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# Broadband Bundling

TRENDS AND POLICY IMPLICATIONS

OECD

**DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY  
COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY**

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**Working Party on Communication Infrastructures and Services Policy**

**BROADBAND BUNDLING: TRENDS AND POLICY IMPLICATIONS**

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## MAIN POINTS

Bundling can provide both benefits and drawbacks to broadband customers. In general, bundled services are less expensive when purchased together and consumer surplus from one good in the bundle can help “subsidise” another less-valued element. Bundling also allows the integration of products in a way that benefits consumers such as by giving them unified billing, a common helpline number or the integration of voice mail message retrieval via the television set.

In other cases bundles can lead to situations where customers are worse off. Consumers may be required to purchase a bundle which contains one product they value and others they do not. Bundling also raises some significant concerns regarding transparency and consumer “lock in”. Bundles may make it difficult or impossible for subscribers to switch providers of certain bundled services and not others.

An OECD data collection of over 2 000 offers of stand-alone and bundled services from 90 firms across 30 OECD countries reveals that broadband services in the OECD are overwhelmingly sold as mixed bundles, allowing users to choose among stand-alone offers or bundled services. Of the 90 operators surveyed, 77% allow users to buy stand-alone broadband service. 17% tie broadband service to a fixed-line voice service and 4% require a television package to obtain broadband access. Only 2% of the offers surveyed required subscribers to take a triple-play service to have broadband.

Broadband bundles are typically sold with a significant price discount over stand-alone prices. The average bundled discount compared with buying the services separately is USD 15 (PPP) per month or 26%. The average price of a triple-play bundle across all countries and operators is USD 65 (PPP) per month, while the median price is USD 59 PPP. The average *entry-level* price for a triple-play bundle is USD 41 PPP per month.

Consumers often consider the incremental cost of adding broadband to an existing phone and television subscription. The minimum incremental cost of adding broadband service to an existing service ranges from USD 0 to 37 (PPP) across countries in October 2009. Overall, the average incremental price of broadband once a user already has a phone or cable line is USD 15 (PPP). This is, on average, a 32% reduction off the minimum stand-alone price available in the market.

Bundling plays a key role in extending broadband access to those who value it less than the lowest stand-alone price in the market. There are 14 countries where consumer surplus is maximized for a consumer by a bundle which includes a broadband component *even when the user places a value on broadband below the minimum stand-alone broadband price in any market*. Broadband is also a component of the welfare maximising bundle in two countries (Switzerland and France) *even when the user’s perceived value of broadband is set at zero*.

The benefits to consumers largely derive from having a choice between stand-alone and bundled services and stand-alone offers still play a key role in maximising consumer surplus. The percentage of countries where a consumer’s optimal service selection includes at least one stand-alone service varies between 43% and 63% when users are willing to pay the OECD average monthly price for voice (USD 19 PPP) and video (USD 24 PPP) and their willingness to pay for broadband varies between USD 0 – 50 (PPP) per month.

The availability of stand-alone services will also play a key role in the competitive potential of over-the-top (OTT) services that allow consumers to watch video or make voice calls “over-the-top” of an existing broadband connection. The development and maturation of these services may lead to more users subscribing to just stand-alone broadband services. Because OTT services require a certain level of network quality to function correctly they should be considered in any debates surrounding traffic prioritisation/network neutrality.

The complexity of communication offers and bundles has made it increasingly difficult to understand and compare service prices and characteristics. A lack of transparent information about services and their prices makes consumer price comparisons more difficult and leads to market inefficiencies.

Regulators and consumer-protection agencies should encourage ISPs to provide more information on the characteristics of packages they are selling and to make prices clear and understandable for consumers. Some regulators may consider requiring ISPs to include all services, fees and taxes clearly in one total price which is available visibly on the website. Websites and tools that can help users compare bundled offers are beneficial to the market and lead to stronger price and service competition. Regulators may be the best positioned to build these tools.

Bundled services can also lead to consumer lock-in for sub-optimal service choices if subscribers are not able to switch providers easily and with minimal expense. One of the key responsibilities of telecommunication regulators is to ensure that markets function efficiently and that consumers can switch providers when better offers appear – essentially “voting with their feet”.

Regulators should take steps to ensure that switching is as simple as possible for consumers by addressing any procedural, financial or relational switching barriers. Procedural costs can be addressed by requiring better price information from operators, seamless switching across providers and number portability across services. Ensuring users can port numbers at any time during a subscription and making porting available to over-the-top providers could also help improve consumer mobility. Telecommunication providers often require minimum contract lengths to cover their fixed costs but consumers should be allowed to move to a month-to-month contract once the initial term is over.

Regulators and competition authorities may need to work together to address lingering problems with market dominance, noting that operators face varying levels of competition in different areas of the country. This may also include examining options for sharing infrastructure either via extended unbundling regulations or by investments in separated/mutualised infrastructure.

Incremental improvements in consumer broadband valuations can lead to higher broadband take-up and its resulting network effects in the economy. Boosting the perceived value of broadband (*e.g.* willingness to pay) to USD 25 (PPP) would make broadband a part of an optimal service mix in all OECD countries assuming consumers will pay the average OECD price for stand-alone voice and video. Governments can work to increase broadband value by making more public-sector information available and reducing any barriers or disincentives to interacting with the government online. Governments can also increase the perceived value of broadband connections by helping to promote the adoption of smart-grid technologies for electricity, reducing bureaucratic blocks to effective e-health applications, developing innovative online transportation applications and making more e-learning options available.

## BUNDLING BACKGROUND

Telecommunication providers have embraced bundling as a way to address declining revenues in their core markets and develop new revenue streams. Typical bundles offer fixed-voice, data, and video services and are commonly referred to as “multiple-play” or “triple-play” packages. A number of operators are expanding their bundles to include mobile voice as a fourth component of “quadruple-play” offers. This research examines the state of bundling in OECD broadband markets and derives a set of policy suggestions based on the results.

Businesses in a range of industries market bundled products. Computers, for example, are sold as bundles consisting of a computer, monitor, mouse and keyboard. Automobile components such as radios and navigation systems are often bundled into the cars that consumers purchase.

Bundling is commonly defined as the sale of two or more separate products in one package (Stremersch and Tellis, 2002). The products are considered “separate” items when markets exist for each product and when some purchasers buy or want to buy the products separately. Telecommunication bundles clearly fit into this definition given that separate markets exist for broadband access, fixed line telephony and video. While these telecommunication services are commonly sold as a bundle there remains a significant market for individual services.

Bundling can provide both benefits and drawbacks to broadband customers and policy makers are concerned with the net effect. In general, bundled services are less expensive when purchased together than if a household were to buy all the services separately. Bundling can also allow the integration of products in a beneficial way for consumers. For example, bundled offers permit separate services to work together, such as by allowing triple play customers to listen to voice mail via their television sets. Bundles can be beneficial for consumers when their consumption preferences match the bundle and they understand well what they are purchasing.

In other cases bundles can lead to situations where customers are worse off. Consumers may be required to purchase a bundle which contains one product they value and others they do not. Even in cases where stand-alone services are available they may be priced at a level that makes them uneconomical. Bundling also raises some significant concerns regarding transparency and consumer “lock in”. Bundling products together tends to hide the actual prices of individual services and make it more difficult for consumers to compare offers. Bundles may also make it difficult or impossible for subscribers to switch providers of certain bundled services and not others.

Bundling has an impact on firms and consumers alike and the net results of bundling are often difficult to evaluate. The following section examines the general literature on bundling as a way to better understand bundling in telecommunication markets. The section begins first by providing standard definitions of terms and then discussing why firms choose certain bundling strategies over others.

### General literature on bundling

#### *Definition: Tying versus bundling*

There is an important distinction among bundled offers in economic literature regarding whether the goods in the bundle are also sold as stand-alone components (see Table 1). In some cases firms only sell goods as a bundle and there is no possibility of buying items or services individually. This is referred to as “pure bundling” (Stremersch and Tellis, 2002). A common example is a basic cable television subscription tier where users must purchase a minimum grouping of television channels in the lowest tier.

### ***Price bundling versus product bundling***

Other firms offer packages of services but also sell them separately. This is called “mixed bundling” and allows consumers to buy services individually or as a package. With mixed bundling, consumers need a reason to choose a bundle over individual services so firms typically offer a discount when consumers buy multiple services (*price bundling*) or offer some sort of beneficial integration among the services without a price discount (*product bundling*).

Firms engaging in *price bundling* sell two or more products at a discount when purchased together. Consumers who value both goods can pay less by buying them together than if they buy them separately in the market. For example, the Canadian cable company Shaw offers a bundle of television, broadband and phone service for CAD 20 less than if the services are purchased as stand-alone services<sup>1</sup>.

Other firms may choose a *product bundling* approach that entices consumers to buy products as a bundle because of integration of certain aspects of the products. In telecommunications, some common integration is combined billing or free calling between fixed and mobile phones purchased together.

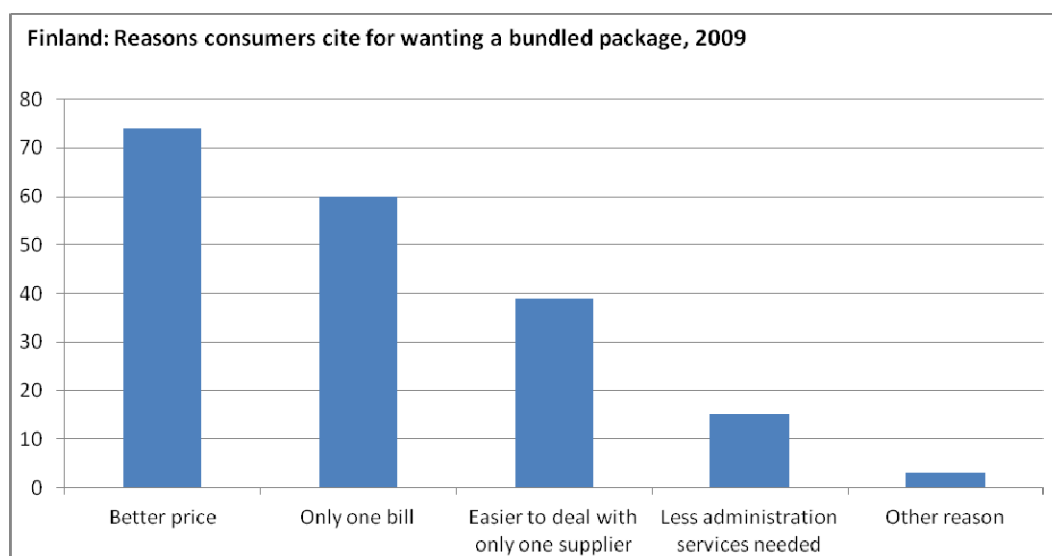
**Table 1. Tying versus bundling**

Tying or “Pure bundling”	“Mixed bundling”	
Tying, often also called “pure bundling” is when a firm sells two or more products only as a bundle and there are no stand-alone offers available.	Bundling or “mixed bundling” is when a firm sells goods separately as well as combined as a bundle.	
	<p><b>“Price bundling”</b></p> <p>Price bundling reflects a situation where two or more products are sold at a discount without any integration of the products. This means the products are not integrated and prices are the reservation prices of the separate goods. Since the combination does not create added value to customers there needs to be a discount in order to attract consumers to buy the bundle.</p>	<p><b>“Product bundling”</b></p> <p>Product bundling is integration of two or more products at any price. Integration leaves at least some customers with added value since they are integrated (billing, seamless interaction. The greater value of the integration raises the reservation prices for the bundle compared with the sum of conditional reservation prices of the separate products.</p>

In Finland, consumers cited a number of reasons why they were interested in a telecommunication bundle and the responses illustrate that consumers look for the benefits of both price and product bundling in telecommunication markets (see Figure 1). Among respondents, the largest motivation for purchasing bundles (74%) was their lower price. This fits squarely with firms using price bundling to attract customers. The other responses were more closely aligned with product bundling as customers appreciated having a single bill, dealing with only one supplier and that the bundles required less administration.<sup>2</sup>

**Figure 1. Finland: Reasons given for wanting a bundled telecommunication package**

Ficora, 2009, % of respondents with multiple responses allowed

Source: Ficora, [www.ficora.fi/attachments/suomiry/5n2kRC9zk/Tutkimusraportti\\_2009\\_Telepalveluiden\\_kayttotutkimus.pdf](http://www.ficora.fi/attachments/suomiry/5n2kRC9zk/Tutkimusraportti_2009_Telepalveluiden_kayttotutkimus.pdf)

Evans and Salinger highlight that consumer choice is maximised when consumers can choose between buying products alone or as a bundled service (*i.e.* mixed bundling). Tying goods together, without stand-alone offers, limits consumer choice because consumers cannot mix and match products from different providers. McAfee, McMillan, Whinston (1989) imply that although mixed bundling will yield profit at least as high as those earned by stand-alone and pure-bundling strategies, it still may not maximise consumer welfare.

### ***Why firms tie and bundle***

There are several reasons firms choose to market goods in bundles. Four key reasons cited are that it allows for price discrimination, reduces costs, helps extend market power and can create value via synergies. Looking into the reasons firms may wish to bundle can help policy makers better understand the characteristics of their own broadband markets.

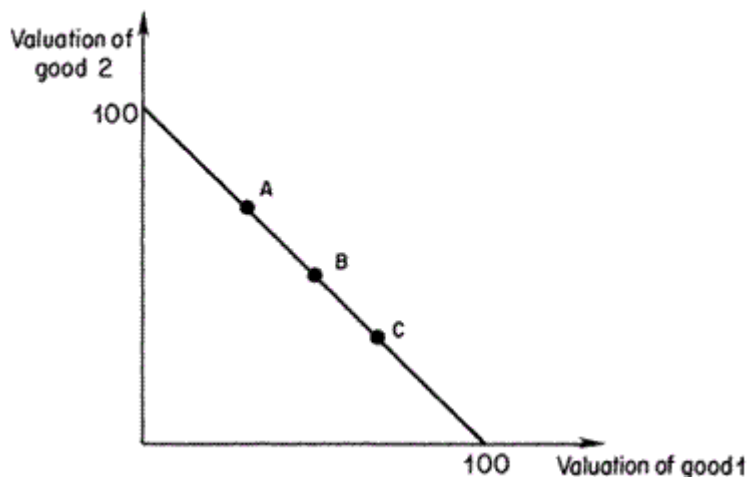
#### ***Price discrimination***

Adams and Yellen (1976) postulate that monopolies choose to bundle or tie goods because it allows them to price discriminate and charge customers their actual reservation prices. In many market structures firms set a single price for a good but this makes it difficult to extract consumer surplus from consumers who place different valuations on the product. Nalebuff (2004) argues that any tool, such as bundling, that helps reduce heterogeneity in valuations will help a monopolist earn greater profits.

Firms offering bundles can sell more goods and increase revenue beyond what would be possible by selling goods individually. There are various examples and models in the literature but Adams and Yellen (1976) and McAfee, McMillan, Whinston (1989) show this in a way that is particularly clear.

They give an example where there are two goods used by three consumers (A, B and C). They assume a zero cost of production and a bundled price of 100 (see Figure 2).



