranging from -3% (1 GB, 30 calls) to -22% (10 GB, 100 calls).

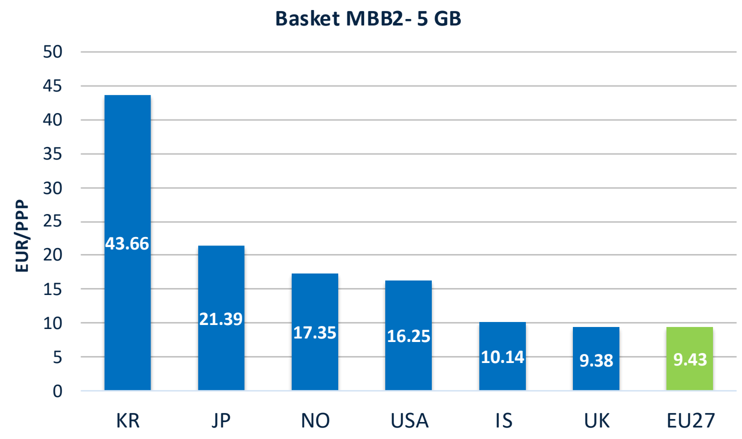
Basket	Least expensive 2022 [EUR/PPP]	EU27 average 2022 [EUR/PPP]	EU27 average 2021[EUR/PPP]	Variation 2022/21
1 GB, 30 calls	3.71	8.63	8.85	-3%
5 GB, 30 calls	3.81	11.52	13.44	-17%
10 GB, 100 calls	3.81	15.02	18.29	-22%
20 GB, 300 calls	4.85	21.41	24.69	-15%
50 GB, 300 calls	4.85	25.59	29.55	-15%
20 GB, 30 calls	3.81	19.64	23.72	-21%
50 GB, 100 calls	3.81	24.86	29.45	-18%

4.3.17. The bigger picture: the EU in the world

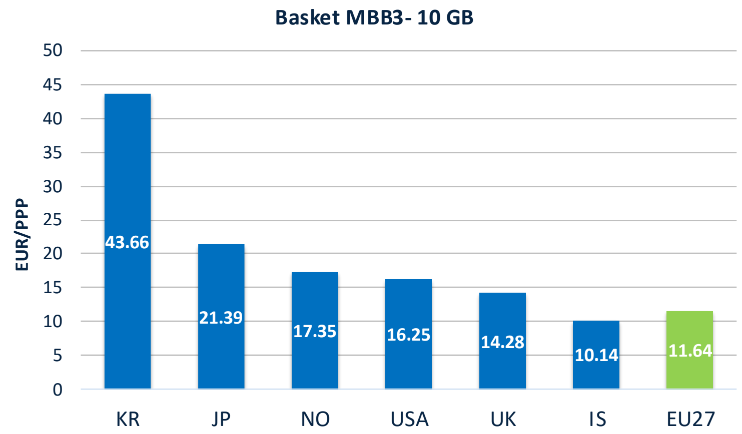
The following charts illustrate how the EU27 compare with South Korea, the United States, Iceland, Norway and the United Kingdom.



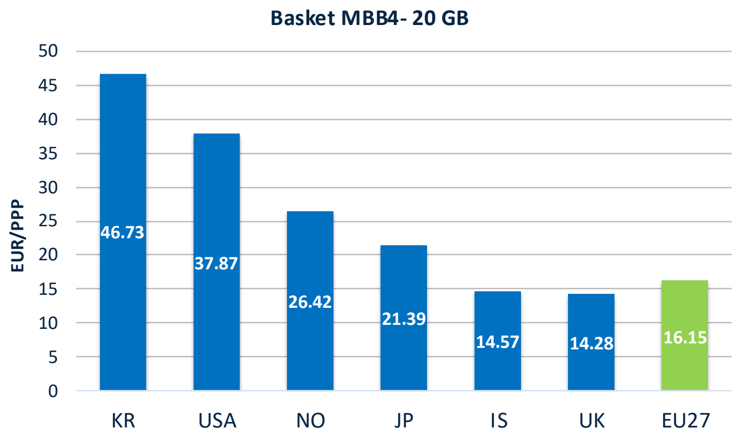
At an average price of 5.88 EUR/PPP, the EU27 offers significantly lower prices compared to the other countries considered in the study for the low-end mobile broadband usage basket. Particularly, the prices in South Korea are notably higher for this specific usage basket. This indicates that consumers in the EU27 can enjoy comparatively more affordable options for low-end mobile broadband plans compared to these countries. It should be considered though that some offers include a data volume of more than 1 GB (e.g. USA – 16 GB offer), meaning that no less expensive offer was found in these countries including only 1 GB.