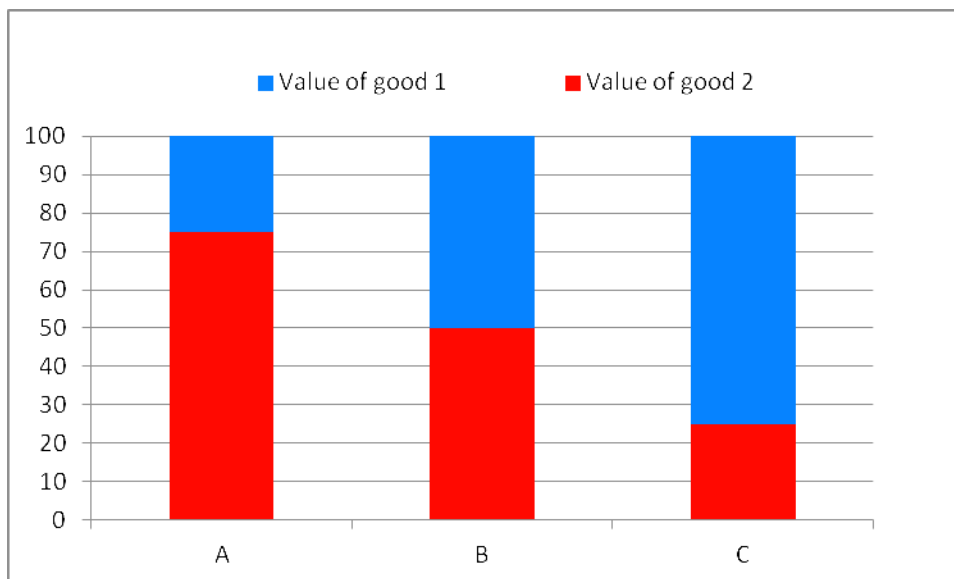
**Figure 2. Optimal bundling strategy for varying reservation prices**

Source: McAfee, McMillan, Whinston (1989)

Consumer A values Good 2 more highly than Good 1 (see Figures 2 and 3). Consumer B values them both the same and Consumer C attaches a higher value to Good 1 than Good 2. If both goods are priced at 50, then only Consumer B would buy both. The other two consumers would buy only the item they valued more than 50 and forgo the other. The revenues for a firm under this scenario would be  $A(50) + B(100) + C(50) = 200$ .

**Figure 3. Varying reservation prices**

Three consumers (A, B, and C) purchasing two goods (1 and 2)



Source: OECD modified from McAfee, McMillan, Whinston (1989)

The firm selling the goods in the example could increase revenues by tying the services together in a bundle and shifting some of the consumer surplus from the highest-valued good from one to the

other, less-valued good. This increases the possibility the consumer will buy both. In Figure 3, all three consumers would buy a bundle of the two goods that was priced at 100. The bundling strategy increases revenues and the number of products sold by 50% since all consumers pay 100 for a total of  $A(100) + B(100) + C(100) = 300$ .

This explanation that firms bundle as a way to benefit from price discrimination was the foundation of bundling literature for many years but has also been criticised because it assumes that there is no competition from outside sources and disregards other explanations for bundling such as cost savings.

#### *Cost savings*

Bundling, or tying can also decrease the costs of production via scale economies and simplified distribution. Evans and Salinger (2005) argue that firms bundle products in competitive markets because it is efficient. They use an example of electrical adaptors for different countries which are often sold in a bundle, even though travellers may only need one. In terms of the firm, the cost savings derive from being able to market the same bundle to travellers around the world and reducing the amount of packaging and shelf space required to sell individual adaptors for each region of the world. The consumer's reservation price for one specific adaptor is likely to be relatively high compared to the additional adaptors for other regions which are not part of the itinerary. By selling them as a bundle the producer is able to extract some of the consumer surplus of the first adaptor and help boost the attractiveness of buying the other adaptors as part of a package, which in turn reduces the fixed costs to the producer and distributor. Indeed, if the cost savings from bundling are potentially high then Evans and Salinger argue that tying can appear even in competitive markets and even if a significant group of customers wants just one component of a bundled product.

The cost-savings argument has a clear link with telecommunications that can be demonstrated by the costs of set-top boxes. Often triple-play providers build video, voice and data functionality into a single set-top box which is distributed to subscribers. Households taking just a television component often still receive the same set-top box as those taking a triple-play offer – highlighting the high fixed costs associated with providing any service and the low incremental costs of additional services. The high cost of the set-top box can make it un-economical to sell just one service. An example is the largest cable provider in the United States, Comcast. Comcast sells a fixed-line voice replacement product but ties it with either broadband or television to help cover the high cost of the consumer premises equipment.

#### *Extending market power*

Much of the early and most recent discussion on bundling in the literature examines how firms can use bundling to extend market power. Firms with market power in one product can use bundling as a way to leverage power in a second, often unrelated area by tying the products together. A number of high profile anti-trust cases in the ICT sector have focused on whether firms used their market power in one sector to limit competition in secondary markets.

The telecommunication and cable industries receive a relatively large amount of focus in this line of argument because both come from monopolistic positions in one market and bundling is often cited as a way to gain market share in a second, more competitive market such as broadband.

Rey and Tirole (2006) find that bundling can deter entry in adjacent markets when bundled goods are not compliments, at least for a substantial number of users. Bundling may allow a dominant firm to maintain its dominant position in its bottleneck market. Some have argued that this applies well to cable and telephone companies which have had traditional bottlenecks in one market and may use tying or bundling to protect both the old and new market.

Nalebuff (2004) focuses on oligopolistic firms, which most closely resemble telecommunication market structure in OECD countries. His work emphasizes that bundling allows companies with market power in two goods to bundle them together, making it harder for a rival with only one of the goods to enter into the market. Importantly, bundling allows an incumbent to credibly defend both products without having to price low in each.

Firms which bundle in order to price discriminate tend to bundle goods which have negatively correlated valuations but the opposite is true when firms bundle as an entry deterrent. When firms want to block entry into a secondary market it is best for the firm if the valuations of the goods in the bundle are highly correlated.

Nalebuff states:

A monopolist, even without fear of entry, has incentives to bundle, either as a way to achieve better price discrimination (when values have a negative correlation) or to help save costs (when valuations are positively correlated). But most important to a firm with market power is preserving that power, by deterring a potential entrant or reducing the impact of a one-product rival. It is in this role that bundling truly shines. Entry is more easily deterred, in which case profits are more than doubled. And when entry deterrence fails, post profits are still more than 50 percent higher when products are sold as a bundle.

#### *Creating value via synergies*

Another justification for bundling is that it can create values via synergies. Nalebuff (2004) provides an example of a car where the steering wheel and motor could somehow be useful on their own but it is the bundle of all the parts of a car that actually creates the value.

In broadband markets consumers find value in having all services bundled together with one company that can provide a single help-line to resolve any problems. In other cases, synergies arise when all products can be configured via a common interface on the web. Finally, any interaction among the different components of the bundle can give rise to synergies. As mentioned earlier, the ability to listen to voice mail messages or see the caller ID on the television provides a service which is possible only when the service is sold as a bundle.

Some of this integration is developed and promoted by firms as a way to link services and increase the cost to the consumer of switching providers for any individual component. In other cases, competitive markets can push operators to constantly develop new and innovative services which rely on the bundle in order to draw in and retain subscribers.

## OECD DATA FINDINGS

The OECD undertook a large data collection in the fall of 2009 to look at the development of bundling in broadband markets. The data provide some insight into the theory of bundling as it pertains to the telecommunication sector and the characteristics of offers in OECD countries.

The OECD first addressed bundling specifically in 2006 (OECD, 2006), covering 600 combinations of offers from 90 operators in 30 countries. This new data collection in 2009 includes over 2 000 offers of stand-alone and bundled services from 90 firms across 30 OECD countries, focusing on residential broadband plans and any associated plans which may be co-marketed to small businesses or home offices. Details of the data collection are available in the Annex and much of the data is also available in summarised form on the OECD Broadband Portal.<sup>3</sup>

The data reveal that broadband services in the OECD are overwhelmingly sold as mixed bundles, allowing users to choose among stand-alone offers or bundled services. Taking the perspective of a consumer who wants to buy stand alone broadband, 77% of the 90 operators surveyed allow users to buy just broadband service (see Figure 4). It is worth highlighting that while 77% of the operators surveyed have a stand-alone broadband offer, subscribers tend to choose bundled offers when they are available.

Only 17% of operators tie broadband services to a fixed-line voice service. Incumbent telephone companies are the most likely to require fixed voice services with broadband subscriptions but some cable operators do as well. Three cable companies, Numericable in France, Kabel Deutschland in Germany and Ono in Spain all tie broadband to a basic phone service.

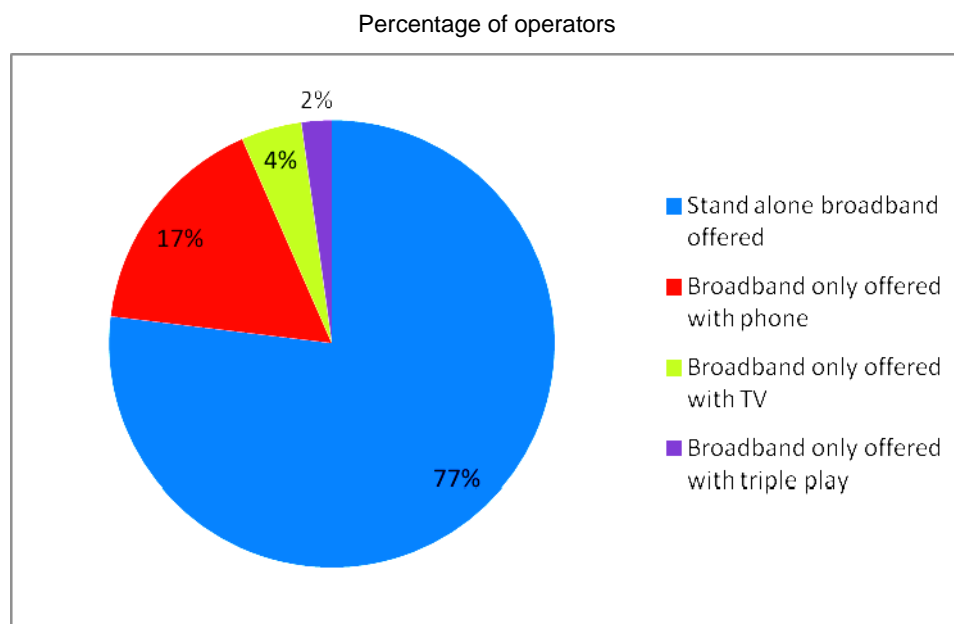
Only 4% of companies require a television package to obtain broadband access and all are cable companies. Only 2 operators surveyed required subscribers to take a triple-play service to have broadband access. These are Free in France and ZON in Portugal. The full list of operators and their minimum packages for broadband are provided in Table 2.

Spain is the only country in the data collection where none of the three surveyed operators advertised a stand-alone broadband offer without a voice component. These offers may exist but may not be marketed to consumers.

**Table 2. Operators: Availability of stand-alone broadband**

October 2009

<b><u>Stand-alone broadband</u></b>	Fastweb (IT)	<b><u>Broadband only with television</u></b>
Bigpond/Telstra (AU)	J:COM (JP)	Stofa (DK)
Internode (AU)	NTT (JP)	Ziggo (NL)
Optus (AU)	SK Broadband (KR)	UPC (NL)
UPC (AT)	Tbroad (KR)	Sky (UK)
AON (AT)	KT (KR)	
blizznet (AT)	Cegecom (LU)	<b><u>Broadband only with phone</u></b>
Base (BE)	Numericable (LU)	Numericable (FR)
Belgacom (BE)	Telmex (MX)	Kabel Deutschland (DE)
Telenet (BE)	Cablevision (MX)	T Home (DE)
Videotron (CA)	Megacable (MX)	Eircom (IE)
Rogers (CA)	KPN (NL)	Alice (IT)
Bell Canada (CA)	TelstraClear (NZ)	Yahoo! BB (JP)
GTS Novera (CZ)	Telenor (NO)	EPT (LU)
O2 (CZ)	Lyse (NO)	Telecom (NZ)
UPC (CZ)	Get (NO)	Vodafone (NZ)
TDC (DK)	Dialog (PL)	TP (PL)
Dansk Bredbånd (DK)	UPC (PL)	Telefonica (ES)
Sonera (FI)	Portugal Telecom (PT)	Orange (ES)
Welho (FI)	Clix (PT)	Ono (ES)
Elisa (FI)	Swan / Max Multimedia (SK)	Bredbandsbolaget (SE)
Orange (FR)	T-Com (SK)	BT (UK)
Vodafone (DE)	UPC (SK)	
Vivodi (GR)	Com Hem AB (SE)	<b><u>Broadband only with triple play</u></b>
forthnet/Nova (GR)	Telia (SE)	Free (FR)
OTE (GR)	Swisscom (CH)	ZON TV Cabo (PT)
GTS-Datanet (HU)	Cablecom (CH)	
UPC (HU)	Sunrise (CH)	
T-Online (HU)	Turk Telekom / TTNNet (TR)	
Hringiðan (IS)	Turksat/Uydunet (TR)	
Vodafone (IS)	Superonline (TR)	
Siminn (IS)	Virgin (UK)	
Irish Broadband (IE)	AT&T (US)	
UPC Ireland (IE)	Verizon (US)	
Tiscali (IT)	Comcast (US)	

**Figure 4. Availability of stand-alone broadband offers from 90 operators**

Another interesting result emerging from the data is that the same firms have different bundling strategies across countries where they have operations. For example, the cable company UPC does not offer stand-alone broadband in the Netherlands but does in Austria, Belgium (Telenet), the Czech Republic, Hungary, Ireland, Japan (J:COM), Poland, and the Slovak Republic. Among incumbent operators, France Telecom offers stand-alone broadband in its home market but ties broadband to voice in Poland (TP) and Spain (Orange). Telefonica ties phone and broadband products in Spain but not in the Czech Republic. Similarly, Deutsch Telekom requires fixed line service for broadband in Germany but sells broadband as a stand-alone service in Hungary and the Slovak Republic.

Among multinational fixed line operators it is interesting to see that France telecom offers stand-alone broadband at home but only as a bundled service abroad while DT and Telefonica do just the opposite. They tie services at home but offer stand-alone broadband in other markets.

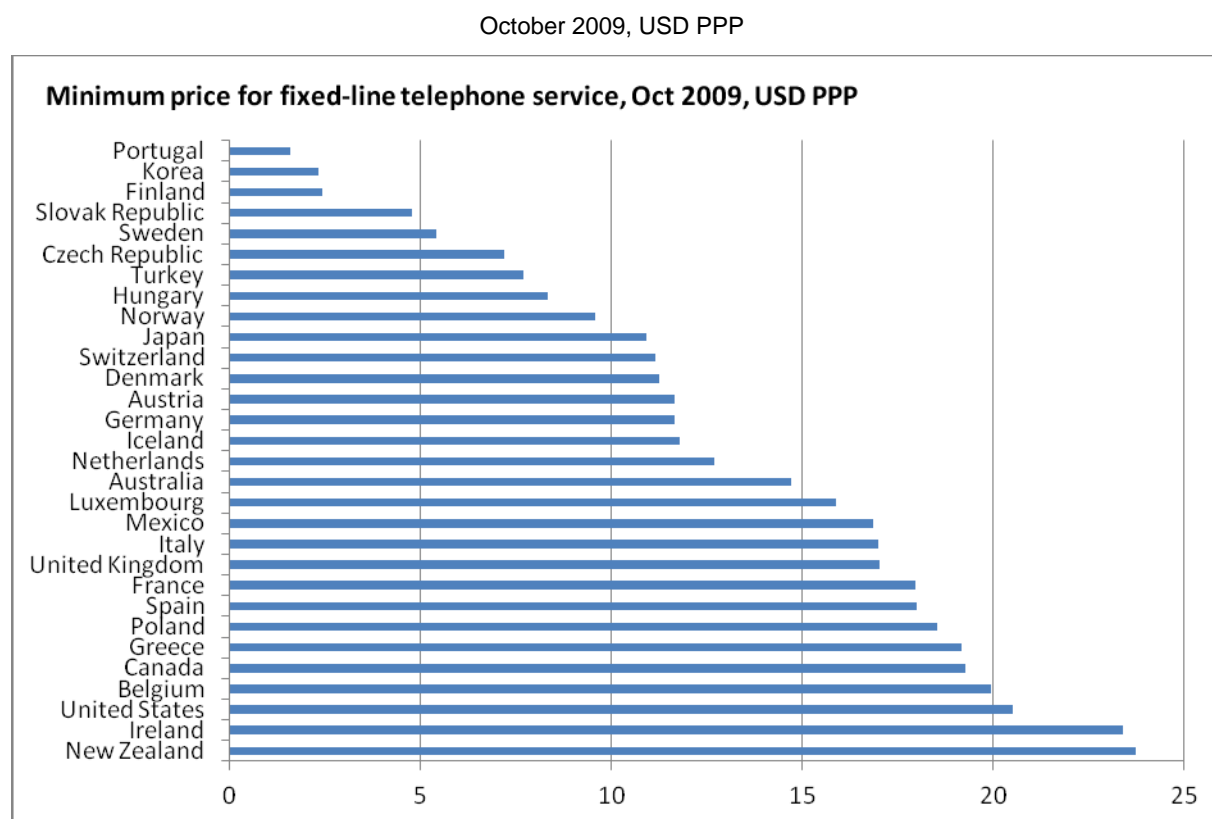
### **Standalone prices**

Consumers use the stand-alone prices in a market as a basis for evaluating bundles. The following three Figures (5, 6 and 7) provide data on the minimum observed prices for three separate services in October 2009.

There are some considerations to keep in mind when evaluating these figures. First, the offer with the lowest price for each service may not be available in all parts of a country. Therefore, this analysis is better fit to examining the prices of services in large metropolitan areas, particularly those with both DSL and cable infrastructure. Second, the voice and video components can have significantly different characteristics across countries and represent just the lowest priced video or phone package of each provider. For example, the basic television package included for the Verizon in the United States has 200 channels whereas the basic television package from Telia in Sweden has only 6 channels. Data on the number of channels included in each package surveyed in the analysis are included in an annex at the end of the paper.

On the voice side, most basic voice subscriptions do not include any free outgoing calls in the monthly subscription although operators in some countries such as Canada, New Zealand and the United States offer unlimited outbound local calling as part of their basic phone services.

**Figure 5. Minimum phone subscription price across three operators**



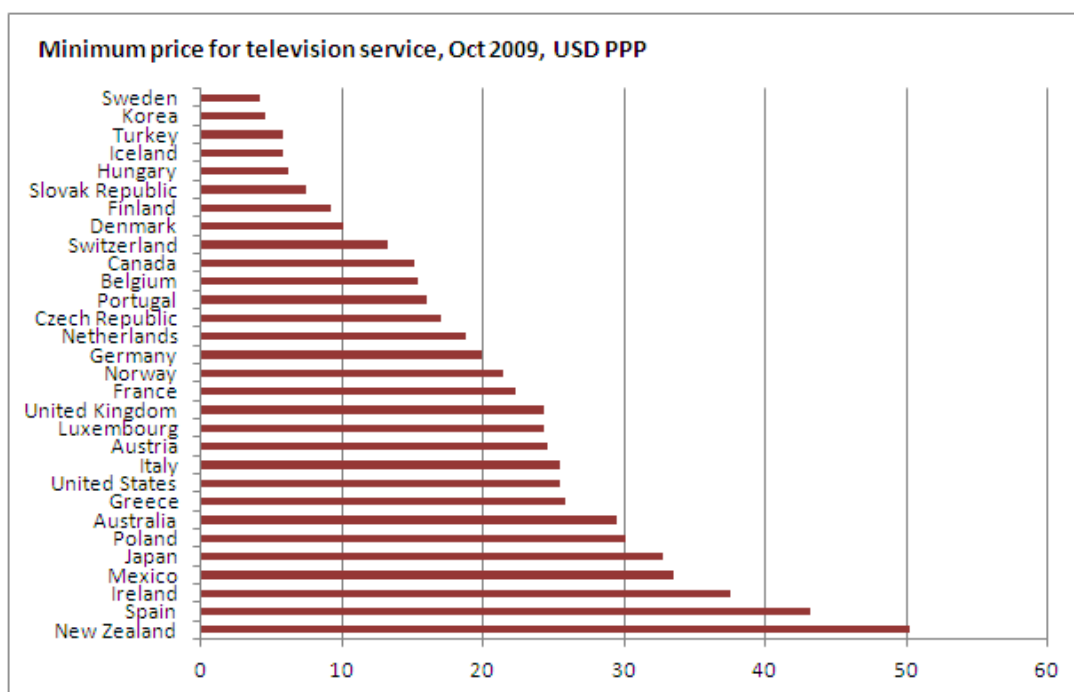
Note: Fixed line telephone services vary significantly across countries. In most cases there are no included calls as part of the subscription. There are, however, some countries such as the United States and New Zealand where the basic phone package includes unlimited, untimed local calling,

Prices for fixed-line telephony vary considerably across the OECD depending on what is included for the price. Figure 5 shows the minimum observed price for phone service across three operators surveyed in each country in October 2009. The least-expensive plans are in Portugal and Korea and do not include any calls. At the other end of the price range are subscriptions in New Zealand and Ireland. Operators in New Zealand and the United States include unlimited local calling as part of the subscription but operators in Belgium and Ireland do not.

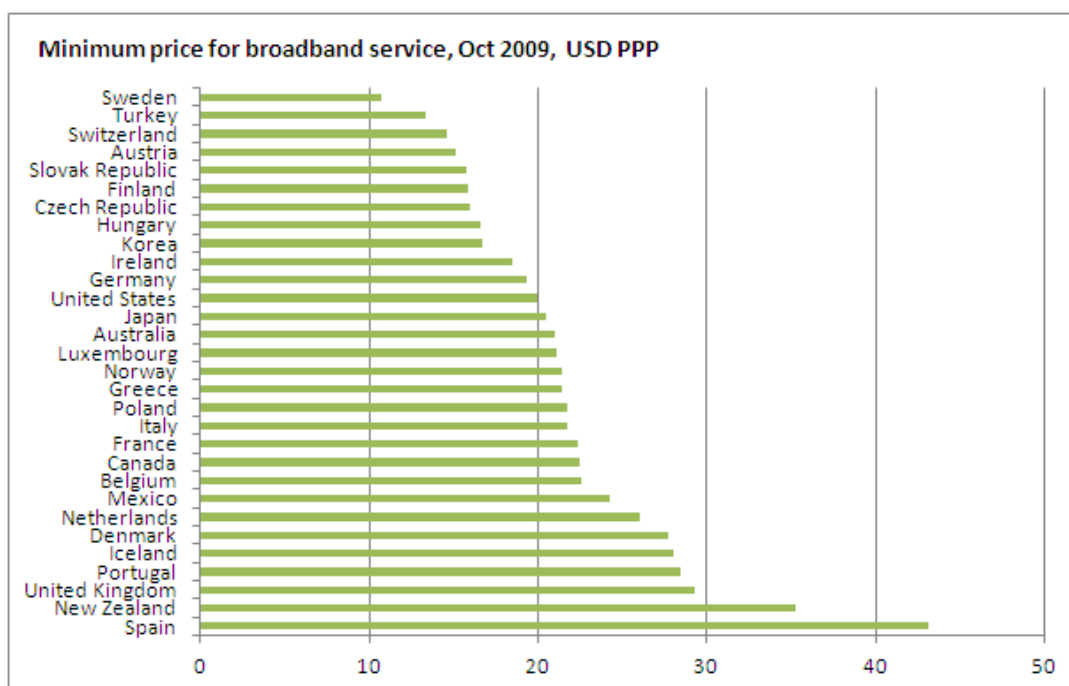
The basic television packages offered by providers vary from country to country. Sweden, Korea and Turkey have low priced television offers with a limited number of television channels. The prices for entry-level, stand-alone television range from USD 4 in Sweden for 9 channels to USD 50 in New Zealand for 38 channels and a tied phone service (see Figure 6).

**Figure 6. Minimum television subscription price across three operators**

October 2009, USD PPP

**Figure 7. Minimum broadband subscription price across three operators**

October 2009, USD PPP



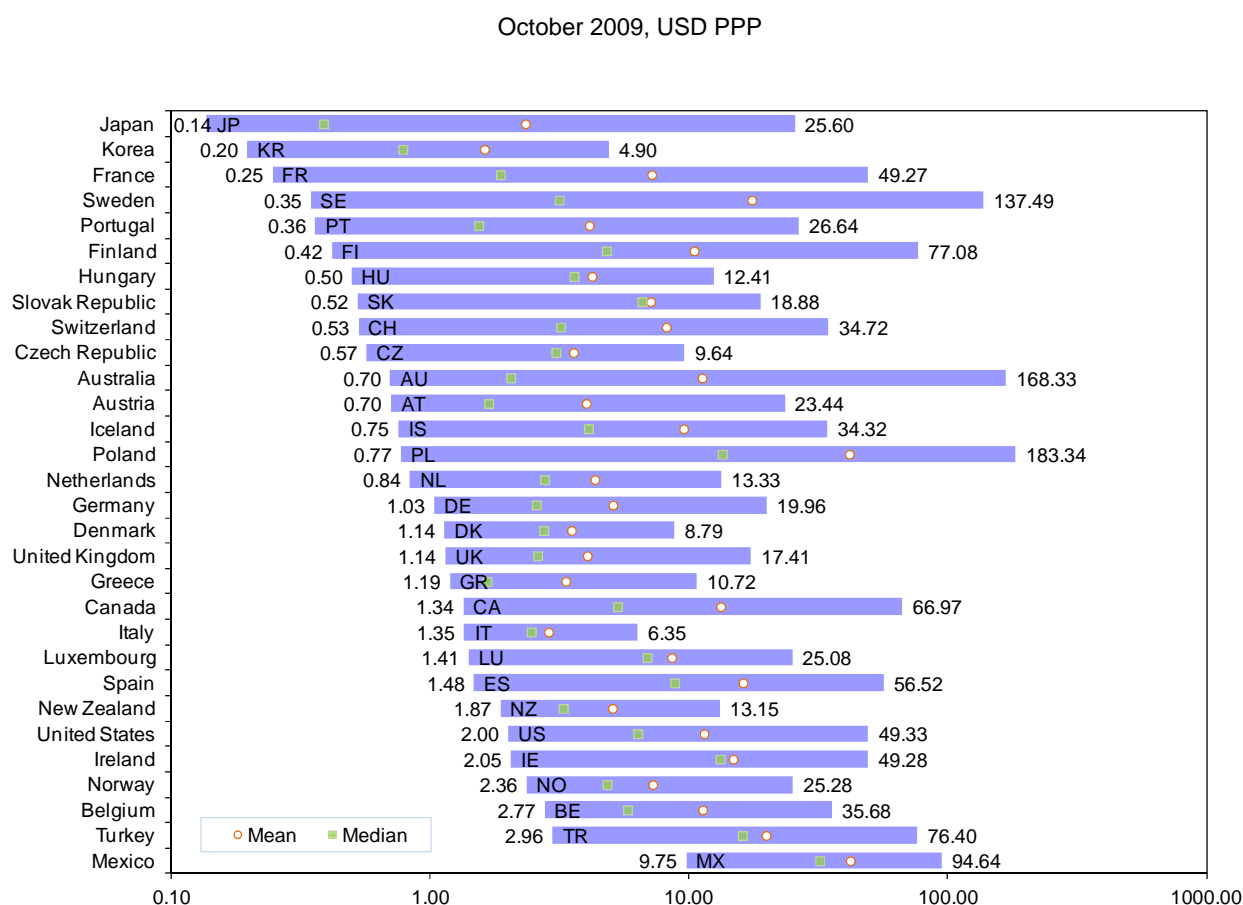
Note: Prices include broadband plus any necessary line rental or minimum television plan required for broadband. The speeds advertised at the minimum prices in the figure can vary significantly across countries depending on market conditions



The minimum price for an entry-level broadband plan that includes any required line charges is given in Figure 7. The entry-level price for service ranges from USD 11 (PPP) in Sweden to USD 43 in Spain. It should be noted that the price for Spain is significantly higher than other countries for stand-alone broadband because all offers include a basic telephone service. This can be beneficial for customers wishing to purchase both services but also represents a higher entry-level price for consumers who would otherwise prefer to buy a stand-alone broadband access. The average entry-level (minimum) price for monthly broadband services is USD 22 (PPP).

Broadband subscription prices alone do not provide information about advertised speeds. This information can be captured in measurement of prices per advertised megabit per second. Lower-speed offers tend to have higher prices per advertised megabit. The price ranges per advertised megabit-per-second are provided in Figure 8. It is worth noting that the advertised speeds are not the actual speeds users will likely experience. There can be significant differences between the two.

**Figure 8. Price ranges for stand-alone broadband connections per advertised megabit-per-second**



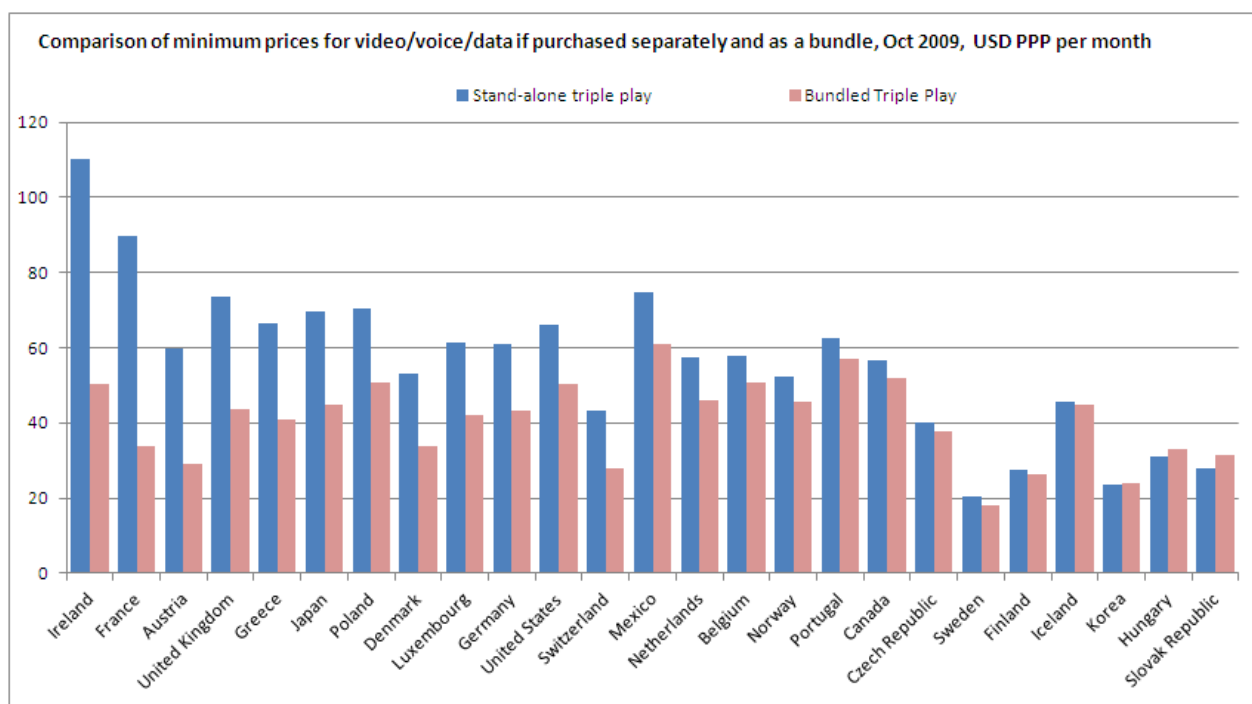
Note: The data reflect a snapshot of stand-alone broadband prices in October 2009 and includes associated line charges. The prices in the chart only include bundled offers when a stand-alone broadband service is not available from the provider. Broadband price data without required line charges is available on the OECD Broadband portal.