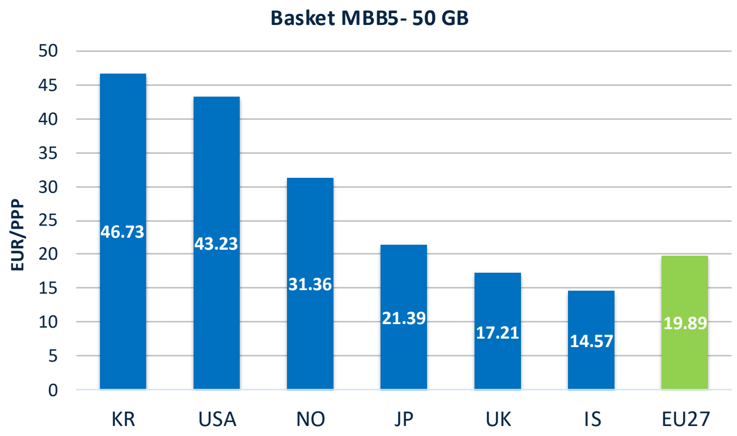
In this mobile usage basket, the EU27 (9.43 EUR/PPP), the UK (9.38 EUR/PPP), and Iceland (10.14 EUR/PPP) offer similar prices, which are significantly lower compared to the prices in the other countries considered. It should be considered though that some offers include a data volume of more than 5 GB (e.g. USA – 16 GB offer), meaning that no less expensive offer was found in these countries including only 5 GB.



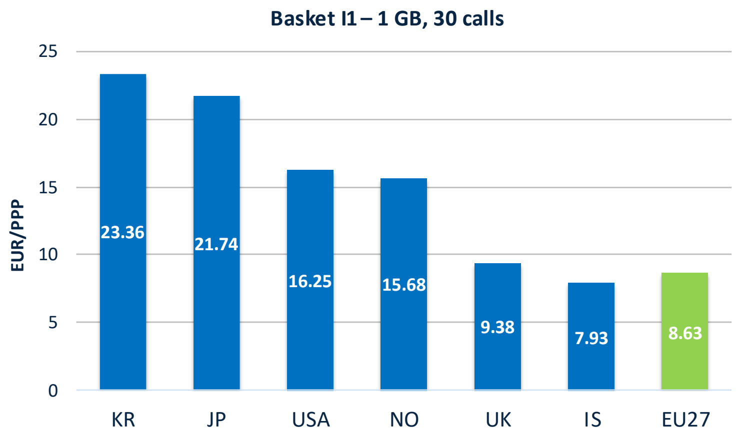
The EU27 average of 11.64 EUR/PPP is slightly higher than prices found in the UK and lower than prices in South Korea, the USA, Norway, Iceland and Japan.



This data usage basket is found to be the least expensive in the UK and Iceland. The EU27 average price (16.15 EUR/PPP) is considerably lower than the lowest prices in South Korea, the USA, Norway and Japan.

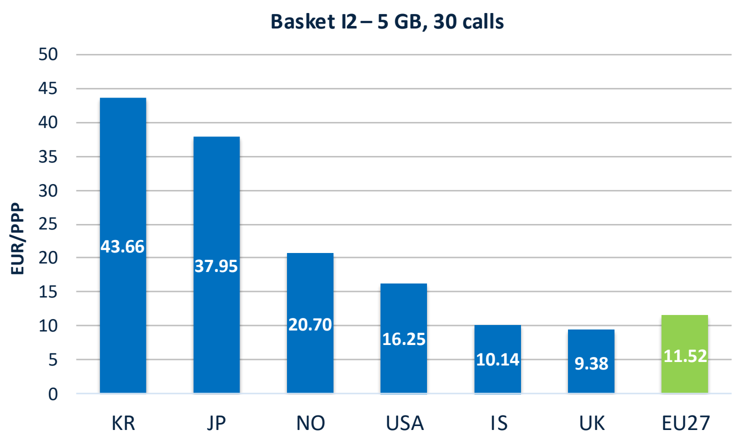


The EU27 average price (19.89 EUR/PPP) for the 50 GB data-only basket is higher compared to the prices in the UK and Iceland. On the other hand, South Korea and the USA have significantly higher prices for this basket, indicating that consumers in those countries may need to pay more for a similar data-only plan with a 50 GB allowance.



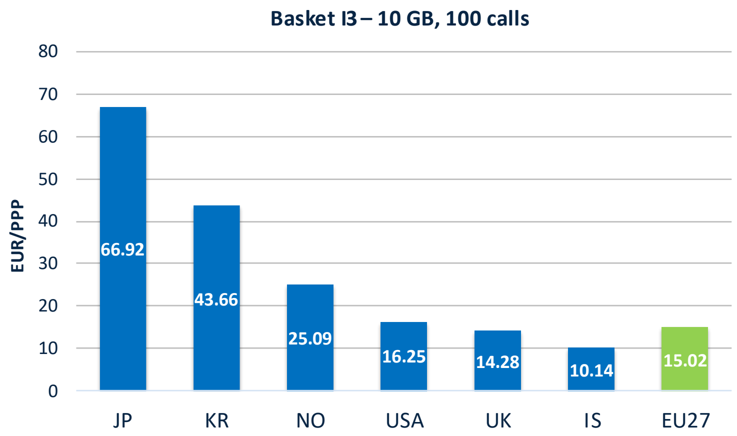
This usage basket is less expensive in the UK, closely followed by the EU 27. South Korea and Japan show significantly higher prices - 21.74 EUR/PPP and 23.36 EUR/PPP, respectively.

It should be considered though that all offers include more than 1 GB, meaning that no less expensive offer was found in these countries including only 1 GB.

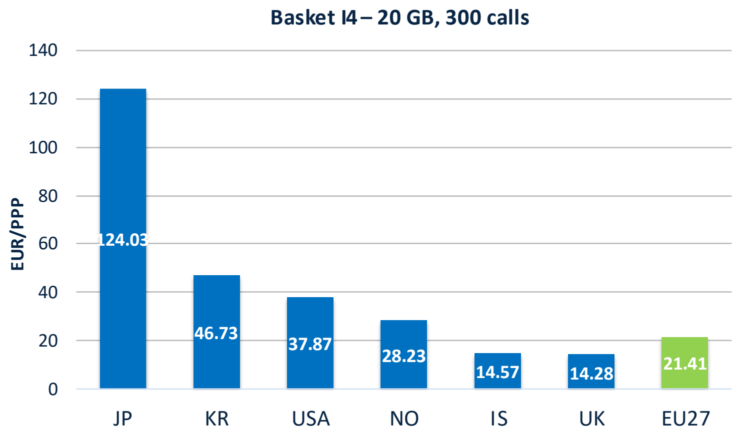


The UK and Iceland offer the lowest prices in the usage basket, indicating that consumers in those countries can find more affordable options. The EU27 has an average price of 11.52 EUR/PPP. On the other hand, consumers in South Korea and Japan face significantly higher prices for this usage basket.