## Standalone versus bundled prices

Comparing stand-alone prices to bundled packages provides information on the type of bundling (price vs. product) chosen by telecommunication firms. The data point to fairly steep discounting of packages when consumers sign up for bundled services. This indicates that operators are engaging in at least some price bundling. Figure 9 shows the extent of the discounting by comparing the minimum price for a triple-play package in the market with mixed and matched stand-alone offers of video, voice and data across all operators in the country. Each data point represents the lowest price in the market, from any operator, for a video, voice or data service. The lowest prices for stand-alone services from all operators are combined to form a trio of services which is compared to the bundled price.

**Figure 9. Triple-play broadband prices as stand-alone and bundled packages**

USD PPP per month, October 2009



Firms use a price bundling strategy if triple-play packages are less expensive than the sum of the prices of the stand-alone services in the bundle. Other firms may take a product bundling strategy where services are essentially sold “*a la carte*” but consumers benefit when they buy packages because of the ease of combined billing and because it may mean fewer set-top devices and modems in the home. Indeed, many firms appear to be using both strategies.

The discounts can be dramatic as shown in Figure 9. The discounting of bundling packages is highest in Ireland, France, Austria and the United Kingdom – where the lowest-priced triple-play bundle is at least 40% lower than the price of purchasing all the elements in the market separately. The average savings across the OECD works out to be USD 15 PPP per month, or a 27% discount off the price of the price of separate services.

In a few cases the price of a bundled offer is not discounted or is actually priced higher than a combination of stand-alone services. There are two reasons for this. Countries such as Iceland can be

characterised by significant product bundling, rather than price bundling in broadband markets. In Iceland, the incremental cost of adding voice to a broadband service is often equal to the stand-alone broadband price. In some cases, consumers may be able to pick and choose among providers to find the lowest price for each of the three services and pay less than they would taking all three services from the same provider.

Another reason the bundled price may look higher than a combination of stand-alone services is because different operators serve different areas. Therefore, the low-priced, stand-alone groupings may not be available to consumers in one geographic location if the market is characterised by regional operators.

One interesting consideration is the relationship between markets with higher bundled prices than stand-alone services and the fixed costs of providing each service. As noted earlier, Evans and Salinger (2004) argue that firms bundle products in competitive markets because it is efficient and reduces fixed costs. This appears to be the case for certain operators that face high costs for set-top boxes which are used for stand-alone services as well as triple play. The high discounts seen in certain markets such as Ireland, France and the United Kingdom, in theory, could be the result of higher fixed costs of connecting a customer to the first service to which they subscribe. Indeed, the French market offers an interesting example.

In France, each broadband provider supplies the customer with a set-top box which delivers video, voice and data. The box represents a significant up-front investment and operators often require contracts of 12 months or longer to help cover their costs. Once the box is installed in a household the incremental costs of providing the second and third services should be relatively low given the equipment is already in place. It is precisely in these markets, if they are competitive, where one would expect to see low incremental prices for the second and third services in the bundle.

In other countries, such as Finland, the relatively small price discount for a bundled service could also be the result of very low margins on each of the services to begin with.

### **Incremental prices**

One of the most interesting comparisons that can be done with the data set is evaluating the incremental prices for broadband when a household already subscribes to a voice or television service. The incremental prices reflect the marginal cost users face when adding broadband to an existing service and should be the basis for selecting which services to buy.

Policy makers are particularly interested in the incremental prices for obtaining broadband services because many users already have a video or voice subscription and the incremental price of adding broadband can be relatively low compared to the stand-alone price. If the incremental price of broadband is relatively low we would expect this to boost adoption. Likewise, a relatively high incremental price may signal that there could be room for increased penetration if prices were lower.

#### *Existing phone subscriber adding broadband*

Fixed lines represent the most common starting point for adding additional services in the OECD. This is due to the lower prevalence of cable networks in countries and government regulations that have mandated universal coverage of the PSTN. The incremental price of adding broadband to a fixed line would, in theory, have an impact on penetration.

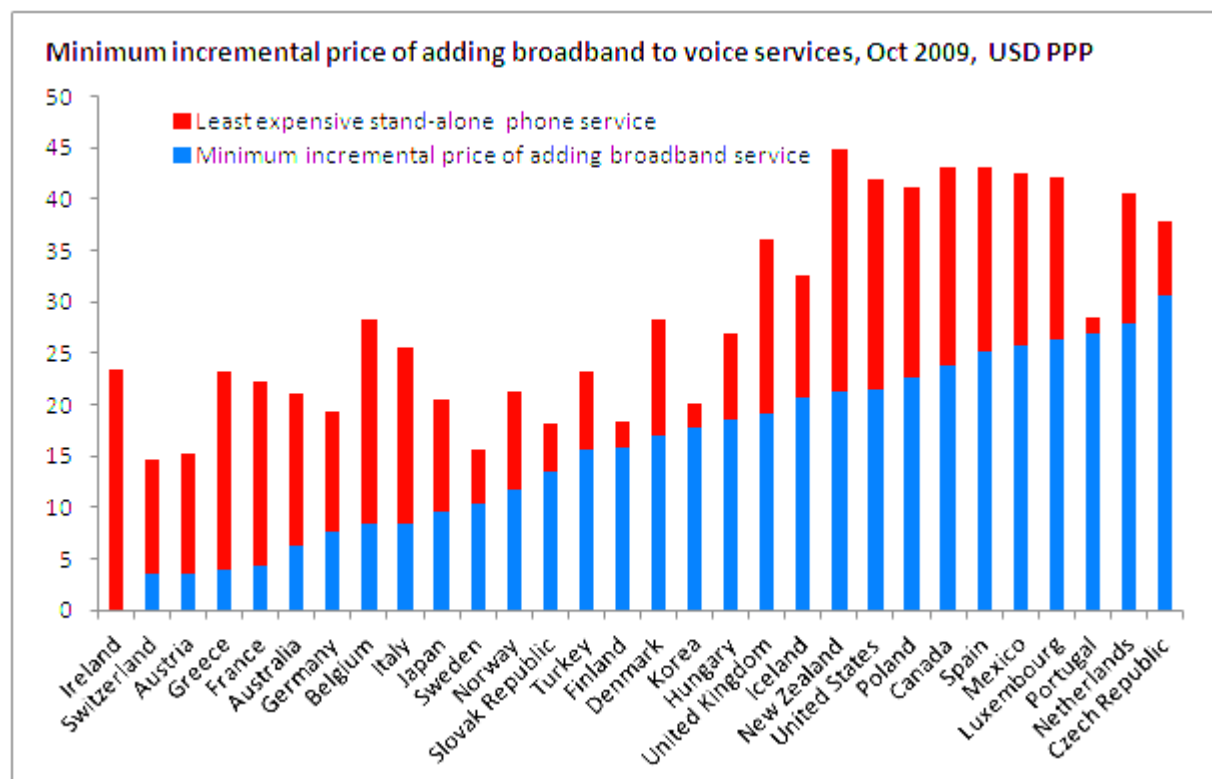
Figure 10 shows the minimum price for phone and broadband service broken down into two parts. The height of the bar for each country represents the lowest price in the market for a combination of broadband and voice services, but not necessarily from the same operator. The incremental price of adding

broadband to fixed phone service is calculated by subtracting the lowest priced fixed-line offer in the market from the lowest-priced double play (voice + data) offer.

In Figure 10, the top section in each bar shows the lowest-priced fixed phone service available in the market from any of the three surveyed providers. The bottom section of each bar displays the incremental price of adding broadband service.

**Figure 10. Minimum incremental price of adding broadband to voice services**

October 2009, USD PPP



Note: The combined prices shown in the graphic represent the minimum price for voice and data services, either from the same provider or from different providers if the price is lower. Ireland has a double-play package from UPC which is slightly less expensive than a simple fixed line subscription from Eircom.

For example, the Finnish operator Elisa offers a fixed-line phone for USD 2.42 per month, the lowest price in our Finnish sample. The least-expensive voice and data package is USD 18.31 per month – also from Elisa. Subtracting the stand-alone voice price from the package of data and voice provides us with an implied incremental price of USD 15.89 to add broadband to an existing voice service. The implied incremental price of broadband reflects the incremental price of adding broadband in the least-expensive double-play package in the survey.

The incremental cost of adding broadband service varies across OECD countries and ranges from zero in Ireland to USD 37.27 (PPP) in Portugal. The zero incremental price appears in Ireland because the cable company UPC offers a combined voice and data package which is less expensive than a standard fixed-line telephone from Eircom, the fixed-line incumbent.

On average, the implied minimum incremental price of broadband in the voice/data package is USD 15.60 PPP and represents 54% of the total package price of voice and broadband.

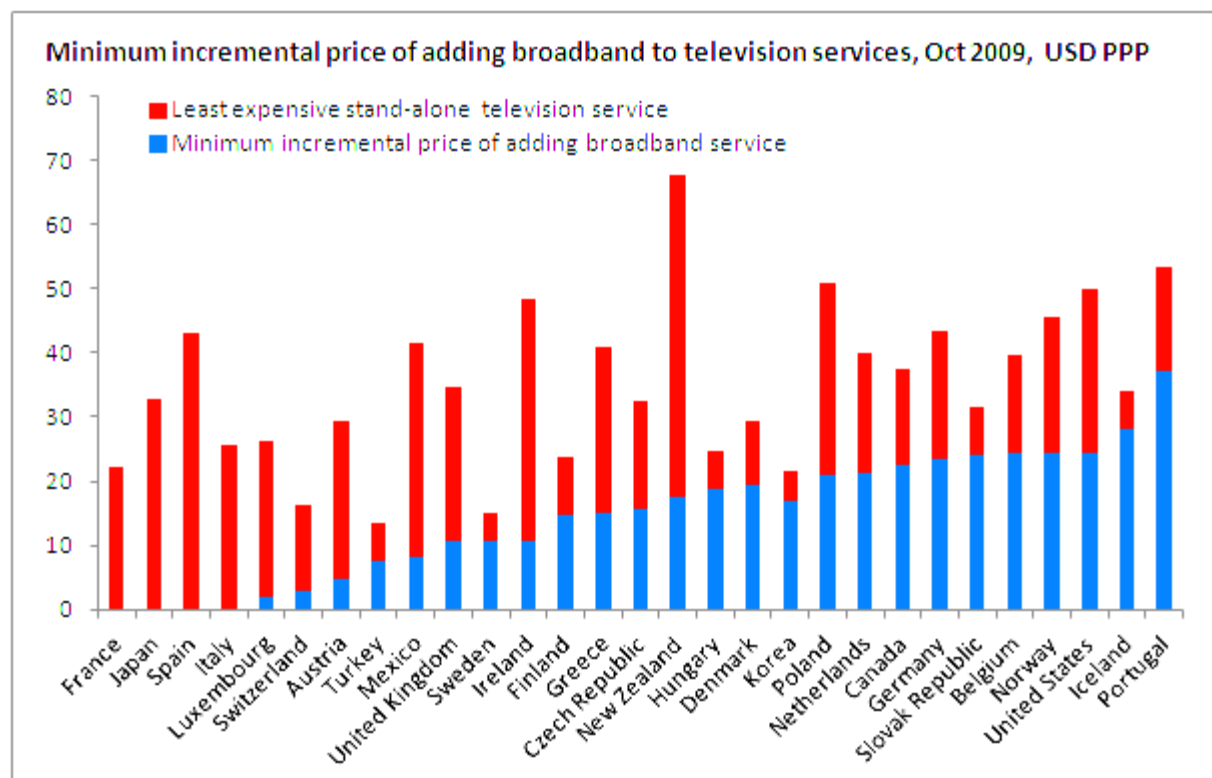
Markets with extensive cable coverage such as Canada and the United States have more broadband subscribers on cable networks than on DSL. Video services generally form the starting element of cable offerings and the dataset provides information on the price of moving from a stand-alone video service to a package of at least video and broadband. Understanding the incremental price of adding broadband to cable television is particularly important in countries such as Belgium, Switzerland, the Netherlands and Luxembourg where more than 80% of households subscribe to television over cable (OECD, 2009a).

Figure 11 shows the lowest price surveyed in the market for combined video and data services in October 2009. The incremental price of broadband is calculated again by subtracting the lowest price for a television service from any of the three operators from the price of the least-expensive combined service.

The implied incremental price of broadband ranges between zero and USD 37 PPP per month. On average, the minimum incremental price of adding broadband to a cable television subscription is USD 14.65 PPP per month. This is just slightly less than the minimum incremental price of adding broadband to an existing fixed-line service. On average overall, the minimum incremental price of broadband once a user already has a phone or cable line is USD 15 (PPP), representing a 30% discount off the average minimum stand-alone price across countries of USD 21 (PPP).

**Figure 11. Minimum incremental price of adding broadband to video services**

October 2009, USD PPP

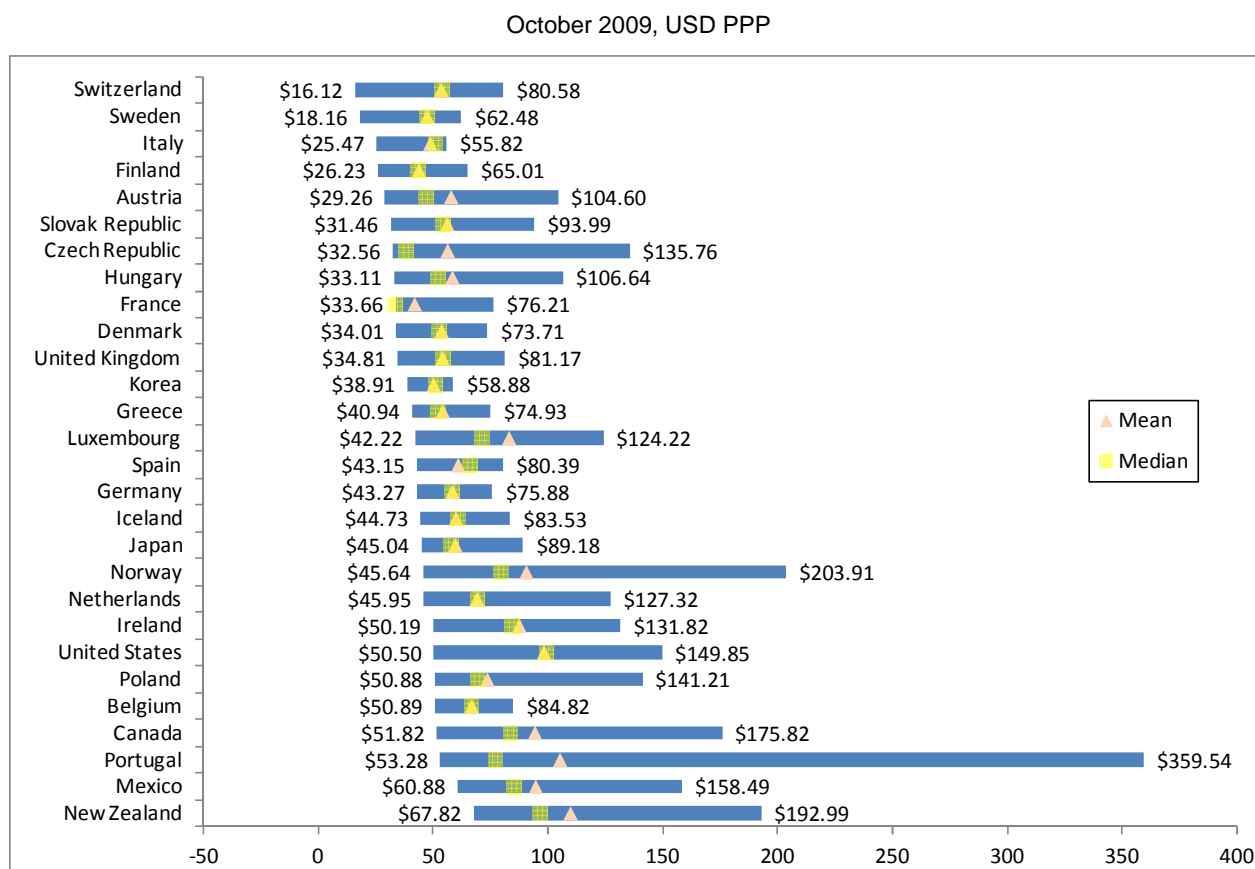


Note: The combined prices shown in the graphic represent the minimum price for television and data services, either from the same provider or from different providers if the price is lower.