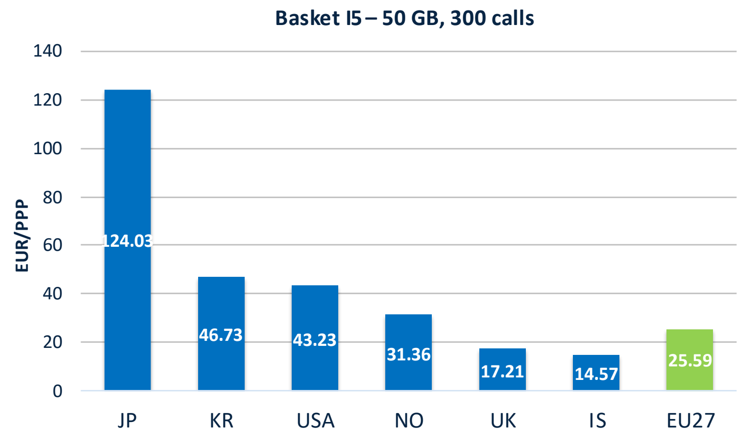
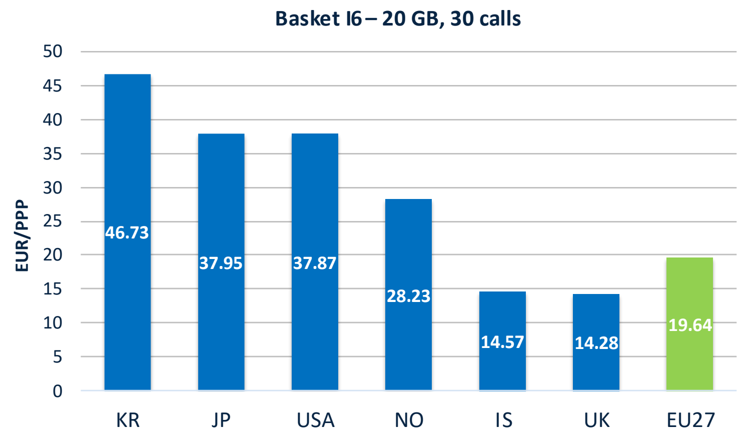
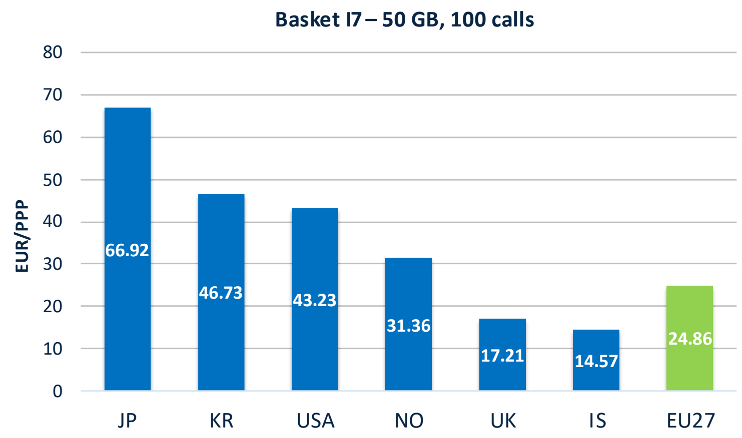
It should be considered though that some offers include a data volume of more than 5 GB, meaning that no less expensive offer was found in these countries including only 5 GB.



Following the UK and Iceland, in this basket, the EU27 (15.02 EUR/PPP) is less expensive than the other four countries in this comparison.



Prices in the UK and Iceland are lower than the EU27 on average (21.41 EUR/PPP) and significantly lower than the rest of the countries in this basket, while the same basket is almost six times more expensive in Japan.

	The EU27 average price (25.59 EUR/PPP) is higher than prices in the UK and Iceland, but lower than in the rest of the countries taken into consideration. For this usage basket, Japan shows significantly higher prices overall.
	The EU27 average price (19.64 EUR/PPP) is lower than prices for this usage basket in South Korea, Japan, the USA and Norway, but higher than in the UK and Iceland.
	The EU27 at 24.86 EUR/PPP is more expensive than the UK and Iceland but significantly less expensive than the prices in the rest of the countries.

5. ANNEX I - LIST OF INTERNET SERVICE PROVIDERS (ISPS) AND MOBILE NETWORK OPERATORS (MNOS) INCLUDED IN THE STUDY SAMPLE

Country	ISP	MNO
Austria	Kabelplus	A1 Telekom Austria
	LIWEST	T-Mobile Austria
	T-Mobile Austria	Hutchison 3 Austria
	A1 Telekom Austria	
	Salzburg	
Belgium	Proximus	Proximus
	Telenet	Telenet
	Voo	Orange
	Orange	
Bulgaria	Vivacom	Vivacom
	Networx-Bulgaria	Yettel
	Bulsatcom	A1 Bulgaria
	A1 Bulgaria	
	Escom	
Croatia	T-Hrvatski Telekom	T-Hrvatski Telekom
	Optima Telekom	A1
	Iskon	Telemach
	A1	
	Telemach	
Cyprus	Cyta	Cyta
	Cablenet	Epic
	Epic	Primetel
	Primetel	
Czechia	O2 Czech Republic	T-Mobile Czech Republic
	Vodafone Czech Republic	Vodafone Czech Republic
	T-Mobile Czech Republic	O2 Czech Republic
	Starnet	
	Nej.cz	
Denmark	TDC	TDC
	Norlys	Telenor
	Fibia	Hi3G
	Fastspeed	
	Telenor	
Estonia	Elisa Eesti	Telia
	Telia	Elisa Eesti
	STV	Tele2 Eesti