## Bundled price ranges

The range of prices for a bundle of data, video and voice are given in Figure 12. The average price of a triple-play bundle across all countries and operators is USD 65 (PPP) per month and the median price is USD 59 PPP, reflecting the existence of high-priced outliers. The least-expensive entry prices for bundles are in Switzerland, Sweden, Italy and Finland.

**Figure 12. Price ranges for combined data, voice and video (triple play) packages**



Note: The ranges represent all observed bundles in the market, including all speed possibilities and all data allowances on the broadband side but includes only the most basic voice and video choices.

## ANALYSIS

### Benefits: Discounts and adoption

Whether customers benefit from bundling or not depends largely on their individual demand for the goods in the bundle. Evans and Salinger (2004) argue that calculating the net effect of tying requires comparing the consumer surplus of those who benefit from buying the bundle together with those who would have chosen a stand-alone product if it was available.

Consumer surplus is defined as the maximum amount a consumer would have been willing to pay for a good *minus* its prevailing market price. This extra amount the consumer did not have to pay – but would have been willing to – should direct the consumer's choice in the market and offers an interesting way to compare telecommunication plans. We can evaluate the different choices in the market by setting a “willingness-to-pay” point for a consumer and then evaluating which combination of services provides the highest consumer surplus.

Most services are available separately as well as in bundles in OECD communication markets but consumer surplus can still be used to evaluate when certain packages will appeal to certain consumers. By setting a value the hypothetical consumer is willing to pay for each of the services, we can calculate which combination of real-world services in each country maximises consumer welfare. The procedure can also help illuminate the relatively low take-up of bundled services in some countries.

Table 3 provides an example of how consumers in the market make choices about which combination of services to choose based on consumer surplus. The example is simplified for clarity. There are three users (A, B, C) and each has an individual valuation of data, voice and video services. The market price for stand-alone services is 20 per product and the triple-play price in the market is 50, less than the combined price of stand-alone services due to a price discounting strategy.

**Table 3. Consumer surplus and service selection**

<u>Optimised with a stand-alone service</u>				
	<b>Data</b>	<b>Voice</b>	<b>Video</b>	<b>Triple Play</b>
Market Price	20	20	20	50
Value to User A	50	10	15	50+10+15 = 75
Consumer Surplus of A	+30	-10	-5	+25

<u>Optimised with a bundled package</u>				
	<b>Data</b>	<b>Voice</b>	<b>Video</b>	<b>Triple Play</b>
Market Price	20	20	20	50
Value to User B	15	30	35	15+30+35 = 80
Consumer Surplus of B	-5	+10	+15	+30

Optimised with multiple stand-alone services

	<b>Data</b>	<b>Voice</b>	<b>Video</b>	<b>Triple Play</b>
Market Price	20	20	20	50
Value to User C	25	5	30	25+5+30 = 60
Consumer Surplus of C	+5	-15	+10	+10

Note: The analysis does not include any benefits from integration derived from product bundling.

The three scenarios show that while the combination package can be welfare optimizing in some situations, one or several stand-alone services may be better options in others.

In Table 3, User A represents a user who values broadband highly (consumer surplus of 30) but values voice and video services less than the market price. The triple-play offer is available at a discounted price and would provide User A with a consumer surplus of 25. However, consumer surplus is maximized at 30 if User A only takes a data subscription.

In the next example, Table 3 shows how a triple play bundle can be the optimal choice when the user is unwilling to pay the market price for one of the services. User B assigns a higher value to voice and video than the market price but values broadband less than the market price. Without a bundle available, User B would only purchase voice and video services for a total surplus of (10 + 15 = 25). A bundled offer in the market tilts the balance in favour of a package of all three services. The price discount on the bundle, combined with the consumer surplus of the other two services more than compensates for the lack of perceived broadband value. The triple play package provides a surplus of 30 while purchasing just voice and video would produce a surplus of 25.

The experience of User B highlights why bundles can be optimal for consumers when they are available alongside stand-alone products. User B would not be a broadband subscriber without the available bundle because the perceived value of broadband was less than the market price. The introduction of the bundle shifted consumer surplus from the other goods and made the package with broadband included attractive to the user.

The third case of User C in Table 3 shows that buying a bundle is suboptimal compared to the consumer surplus of buying data and video services separately. User C's profile is one that is relatively common in markets where there is high fixed-mobile substitution. Users with inexpensive mobile phone contracts put a relatively low value on fixed-line telephony in relation to the market price. In the example, the low value assigned to fixed-line voice service means that it is better for User C to purchase data and video services separately rather than a triple-play package. The consumer surplus of the triple play package is (10) but the surplus from data and video services sold separately is (15). It is interesting to note that even the combined bundle discount and transferred consumer surplus doesn't make the triple play package the most efficient.

The example of consumer surplus from above is very basic and does not take into consideration additional benefits from product bundling. It is revealing though because it highlights how bundled packages are not always an ideal solution, even at relatively low prices. Instead, markets benefit most when bundles and stand-alone services are available at competitive prices.

In summary, bundled packages are often the efficient choice for a given demand pattern, even when stand-alone products are available. But, there are other times when a combination of stand-alone offers or



double play/single play packages produce higher levels of consumer surplus than taking a triple-play package from a single operator. This result highlights the importance of fluidity in the market and the availability of stand-alone services so that consumers can mix and match products easily when it is to their advantage.

### ***Results of the consumer surplus analysis***

OECD data allows us to run various scenarios such as the ones above in Table 3 on actual price data collected from markets. The data collection from October 2009 includes prices for stand-alone and combined packages for a total of 14 possible permutations given in Table 4.

The database makes it possible to compare the consumer surplus for an individual's given valuation under different scenarios. This section looks at all surveyed data, video and voice subscriptions, as stand-alone and as bundled offers, and then analyses which combination would be cost-minimising for a consumer with a set valuation (*i.e.* willingness to pay) for each of the services. In particular, once a perceived value is set for video and voice then it is possible to see how the optimal service bundles change according to willingness or not to pay for broadband.

There are several assumptions that need to be made for the ease of comparison. We assume that all broadband above the demand threshold is equivalent – even if this does not hold in reality. The assumption means the consumer simply needs a broadband connection with a minimum speed and any additional speed provides no marginal benefit. At that point, the consumer maximises utility by purchasing the product which provides a minimum of the threshold speed at the lowest cost. In reality, broadband offers can be significantly different, both in download and upload speeds.

Also, because of the variations in video and telephone packages across countries we largely hold these valuations constant in an effort to capture results from shifting broadband demand. This is an oversimplification given the considerable variation in video and phone packages but is necessary to capture the effect of changing broadband valuations.

**Table 4. Potential service combinations in OECD pricing data set (2009)**

Stand alone	Data		
		Voice	
			Video
	Data	Voice	
	Data		Video
		Voice	Video
	Data	Voice	Video
Double play	Data + Voice		
Double play	Data + Video		
Double play		Voice + Video	
Triple play	Data + Voice + Video		
Double + Single	Data + Voice		Video
Double + Single	Data + Video		Voice
Double + Single	Data	Voice + Video	

The results provide some interesting insights into how the demand for bundles is affected by different levels of demand.

The benefits of bundling are readily apparent when the user's perceived value of broadband is set lower than the stand-alone, entry-level broadband price in any OECD country. The least-expensive entry-level plan across the OECD is in Sweden at USD 10.71 PPP per month so setting the user's perceived value at USD 10 effectively prices the user out of a stand-alone offer in any OECD country. In the absence of bundling, this user would not take a broadband offer. Setting the user's perceived value of the other two services equivalent to the average observed stand-alone prices of USD 19/month for voice and USD 24/month for video allows us to evaluate whether the existence of bundled offers will attract some users to broadband who would have otherwise been priced out of the market (see Table 5).

**Table 5. Components of an optimal service selection as willingness to pay for broadband increases**

Number of countries where the welfare-maximising bundle includes data, video and voice services

	Customer's perceived monthly broadband value (USD PPP)										
Willingness to pay for broadband data (USD PPP)	0	5	10	15	20	25	30	35	40	45	50
	Number of countries where the optimal service selection includes:										
Data (broadband)	2	6	14	20	27	30	30	30	30	30	30
Voice	27	27	29	29	29	30	30	30	30	30	30
Video	24	25	27	27	27	28	28	28	28	28	28

Note: Willingness to pay was set at (Voice = USD 19 PPP and video = 24 USD PPP) for the analysis which corresponds to the average advertised price of the respective services in the data collection.

The results in Table 5 show that there are 14 countries where consumer surplus is maximized by a bundle which includes a broadband component – *even when the user places a value on broadband below the minimum stand-alone price in any market (USD 10.70 PPP)*. This is important to policy makers because the consumers in these 14 markets would not have purchased broadband without the bundled offer.<sup>4</sup> In terms of the other services, the welfare maximizing plan in this scenario includes voice in 29 countries and video in 27.

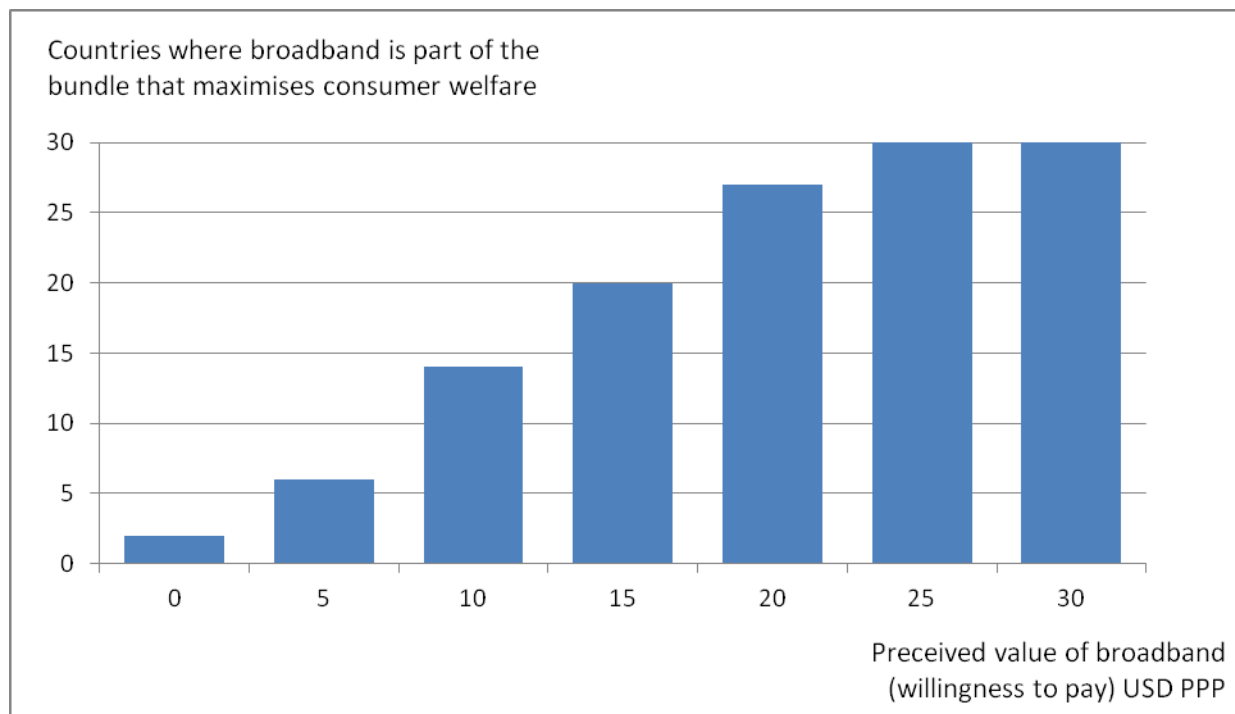
Broadband is also a component of a welfare-maximising bundle in two countries *even when the user's perceived value of broadband is set at zero*. In the French and Swiss markets, broadband would be included in a offer providing the highest consumer surplus to a user who values voice at USD 19 and video at USD 24 per month. This result has important implications for extending access to households which currently do not subscribe to broadband.

Figure 13 shows how increasing the perceived value of broadband (*i.e.* willingness to pay) incrementally by a value of USD 5, increases the number of countries where broadband services are part of an optimal service selection. Assuming a perceived value of USD 19 for voice and USD 24 for video, broadband is part of an optimal set of services in all 30 countries when broadband value (*i.e.* willingness to pay) reaches USD 25 per month.

**Figure 13. Broadband adoption increases quickly as perceived value rises**

Number of countries where the consumer surplus maximising subscription includes broadband, by increasing perceived value of broadband

Assumed willingness to pay for voice = USD 18, assumed willingness to pay for video = USD 21



### ***Results depending on users' value of the services***

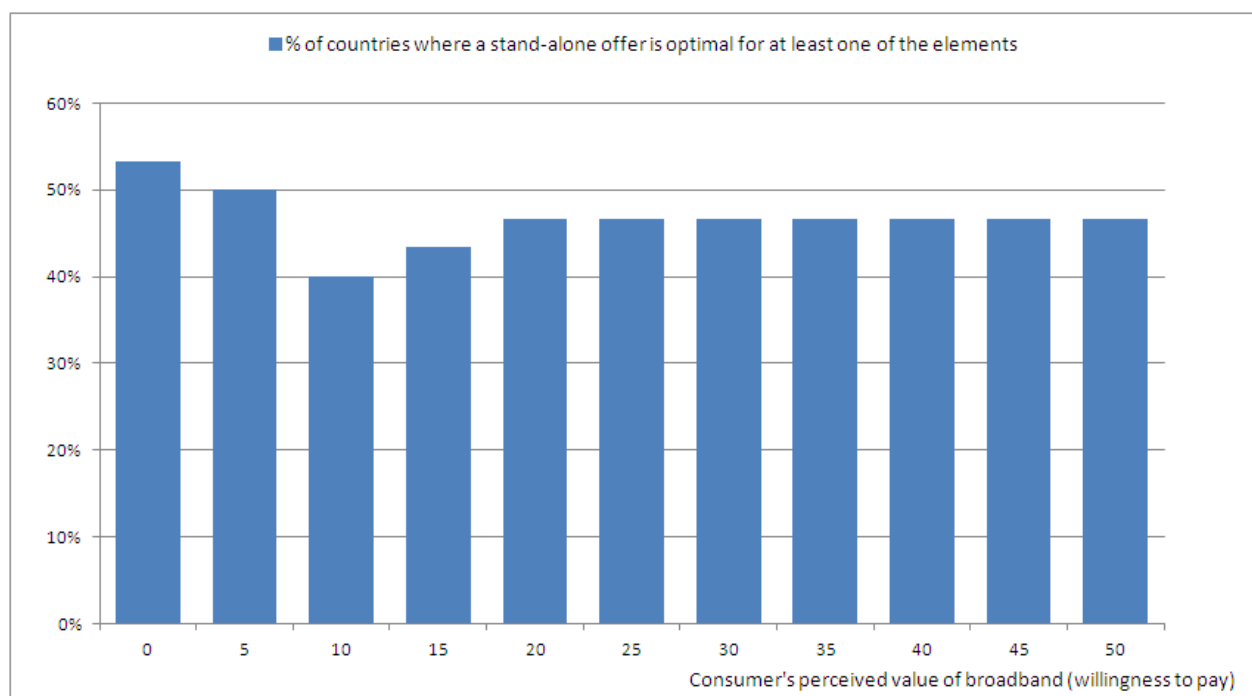
As the section above shows, bundling can be an effective tool for extending broadband access to those who may value the service less than the stand-alone market price. It appears the benefits to consumers largely derive from having a choice between stand-alone and bundled services. Indeed, bundling plays a key role in making broadband more attractive to certain consumers but stand-alone offers are still often the most efficient choice for consumers in terms of consumer surplus.

Stand-alone offers still play a key role in maximising consumer surplus. Figure 14 shows that a stand-alone offer is part of an optimal service selection in 43% to 63% of countries as the value of broadband varies. This may also help explain why only 12.25% of the European population, on average, subscribed to bundled offers in 2008 (EC 2009).

**Figure 14. Importance of stand-alone offers for maximising consumer welfare**

Number of countries where at least one element of an optimised set of goods includes a stand-alone service, by increasing broadband valuation by consumers in USD PPP

Perceived value of voice = USD 19, perceived value of video = USD 24



Even when consumers place a very high value, equivalent to the 75<sup>th</sup> percentile for each stand-alone price (data at 53, voice at 23, and video at 29) the percentage of markets where the consumer surplus-maximizing selection of services includes stand-alone offers is 33%.

One important conclusion is that the interplay between bundled and stand-alone offers in a market helps keep prices down and can lead to higher consumer welfare. Markets with just one type of offer (stand-alone or bundled) could result in lower penetration of data, video and voice services than markets with both.

The results of the consumer surplus analysis show that bundles can help extend access to users who place lower values on broadband as a stand-alone service but also emphasise the importance of stand-alone service offering to maximize consumer welfare.

### ***Role of over-the-top (OTT) services***

The availability of stand-alone services will also play a key role in the competitive potential of over-the-top (OTT) services, which allow consumers to watch video or make voice calls “over-the-top” of an existing broadband connection. Examples of OTT services are Skype for voice service and YouTube for video. OTT services can be provided via applications running on a computer or may include a set-top-box which functions much like phone hardware and video recorders available from cable and DSL providers.

These services are often used to bypass the services of bundled providers and are therefore an important competitive influence in markets. They can also offer a lower-cost solution for subscribers wanting video and voice services but who do not value the services enough to buy them from an ISP.

OECD research on developing cable markets in 2009 highlighted the potential of OTT services because an Internet subscriber's video options are no longer tied to the choices of an aggregator such as a cable or DSL provider. Over-the-top video services include Internet video streaming, downloading and distribution of movies, television shows and other video programming.

Some market analyses point towards video being the fastest growing segment of all Internet traffic and the trend will be more likely to continue. The growth of OTT services has been phenomenal. In May 2010, YouTube announced that it now served 2 billion videos per day.<sup>5</sup> Another study from comScore estimates that nearly 178 million Internet users in the United States watched 33.2 billion online videos in December 2009. The percentage of online population who streamed video in 2008 is significant in countries such as the United States (80%), the United Kingdom (84%), France (79%), and Germany (77%).<sup>6</sup>

Voice services have long been popular OTT services and account for an increasing percentage of total voice minutes. In January 2010, TeleGeography calculated that international Skype traffic accounted for 12% of the world's international long distance traffic during 2009. That makes Skype "the largest provider of cross-border communications in the world, by far".<sup>7</sup> Other new services such as Ooma provide a PSTN number with unlimited national calling using VoIP in the United States for the price of the hardware (USD 200-259) and a monthly fee equivalent to USD 1 per month. These services have the potential to undercut the prices charged by ISPs for video and voice both as stand-alone services and as bundled components.

The development and maturation of these services will likely have an impact on competitive bundles in the future as more users may simply choose to subscribe to a stand-alone broadband connection and buy video and voice services from OTT providers. If OTT services are able to sufficiently replicate existing video and voice services then the demand for stand-alone broadband services may grow.

OTT services require a certain level of network quality to function correction and this has been a key element of debates surrounding traffic prioritisation/network neutrality. The key issues around traffic prioritisation were discussed in a 2007 paper from the OECD (OECD, 2007a). Video services, in particular, require large amounts of bandwidth and voice services need timely delivery of packets.

Competitive broadband markets should be able to deliver OTT services in an efficient way as users can select providers which provide the best OTT experience. Regulators should be concerned, though, if there is a lack of consumer choice. Regulators may need to take extra precautions in areas where there is less competition and OTT services may not be able to flourish since this will have an impact on consumer welfare.

There are already examples of operators prohibiting access to competitive services using a specific network. For example, the Australian incumbent Telstra prohibits the use of dial-around phone services and broadband from other providers with their entry-level, fixed line product (HomeLine® Budget). Subscribers must agree "not to acquire services from other carriage service providers by dialling their access override code and must not acquire a broadband service from another service provider which is provided using line sharing technology."<sup>8</sup>

In other cases, incumbent operators have begun offering their own OTT voice services over broadband lines of other providers. The Finnish incumbent Elisa will sell VoIP voice services to customers on any broadband network.<sup>9</sup> Again, the availability of stand-alone broadband – not tied to voice – will be a key factor in the eventual success of competitive OTT providers.

OTT services are often viewed as an important source of competition but they can also lead to significant lock-in for consumers, particularly when hardware and purchased content are locked together.

## **Drawbacks: Lock-in, lack of transparency and abuse of market power**

As highlighted above, there can be considerable benefits to having access to bundled offers. There are, however, also drawbacks with bundled offers and the way they are marketed to consumers. A number of potential drawbacks associated with bundled services are discussed below. Each section ends with a discussion of various steps regulators and consumer protection agencies can consider in order to address particular issues.

### ***Lack of transparency***

The complexity of communication services, offers and bundles has made it increasingly difficult to understand and compare service prices and characteristics. A lack of transparent information about services and their prices leads to higher-than-necessary search costs and market inefficiencies. The difficulty comparing offers comes partially from the complexity of the services themselves. In other circumstances, the lack of transparency can be a deliberate obfuscation from service providers.

Previous OECD work proposed a set of guidelines to protect and empower consumers in communication markets which are increasingly complex. The OECD's Policy Guidance on Protecting and Empowering Consumers in Communications Services states:

“Consumers of communication services should be provided by service providers with clear and accurate information about the terms, conditions and costs associated with those services; the information should be easily accessible and sufficient to enable them to make informed decisions.”

Bundles pose a particular problem in terms of transparency since the actual prices of individual services are masked by the total bundle price. Consumers judge the entire bundle based on the bundle's price and characteristics but the packages vary considerably based on the services they contain. This makes it complicated for users to compare prices across operators since the packages rarely have identical components.

When operators use product bundling, rather than price bundling, consumers can still see the prices of the individual components in the bundle. Most triple-play operators in the OECD market their bundles using price bundling – essentially offering a discount if subscribers take multiple services. An exception is the Icelandic incumbent Simmin that does not offer discounts for purchased bundles and rather relies on customers taking the bundle for the benefits they receive for tighter integration of the services. These Icelandic product bundles are more transparent for consumers but lack the price discounting that could lead to increased adoption.



Another drawback of bundling is that it makes it easier for firms to shroud the prices of required add-ons from the headline prices consumers see. When three or four services are sold together it takes more search time to uncover the true costs of services.

Firms engage in what is known as “informational shrouding” where they effectively try to mask the high prices of certain add-ons from consumers. Gabaix and Laibson (2006) find that firms using informational shrouding can flourish even in competitive markets. There are a number of examples which emerge in the data collection and show how bundling makes it more difficult for consumers to compare prices.

Bundles, by their very nature, may hide the price of individual goods. This leads to benefits when the consumer surplus of one good can be applied to an adjacent good in the bundle, making it more attractive. At the same time, bundles make it more difficult to compare prices across operators.

Table 6 shows two triple-play offers from the Dutch market in October 2009. Each bundle offers data, voice and video services but with different characteristics. Subscribers opting for the cable package have a higher headline speed but fewer television channels and no flat-rate calling on the fixed network. On the DSL/FTTH side, subscribers pay more for a package with slower advertised data speeds but receive more television channels and are offered flat-rate calling on the Dutch fixed network.

**Table 6. Dutch triple-play comparison**

DSL/FTTH: KPN	Cable: Ziggo
	
Plan name: KPN Glasvezel Goud <a href="http://www.kpnglasvezel.nl">www.kpnglasvezel.nl</a>	Plan name: Alles-in-1 Extra <a href="http://www.ziggo.nl/producten/alles-in-1/">www.ziggo.nl/producten/alles-in-1/</a>
<u>Characteristics</u>	<u>Characteristics</u>
Data: 30 000 /3 000 Kbit/s (upload/download)	Data: 50 000 /5 000 Kbit/s (download/upload)
Video: 100 television channels	Video: 60 television channels
Voice: Flat-rate national calls	Voice: No flat-rate national/international calling
Price: EUR 75.00/month	Price: EUR 64.95/month

The different characteristic of each of the packages can make it more difficult for consumers to select and compare products. Comparisons can be even more difficult when the headline speeds differ significantly from the actual speeds users can expect to receive.

Another concern is the potential for “drip pricing” within bundles where consumers pay higher prices for services upgrades that may be compulsory but are hidden within the bundle. Drip pricing can occur in the process of signing up to a service if the advertised price is different from the final check-out price due to additional fees, etc. It can also occur during the subscription period via service upgrades and the significant lock-in with bundled offers can make it difficult for consumers to avoid the additional charges.

As an example of drip pricing, many operators choose to leave out taxes and fees from the headline prices they advertise on their websites for individual services but the integration of several services in one package can compound this effect and lead to significant additional fees which are not easily visible to consumers wishing to compare prices.

Table 7 shows the advertised price for an entry-level triple play service from Bell Canada. The price advertised on the website does not include an additional 18% of fees *before taxes* such as a digital service fee of CAD 3 for television and a network charge of CAD 1.95 on the first phone call of the month which are given in the fine print in a link off the main page. There is no explanation to consumers of what the digital service fee for TV or the network charge is for on the PSTN.

Table 7. Additional fees not clear on websites

Bell Canada: Shown on website, May 2010	Additional fees excluding taxes mentioned in fine print off page								
<p><b>Your bundle</b></p> <p>3 new services starting at</p> <p><b>\$66.90/MO.*</b></p> <p><small>* Offer and pricing details</small></p> <hr/> <p><b>Services</b></p> <table> <tr> <td>Home Phone Lite</td><td>\$14.95</td></tr> <tr> <td>Internet Essential Plus</td><td>\$21.95</td></tr> <tr> <td>Digital Basic</td><td>\$30.00</td></tr> </table> <hr/> <p><b>Features and equipment</b></p> <hr/> <table> <tr> <td><b>Monthly total</b></td><td><b>\$66.90</b></td></tr> </table>	Home Phone Lite	\$14.95	Internet Essential Plus	\$21.95	Digital Basic	\$30.00	<b>Monthly total</b>	<b>\$66.90</b>	<p><u>Phone:</u>            TouchTone fee: \$2.80/month            9-1-1 fee: 0.19 + 0.40/month            Network charge: \$1.95 charge on first phone call each month</p> <p><u>Internet:</u>            Modem rental: \$3.95/month</p> <p><u>Television:</u>            Digital service fee: \$3 per account</p> <p><u>Total:</u>            Additional \$12.29 per month for a total of <u>CAD 79.19</u> or 18% more expensive than originally advertised. Still does not include taxes.</p> <p>After 6 months the base price also rises to CAD 71.90 resulting in a final monthly price of <u>CAD 84.19</u> before taxes.</p>
Home Phone Lite	\$14.95								
Internet Essential Plus	\$21.95								
Digital Basic	\$30.00								
<b>Monthly total</b>	<b>\$66.90</b>								

It is true that Bell Canada make the fees available on the website, and as Gabaix and Laibson point out, cautious consumers, whom they call “sophisticates” will be able to find the details but less cautious consumers, whom they call “myopics” will not. At the very least, consumers must expend a considerable amount of time gathering information on the true price of services across the entire market in order to shop efficiently and maximize consumer surplus.

The type of potentially misleading price information in Table 7 is seen, to some extent, in other OECD countries and from various operators. In Mexico, the fixed-line incumbent Telmex does not make the price of stand-alone voice services available over the Internet or the phone. The only way to obtain prices for fixed-line phone services is to physically visit a retail store. This significantly increases the search costs of consumers trying to shop around for services.

It is not just monthly fees that consumers must consider when comparing bundled plans. The prices of making fixed-to-mobile calls can be higher than the prevailing market rate and there are questions as to whether typical consumers (*e.g.* Gabaix and Laibson’s “myopics”) can be expected to be able to successfully compare mobile termination rates of these packages.

Consumers need access to clear, concise information about prices in order to make informed decisions about prices and services. This point was emphasised by Ministers at the OECD’s Seoul Ministerial on the Internet Economy where in the Seoul Declaration they state, “We declare that, to contribute to the development of the Internet Economy, we will facilitate the convergence of digital networks, devices, applications and services, through policies that...ensure that convergence benefits consumers and businesses, providing them choices with respect to connectivity, access and use of Internet applications, terminal devices and content, *as well as clear and accurate information about the quality and costs of services*”[emphasis added] (OECD, 2008c).



*Lack of transparency: What can governments do?*

- Require ISPs to provide clear, transparent information on prices and line characteristics to consumers.
- Promote the development of un-biased comparison sites that consumers can use to compare prices and services.

Regulators and consumer-protection agencies can put pressure on ISPs to provide more information on the characteristics of packages they are selling and to make prices clear and understandable for consumers. Some regulators may consider requiring ISPs to include all services, fees and taxes clearly in one total price which is visibly available on the web site. The OECD Consumer Policy Toolkit gives examples of three specific groups that often provide comparison tools for consumers. They are market participants themselves, consumer bodies and the government.

Market participants may choose to make comparison data available publicly or may be obliged to do so by the government. In the electricity sector, the Danish Energy Regulatory Authority (DERA) has issued a departmental order obligating electricity companies to make information on prices and terms available to the public (see [www.elpristavlen.dk](http://www.elpristavlen.dk)). Broadband providers themselves may also encourage consumers to carry out direct comparisons on their own sites the way the supermarket Tesco does in the United Kingdom on items in its store (see [www.tesco.com/todayattesco/pricecheck.shtml](http://www.tesco.com/todayattesco/pricecheck.shtml).)

Consumer protection agencies and consumer protection groups also offer price comparison sites for consumers. The comparison site run by Which in the United Kingdom ([www.which.co.uk](http://www.which.co.uk)) and Consumer Reports ([www.consumerreports.org](http://www.consumerreports.org)) in the United States provide product comparisons which are available to consumers. There are an increasing number of sites dedicated to providing broadband comparisons such as the Australian site [www.comparebroadband.com.au](http://www.comparebroadband.com.au) and the French site Degroup Test ([www.degrouptest.com](http://www.degrouptest.com)) that allow customers to gather information based on a range of criteria. Some of these sites receive commissions based on referrals and, as is the case with all private sites, it is unclear whether some listings receive preferential placement.

Government regulators have also developed comparison sites that allow users to quickly compare prices across operators. Consumers look to regulators for reliable and unbiased information and regulators are often in a good position to publish the data that operators submit to them. The Belgian regulator BIPT has a dedicated website ([www.besttariff.be](http://www.besttariff.be)) which helps consumers compare prices for stand-alone fixed, mobile and broadband services. The site currently does not have the capability of comparing bundled offers but a version allowing for bundle comparisons is currently in the testing stage. In Portugal the regulator ANACOM has a tariff site which allows for mobile comparisons and it will soon be updated to include broadband prices. The Irish regulator, Comreg, has a site ([www.callcosts.ie](http://www.callcosts.ie)) that allows users to compare broadband prices across a range of technologies and over various technologies (*i.e.* wireless, mobile, cable, DSL and FTTH). Comreg's site also allows users to do a basic comparison of voice + data packages (see Figure 15).