Country	ISP	MNO
Finland	Elisa	Elisa
	Telia	Telia
	DNA group	DNA group
	Lounea	
France	Orange	Orange
	Free	SFR
	SFR	Free
	Bouygues Télécom	
Germany	Vodafone	Telekom
	1&1 Telecom	Vodafone
	Telefonica Germany (O2)	Telefónica Germany (O2)
	Deutsche Telekom	
	EWE TEL	
Greece	OTE	OTE
	Nova	Vodafone
	Wind	Wind
	Vodafone	
Hungary	Magyar Telekom	Magyar Telekom
	Vodafone	Vodafone
	Digi communications	Yettel
	Tarr	
	Invitel	
Ireland	Eircom	Vodafone
	Sky	Three
	Virgin Media	Eir Mobile
	Vodafone	
	Imagine	
Italy	Telecom Italia	Vodafone
	WindTre	Telecom Italia
	Fastweb	WindTre
	Vodafone	
	Linkem	
Latvia	TET	Tele2
	Balticom	LMT
	Baltcom	Bite Latvia
	Netvision	
	Livas KTV	
Lithuania	Telia Lietuva	Tele2
	Cgates	Bite Lietuva
	Init	Telia Lietuva

Country	ISP	MNO
	Splius	
	BALTICUM TV	
Luxembourg	Eltrona	Post Telecom Lux
	Luxembourg Online	Proximus Luxembourg
	Proximus Luxembourg	Orange Lux
	Orange Lux	
	Post Telecom Lux	
Malta	GO	Epic
	Melita	GO Mobile
	Epic	Melita
Netherlands	VodafoneZiggo	KPN
	T-Mobile	VodafoneZiggo
	KPN	Tele2
Poland	UPC Polska	Orange
	Netia	P4
	Vectra	Polkomtel
	Orange	
Portugal	MEO	MEO
	NOS	Vodafone
	Vodafone	NOS
Romania	ORANGE Romania	Orange Romania
	Nextgen Communications	Digi Communications
	Digi Communications	Vodafone
	Vodafone	
Slovakia	Slovak Telekom	Orange
	Orange	Slovak Telekom
	ANTIK Telekom	O2 Slovakia
	UPC	
	O2 Slovakia	
Slovenia	Telemach	Telekom Slovenije
	Telekom Slovenije	A1 Slovenija
	T-2	Telemach
	A1 Slovenija	
Spain	Telefonica	Telefonica
	Orange	Vodafone
	Vodafone	Orange
	Grupo MASMOV!L	
	DIGI	
Sweden	Telia Company	Telia Company
	Telenor Sverige	Tele2
	Bredband 2	Telenor
	Tele2	

Country	ISP	MNO
	Bahnhof	

Non-EU27 countries

Country	ISP	MNO
United Kingdom	BT	O2
	Sky	Vodafone
	Virgin Media	BT
	EE	
	TalkTalk	
Norway	Telenor Norge	Telenor Norge
	Telia Norge	Telia Norge
	Viken Fiber	
	Lyse Fiber	
	Eidsiva Bredbånd	
Iceland	Síminn	Nova
	Vodafone	Vodafone
	Nova	Síminn
	Hringdu	
South Korea	Korea Telecom	SKT
	SK broadband	Korea Telecom
	LG U+	
Japan	NTT	NTTDoCoMo
	au	KDDI
	Softbank	
	Asahi Net	
USA	AT&T	Verizon Wireless
	Cox Communications	AT&T
	Spectrum (Charter Communications)	T-Mobile US
	Century Link	
	Comcast Xfinitiy	
	Verizon	

6. ANNEX II – COUNTRY REPORTS

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