**Figure 15. Ireland: Comreg's comparison website – callcosts.ie**

Operator	Plan Name	Plan Monthly Cost	Average Monthly Cost	Minimum contract duration	This Plan includes a Home Phone Service facility	Access Type	Download Limit	Excess Cost per Mb	Plan Features				Availability	
										Cust Service	Billing Options	Payment Options	Other	
	HomeVision 7.6Mb Broadband-OnNet (Dublin Only)	€ 12.08	€ 37.44	12 months	Yes		50 Gb	€0.03			€	?		<a href="#">Check Operator Site</a>
	Smart 5Mb	€ 16.50	€ 41.97	12 months	Yes		170 Gb	N/A			€	?		<a href="#">Check Operator Site</a>
	Smart 7Mb	€ 21.50	€ 46.97	12 months	Yes		170 Gb	N/A			€	?		<a href="#">Check Operator Site</a>
	Vodafone at Home - up to 7MB Broadband only	€ 49.00	€ 49.00	12 months	No		60 Gb	€0.01			€	?		<a href="#">Check Operator Site</a>

Source: Comreg: callcosts.ie

One of the benefits of Comreg's tariff comparison is that it provides details on the additional fees beyond the headline prices in the fourth column. Hovering a mouse over the link shows the fee breakdown in detail.

The Spanish Ministry of Industry, Trade and Tourism also produces a website comparing the main bundled offers of ten operators over various advertised speeds in a table. This allows consumers to quickly glance at similar offers across operators at different speed ranges.

Ofcom in the United Kingdom does not operate its own site but rather allows broadband comparison site operators to apply for accreditation with Ofcom. This enables consumers to use third-party sites safe in the knowledge that the information has been checked by Ofcom to be accurate, comprehensive and up to date.<sup>10</sup>

Australian subscribers have a number of private sites to compare broadband. These include [www.comparebroadband.com.au](http://www.comparebroadband.com.au), [www.whirlpool.net.au](http://www.whirlpool.net.au), and [www.youcompare.com.au](http://www.youcompare.com.au).

These comparison websites are a good start but they typically only offer comparisons among stand-alone services or very rudimentary bundles. Enhanced investment in tools that can perform more complex comparisons for consumers could be beneficial to the market and lead to stronger price and service competition.

Regulators may also want to encourage, or require, ISPs to provide additional information that is already provided voluntarily by some operators. GTS Novera in the Czech Republic differentiates its services based on the contention ratio of the line (*e.g.* how many subscribers share the advertised bandwidth at the exchange). SWAN in the Slovak Republic also publishes contention ratios for all the plans it offers. Telecom New Zealand provides subscribers with information on what times of the day traffic shaping is likely to occur.

ISPs should also provide consumers with reliable information on the characteristics of their line and the broadband speeds they will likely receive. DSL providers have the ability to tell users the distance they are from the exchange and estimate the actual throughput that the household can expect. Cable providers can provide subscribers with information on the contention ratios at the closest node. Regulators could consider requiring ISPs to make this data readily available on operator's websites.

Despite the desire to make telecommunication markets more transparent these efforts have not always been successful. Ofcom's requirement that operators publish statistics on quality of service was discontinued when the original scheme was considered not to have fulfilled its purpose.<sup>11</sup> In other cases though, efforts were successful. For example, the United Kingdom's broadband speed Code of Practice is a voluntary scheme encourage by Ofcom where ISPs provide consumers with their own maximum line speeds in an effort to provide a more realistic expectation of the services they are likely to receive. Over 95% of ISPs in the UK have signed up to the code.<sup>12</sup>

The OECD has undertaken significant work in the field of protecting and empowering consumers in telecommunication markets and the 2008 paper (OECD, 2008) and (Xavier and Ypsilanti, 2008) and the OECD's Policy Guidance for Protecting and Empowering Consumers in Communication Services (OECD, 2008a) can serve as a starting point for promoting transparency in telecommunication markets.

### ***Lock-in/Switching barriers***

Consumers can benefit from price bundling where bundles are priced lower than stand-alone services or when there is product bundling which can provide synergies from the integration of services. At the same time, bundled services can also lead to consumer lock-in for sub-optimal service choices if subscribers are not able to switch providers easily and with minimal expense. One of the key responsibilities of telecommunication regulators is to ensure that markets function efficiently and that consumers can switch providers when better offers appear – essentially *voting with their feet*.

There are several examples in the data collection where superior offers from competitors are available but subscribers seem to stay with non-optimal bundles from an incumbent. In Ireland for example, Eircom, users could switch to UPC for a double play of phone + broadband for less than the price they pay for an entry-level fixed-line phone service from Eircom. In this situation the entry-level price for the double-play package should be much more attractive, where it is available, than the single-play package from Eircom. But still, many subscribers still take an Eircom fixed line in areas where cable bundles are available. There may be various reasons for this but one possibility is that consumers may feel there are high switching costs to make such a move. There may be significant switching costs involved with leaving one provider for another and these need to be addressed before markets are truly efficient.

In marketing literature there was an early belief that customer satisfaction was the reason people did not switch suppliers. More recent work has estimated that satisfaction measures only explain about one quarter of the variance in purchase intentions (Szymanski and Henard, 2001). Switching barriers and other impediments to free market movement are commonly cited as important explanations of why consumers stay with less-than-ideal service options.




Bundling is often used as a tool to reduce customer churn by helping solidify barriers to switching. This can be done via increased monetary or other costs when subscribers switch providers. Burnham, Frels, Mahajan (2003) provide an example of a successful telecommunication marketing campaign in the 1990's that helped reduce consumer churn. In 1991, long-distance providers in the United States were vying for market share in the recently liberalised market. AT&T was the dominant long distance provider when their competitor MCI developed a program called "Friends and Family" which asked customers to invest time and effort building "circles" of family and friends whom they could call for a discounted rate. MCI's

marketing plan was successful and in 1995 AT&T changed its tariff structure to a flat rate of USD 0.10 per minute for national long-distance calling in order to compete more effectively.

Burnham et al. suggest that AT&T's decline of 18% of market share and MCI's rise of 5% can be partially explained by the different price structures. AT&T's simplified price structure made it very easy for consumers to compare prices across plans while MCI's Friends and Family programme increased the time and effort investments that customers would lose outright by switching to another provider. AT&T's pricing structure was much easier for consumers to understand, compare *and switch away from* while MCI's structure helped lock in consumers.

Burnham et al. describe various consumer perceptions of switching costs and break them down into three key categories: procedural, financial and relational (see Table 8). Firms which can increase the switching costs in any of the categories can reduce customer churn and improve customer acquisition and retention. The same list provides regulators with a view into potential bottlenecks which can hinder consumer mobility in the market.

**Table 8. Consumer perceptions of switching costs**

Examples of switching barriers		
Procedural Switching costs	Financial Switching costs	Relational Switching costs
		
<ul style="list-style-type: none"> <li>• Economic risk costs</li> <li>• Evaluation costs</li> <li>• Set-up costs</li> <li>• Learning costs</li> </ul>	<ul style="list-style-type: none"> <li>• Benefit loss costs</li> <li>• Monetary loss costs</li> </ul>	<ul style="list-style-type: none"> <li>• Personal relationship loss costs</li> <li>• Brand relationship loss costs</li> </ul>
Telecommunication parallels		
<ol style="list-style-type: none"> <li>1. Search time to compare prices</li> <li>2. Process to cancel one operator and sign up for another</li> <li>3. Time installing new system</li> <li>4. Notifying others of new e-mail, phone numbers</li> </ol>	<ol style="list-style-type: none"> <li>1. Fees/penalties for leaving provider</li> <li>2. Installation fees with new provider</li> <li>3. Lost productivity if gap between disconnection and reconnection</li> </ol>	<ol style="list-style-type: none"> <li>1. Giving up e-mail address tied to a certain provider</li> <li>2. Giving up "points" or "rewards" earned by longevity in a contract</li> </ol>

Source: OECD modified from original Burnham et al. 2003

Regulators have already addressed various switching issues in other telecommunications markets. For example, regulators now allow users to port their telephone numbers between operators in most counties. Number portability addressed the concern that users did not want to give up their existing phone number, even if it meant paying more per month for services. Number portability regulation allowed people to keep their number and still benefit from more attractive offers from competitors when they became available. Number portability has resulted in more fluid and competitive mobile markets.

One thing that complicates the switching process for bundled services is that the process for switching services may be different for each of the services included in the bundle. Consumers in some markets may have to follow one procedure to keep their home phone number while simultaneously co-ordinating the switching over of a broadband service to ensure seamless service. The introduction of mobile services into

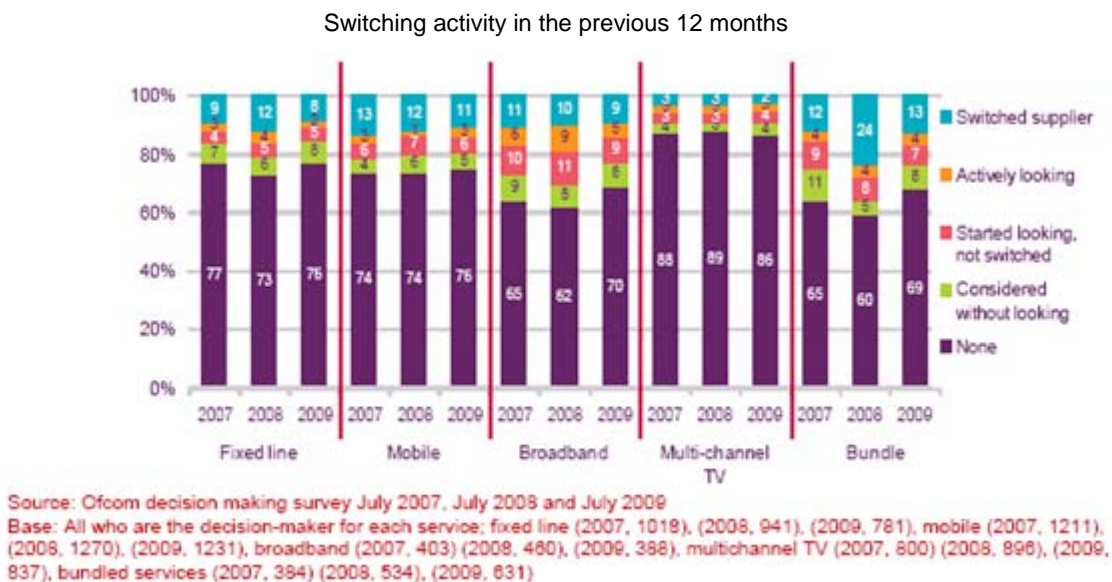
bundled further complicates the switching process, particularly if it involves handset subsidies tied to a given contract term.

Consumers may also hesitate switching triple-play providers to take advantage of a better telephone offer if it means losing a popular television service. Indeed, many services must be taken (or dropped) as a bundle.

Consumers may be increasingly locked into services because of the time and effort they devote to programming a system, learning to operate the equipment, inputting personal information, or via the content they have downloaded or recorded and saved on the equipment. This “functional bundling” can deter consumers from switching providers even when better-priced services are available.

Ofcom in the United Kingdom reports the results of surveys asking whether people are looking for new providers and whether they have switched providers in the previous twelve months (See Figure 16). The results show that between 8-13% of fixed, mobile and broadband subscribers switch providers each year compared to 2-3% of multi-channel television subscribers. Subscribers to bundled services tend to switch more often than stand-alone service subscribers. Ofcom has expressed concerns that the number of subscribers switching bundled offers between 2008 and 2009 fell significantly, potentially highlighting an increasing level of “lock-in” within the market.

**Figure 16. Ofcom (UK): Reduction in switching of bundled customers**



Source: Ofcom 2009, [www.ofcom.org.uk/consult/condocs/draftannplan1011/draftannplan1011.pdf](http://www.ofcom.org.uk/consult/condocs/draftannplan1011/draftannplan1011.pdf)

Note: The bundle switching covered in the report covers consumers switching a complete bundle (a new double or triple-play offer) as well as switching services within a bundle to form a new set of services.

The UK regulator Ofcom’s draft plan for 2010/2011 highlights the challenge of navigating various processes to change bundled providers.

The prevalence of bundles could inhibit consumer switching in the longer term, because consumers currently have to navigate numerous product-specific processes in if they wish to change their bundle supplier. There are currently different switching processes for landline, broadband, mobile and pay TV services. However, a number of providers have indicated to us their wish to move to better aligned processes. In order to address this, we will develop a

strategic approach to switching, aimed at eliminating any undue barriers for consumer switching, now or in the future. (Ofcom, 2009)

Ofcom raises a number of other key issues related to bundling which make switching providers more difficult. They include “dishonest sales activity, difficulties and delays faced by consumers when wanting to switch broadband service, intense approaches by providers to retain customers, and potential loss of service” during the switching period.<sup>13</sup>

Some governments have taken steps to ensure that consumers can cancel their contracts if the terms of the contract change. For example, the Belgian Electronic Communications Act of 13 June 2005 states that subscribers are able to cancel the contract without any penalty as soon as they are informed of changes proposed to the contractual terms, including price increases that were not stipulated in the initial contract. The subscribers must be informed one month before the proposed change and have until the last day of the month following the application of the changes to cancel.

Another method firms use to lock-in consumers is through contract renewal policies. Firms facing high initial costs to obtain a consumer often require that subscribers commit to buying services for between six months and three years. After the contractual commitment is over the subscribers are typically able to leave the operator without penalty. There are, however, still contract terms among OECD telecommunication operators which automatically renew the contract for an additional set time period if the customer does not alert the operator before the initial contract is up.

The Swiss operators Sunrise and Cablecom automatically renew the customer for an additional 12 month contract if the customer has not notified that they wish to switch providers or drop the service. These automatic renewals can severely hamper competitive choice in the market since they allow only a very small window each year for changing services. The OECD has pushed for these automatic renewals to be removed.

Regulators have long regarded the consumer’s ability to switch quickly and with minimal cost as one of the key enforcement mechanisms in a well-functioning market. It is also important that consumers know when the switch of their service takes place and that it occurs in a timely manner with minimal service disruption. Regulators took decisive action to help smooth the switching process for consumers in mobile and broadband markets when there were high transactions costs and will likely need to do the same for bundled service markets.

*Lock-in/Switching barriers: What governments can do?*

- Work to ensure that consumers can switch providers with minimal or no service interruption.
- Ensure that fixed-line numbers can be ported to VoIP providers.
- Prohibit any automatic initial contract renewals.
- Continually monitor the take-up of bundled and stand-alone services to look for signs of limited consumer mobility.
- Make information clearly available on the rights of consumers and the obligations of service providers.
- Educate consumers about switching procedures and their rights.

- Consider incentives for co-operation between the old and new operator.
- Automate the switching process as much as possible to eliminate errors and to speed the switchover.
- Ensure that final users are not charged for operator errors in the handover.

Regulators can take steps to ensure that switching is as simple as possible for consumers by addressing any procedural, financial or relational switching barriers. Procedural costs can be addressed by requiring better price information from operators, seamless switching across providers and number portability across services.

Financial costs can be minimised if users fully understand their commitments with existing providers in order to avoid financial penalties or if subscribers can take existing user-premises equipment with them from provider to provider. Finally, relational switching costs can be addressed in various ways, such as educating users about things such as the ability to use an e-mail address from a third-party provider that is not tied to the ISP or any options for continuing to use an ISP's mail service after switching away to another provider.

Users rely on telecommunication services for their daily economic and social activities and are increasingly anxious about losing connectivity for an extended period of time if they switch providers. Co-ordinating the transfer of three separate services is more complex than simply transferring one service and this can introduce service gaps which deter switching. One role of the regulator is to ensure that consumers can switch providers with minimal service interruption.

One way regulators can help with this is by managing the permissible lag time between competitive providers requesting a local loop or number port and when it is delivered. Typically the permitted delay is stipulated by regulation but it may be worth reducing the lag if there is evidence that consumers are hesitating switching providers in the market. The delays for switching various services can still be significant, with the time to port phone numbers in Europe averaging 7.5 days for fixed operators and 8.5 days for mobile in 2008. In the European Union, Article 30(4) of the Citizens' Rights Directive introduced a new requirement that consumers porting a number to a new service shall have the number activated in one working day.

Another switching barrier is the fear of giving up a stable service for one that may not perform satisfactorily. For example, some consumers remained concerned that the quality of VoIP services will be unsatisfactory and are therefore unwilling to drop a PSTN line and transfer their number to a VoIP provider without "testing" the quality first. This can be a potentially large barrier when consumers are locked-in for a determined contract period for a service without knowing if the service will be reliable or not. In this way VoIP services are one of Nelson's "experience goods" that users need to experience before judging its value (Nelson, 1970).

Governments can help facilitate this testing period by allowing users to port numbers at any time, not just at the moment when subscribers sign up for services. For example, this would allow a consumer to try a cable telephone service and decide whether the quality was sufficient for them to drop their PSTN line. If number porting were always available then the consumer could take the time they needed to make the decision before porting the number.

Consumers also need the ability to port their numbers to over-the-top service providers. Increasing the number of receiving options for ported numbers helps promote and maintain consumer mobility in the market.

Telecommunication providers often specify minimum contract lengths to cover their fixed costs for the installed equipment. Once the initial term is over consumers should be allowed to take services on a month-to-month basis. This allows them to switch providers when improved bundles appear and keeps a healthy amount of competition in the market.

Consumers are often unaware of their rights with regards to telecommunication firms and regulators could play a role in helping inform users of their rights and of the obligations of telecommunication firms. Consumer education is important as a way to empower consumers in the market.

Initiatives to promote education and awareness can help improve transparency and assist consumers develop the skills, knowledge and confidence needed to improve market outcomes, thereby increasing consumer welfare. To be effective, education and awareness strategies must go beyond addressing information asymmetries in individual transactions; they should help promote critical and active engagement by consumers generally.

Many of these principles are outlined in the OECD's Policy Guidance on Protecting and Empowering Consumers. Some pertinent elements are listed below. It is worth noting that while the text refers to mobile communications in certain areas these same principles would apply to stand-alone and bundled services as well (see Box 1).

**Box 1. Key recommendations on switching from the 2008 Policy Guidance**

OECD Policy Guidance for Protecting and Empowering Consumers in Communication Services (OECD)

- The ability of consumers to switch service providers is often discouraged because of the time and costs involved. Lower switching costs may benefit consumers and provide a greater stimulus to operators to charge competitive prices and improve the quality of service.
- The time and costs associated with switching services by consumers should be minimised. For example, the notice periods for ending contracts, or the "lock in" period for mobile phone handsets could be limited in order to facilitate switching
- Consumer contracts are often renewed automatically in a number of OECD countries without the explicit approval of consumers, and sometimes modification of contractual conditions are made without sufficient notice and without informing consumers about their right of withdrawal in such cases.
- Communication service providers should be encouraged to limit initial contracts, after which a reasonable time period of notice to end the contract should be provided.
- The implications for consumers of "opt-in" and "opt-out" default provisions at the time of contract renewal should be further examined by stakeholders.
- Consumers should receive adequate notice of any intention to modify contractual conditions and about their right of withdrawal in such cases

(OECD, 2008a)



*Potential to abuse market power*

There have been concerns that telecommunication firms will use bundling to make it difficult for competitors to enter the market. Firms with market power in a bottleneck industry can use it to deter entry in a more competitive market through bundling goods together.

The difficulties arise when the existing firms sell a market bundle at a discount compared to the stand-alone prices of goods. The incumbent can hamper the efforts of the new entrant by cross-subsidizing the element under threat of competition with the other services in the bundle. Nalebuff (2004) emphasises that firms which have only some components of a market bundle will find it difficult to compete against an incumbent who sells a bundled solution at a discount. He goes on to state that this is especially true when the consumers have positively correlated values for the components of the package or when the components are complements.

Operators in most countries offer mixed bundles of packages and stand-alone services which still make new entry possible. At the same time, markets where bundled offers dominate are still difficult for new firms to enter if they do not have all three or four components of a typical bundling offering for the market. Firms with infrastructure may also engage in margin squeeze with regard to the components they supply to other competitive operators. Then, by marketing goods in a bundle, the operator masks the effective price of the bundle elements which may have elements priced lower than the downstream costs plus a competitive return.

Policy makers in some markets have determined that bundled services which include a television component can lead to an abuse of market power by the dominant player. In certain cases, countries have limited the ability of incumbent telecommunication firms to offer video services until competition can emerge and strengthen in the multiple-play market.

In Luxembourg, the standard triple-play offer includes fixed telephony, data and *mobile* voice but not television services. Television is not included in the incumbent's bundle due to a ruling by the Competition Council (Conseil de la Concurrence) in 2008 that stated the integration of IPTV into a bundled offer by the incumbent constituted an abusive practice of bundling. The incumbent is not allowed to incorporate IPTV into the integral bundled offer or in any other bundled offer until alternative operators are in a position to replicate it (EC, 2009).

In Mexico, concerns about the market power of Telmex, the fixed-line incumbent, have led to a delay in awarding a licence to Telmex to offer video services over its broadband network. This has delayed the introduction of triple play services from the incumbent but the combined services are available via cable in areas with network coverage. Mexico has not adopted local-loop unbundling to foster competition in the broadband market and Telmex maintains one of the highest market shares in the entire OECD, likely leading to the fear that Telmex could use its market power, combined with bundling, to limit competition.

Similar concerns about bundling re-enforcing market power in Poland led to a European court ruling finding that countries are allowed, in some circumstances, to prohibit making the conclusion of a contract for the provision of services contingent on the conclusion, by the end user, of a contract for the provision of other services. Essentially the ability to limit certain bundling was upheld under European law. However, the ruling also clarified that countries would not be able to simply ban the selling of bundled goods in most circumstances.<sup>14</sup>

The analysis of competitive bundles across OECD countries used above does take into account the geographic availability of offers within a country which would influence any discussion of potential market power. In general, subscribers in metropolitan areas have access to multiple infrastructures and

various service providers while rural and remote areas may only have one or no provider offering services. The level of competition within a country can vary significantly.

Firms facing strong competition from other infrastructure providers or local-loop unbundles will need to respond to competitive pressures over pricing and services. Operators in less-competitive areas may have few incentives to reduce prices or offer better services if there is no other viable competition.

*Potential to abuse market power: What can governments do?*

- Reduce any lingering entry barriers to offering phone/video/voice services where possible
- Address potential competition issues in cases of significant market power
- Perform margin squeeze tests on bundled offers from dominant operators or those deemed to have significant market power.
- Consider the replicability of offers in the market by competitors
- Carefully consider options for infrastructure sharing (unbundling/separation)
- Ensure that competition from over-the-top providers is not hindered

There are a number of steps regulators and competition authorities can take to promote competition and protect against the abuse of market power. The first step is to remove any lingering entry barriers that firms may face in offering stand-alone or bundled services in the market. This can include ensuring that new operators have access to telephone numbering resources, that they can interconnect on fair terms with other operators and that they can offer video services.

Regulators and competition authorities may need to work together to address lingering problems with market dominance, noting that operators face varying levels of competition across the country in many cases. This may also include examining options for sharing infrastructure either via extended unbundling regulations or by investments in separated/mutualised infrastructure.

There will be areas where only one operator provides services and over-the-top services will play a vital role in offering choices to consumers in the future. For this reason it is worthwhile for regulators to carefully examine the treatment of OTT services on networks and to take action if the delivery of OTT services is being hindered in an anti-competitive manner. In particular, if consumers in certain geographic areas are limited to one or two operators then regulators may want to ensure that customers can take a stand-alone broadband service and receive video and voice services via OTT providers.

Policy makers can examine existing rules and regulations concerning the delivery of OTT video and voice to ensure that these services can flourish in the market and stimulate competition. This may require a re-examination of broadcast regulations and the process for allocating numbering resources.

### **Making broadband connections more valuable**

One of the key elements emerging from the data analysis is that even incremental improvements in broadband valuations by consumers can lead to higher broadband take-up and its resulting network effects in the economy. Marginal improvements in broadband valuation can make bundles including broadband the optimal choice for consumers, even when they would not have purchased a stand-alone subscription at the market rate.

*Broadband – lack of perceived value: What can governments do?*

- Make more public-sector information available online
- Improve government services available electronically
- Remove disincentives/provide incentives for online government interaction
- Promote the development of smart electricity grids, e-health, e-learning and intelligent transport systems which rely on broadband and increase its value to consumers

Governments could first focus on areas where they can directly affect the value of broadband for consumers. An example could be the release of public sector information of value on the Internet. Public bodies hold a range of information and content ranging from demographic, economic and meteorological data to art works, historical documents and books. Given the availability of information and communication technologies (ICTs) public sector information can play an important role in producing innovative value-added services and goods. Furthermore, these technologies also provide better access to a wider population to educational and cultural knowledge. Both commercial opportunities and the wider spread of information have positive economic and social benefit (OECD, 2006a)

Other examples include allowing citizens to file income taxes electronically without a fee in countries where electronic filing fees are imposed or reducing any inconsistencies in regulation which make interacting with the government electronically more expensive.

There are a number of key sectors where governments could have an even larger impact on broadband valuation due to the high proportion of consumer incomes spent in the sectors. Governments could increase the perceived value of broadband by helping promote the adoption of smart-grid technologies for electricity, reducing bureaucratic blocks to effective e-health applications, developing innovative online transportation applications and making more e-learning options available.

The data show that moving from a valuation of USD 0 to USD 10 per month for broadband could make it optimal in a package in 12 OECD countries. Boosting the perceived value to USD 30 per month means that a subscription could be optimal in terms of consumer surplus in almost all OECD countries. The key will be developing services which can create USD 30 worth of value to consumers.

## ANNEX: DATA COLLECTION METHODOLOGY

### Definitions/Methodology

The methodology and selection criteria of a data collection have an important impact on the output of any pricing study. Prices are constantly in flux and researchers must define a collection period (observation window) and the scope of the data collection.

The observation window is defined as the time frame of the data collection. Typically OECD broadband prices are gathered over a 30-45 day period in September and October of every year. The complexity of the data collection largely determines the amount of time necessary to observe prices. Any observed prices during this period are considered valid for the data collection.

In addition to setting the time frame, researchers must also define the scope of a data collection, or the number of elements to capture in the data set. The two are interrelated because more complex data collections require more time for the actual data gathering.

Historically, the OECD's broadband pricing has been among the most detailed of those produced globally. Other international organisations such as the International Telecommunication Union (ITU) collect broadband price information but over a much larger set of economies (189 instead of 30 of the OECD). In order to keep the collection manageable the ITU focuses on only one offer from one operator in each economy. The result of this trade-off of coverage and depth means that the ITU's data set covers many more countries than the OECD but at the expense of detailed data for individual countries.

The ITU's data collection is important because it provides key information on broadband pricing across a wide range of countries with varying levels of economic development, which would otherwise be unavailable. In particular, the ITU allows researchers to compare broadband prices in roughly 200 economies relative to incomes as a way to measure affordability.

The OECD's current membership in late 2009 of 30 countries means that the data can be much richer over the same observation window because there are fewer countries covered. Historically OECD broadband price collections have considered *all* residential broadband offers from three operators in each country. In the past this data collection has collected an average of 7 broadband offers for each of the 90 ISPs considered.

The strength of the OECD's data collection is its depth among the 30 included countries. The analysis allows comparisons at much finer levels of granulation, including by technology (DSL, Cable, FTTH), by speed, or by the amount of data traffic allowed in the subscription each month. The drawback of the OECD data set is that comparable data is not provided for countries outside the 30-member group.

The parameters of the OECD collection have changed over time as the demands for OECD policy work shifts. For example, the OECD has collected stand-alone broadband pricing since 2002 but included pricing for triple-play services in 2005 as part of a study of "multiple-play" or "triple-play" offers. This current data collection will be the first time since 2005 that the OECD has examined the structure of multiple play offers of video, voice and data.

***Observation window***

The OECD's data collection of broadband prices has historically taken place over the course of one calendar month, typically September or October of each year. The observation window was extended in this 2009 collection because of the significantly larger number of offer combinations for each operator.

This data collection took place during October/November 2009 and the prices, speeds and combinations of offers presented in this paper would be representative of dates within this observation window.

***Selection of operators***

The data collection considers three operators from each OECD country, representing the DSL incumbent, the largest cable operator and a third competitive operator. Most OECD countries have a single national fixed-line operator which is selected for the analysis. There are, however, a few countries with regional incumbents (*e.g.* Canada, Finland and the United States) where the analysis includes the largest incumbent in the country.

Because of the nature of the data collection, all offers included in the analysis have to be clearly advertised on the operator's website in order to be considered. The only exception is Mexico where the incumbent Telmex does not publish its full range of offers on the web. Customers typically would need to visit a retail shop in Mexico to obtain price information.

***Selection of offers: location***

For the ease of comparison, offers selected in the analysis should be available in the country's largest city – or in the largest regional city served by a regional operator.

***Selection of offers: duration***

This analysis considered the monthly price of services assuming a 24 month commitment. There may be significant discounts available for longer contracts but the 24 month cycle corresponds well to the typical duration commitment observed throughout the collection.

Broadband providers face significant acquisition costs when signing up a new subscriber and many choose to require a minimum duration for contracts. Standard broadband contracts last 12 months but there are providers with contract terms up to 48 months in countries such as Korea.

The monthly subscription price can vary based on the length of the contract the subscriber is willing to accept. For example, BT in the United Kingdom offers discounts over an initial period of 3 months if subscribers are willing to commit to an 18 month contract instead of 12.

The monthly price of Korean broadband varies depending on how long a contract period subscribers are willing to accept. KT offers a 33% reduction on the subscription price over the course of the contract if consumers are willing to forgo a month-to-month contract in favour of a 36-month commitment.

***Selection of offers: combinations***

Operators may market certain combinations of services but not others and stand-alone services may not always be available. For example, the cable operator UPC in the Netherlands requires a television subscription for anyone who wants broadband service. This means that UPC does not offer a stand-alone broadband service and any subscriber wanting only broadband will still need to pay for two services.

It is still important to be able to compare the prices facing consumers in a market even if their preferences do not match exactly the products offered by firms. Therefore, when a certain package structure is not available, the analysis takes the least-expensive package offered by the provider which fulfils the requirements – even if it contains other elements. In the example above, the UPC price for stand-alone broadband is actually the price of a broadband connection plus the least expensive television package (since the TV element is required for broadband). Sometimes triple-play offers are used to satisfy “double-play” comparisons if the services cannot be disaggregated.

### ***Video services***

The video services captured in the data collection represent the least-expensive, linear television service offered by the ISP. Services which allow subscribers only access to downloaded content on a PVT (*e.g.* TiVo) are not included.

### ***Speeds***

The minimum advertised broadband speed considered in the collection is 256 Kbit/s. Few OECD countries still offer broadband at these speeds. Only Australia, Finland, Mexico, Poland, Sweden and Switzerland had operators which advertised speeds less than 500 Kbit/s.

The data in this collection represent the speeds advertised by operators but these can be significantly higher than the actual speeds users encounter for a number of technical reasons. Therefore, the pricing data are representative of what operators are stating their lines should be capable of, not necessarily the bitrates users actually receive. In some cases the maximum speeds have been imputed when not explicitly stated based on technological limits of the installed technologies (*e.g.* New Zealand DSL speeds).

### ***Prices***

All prices reported include applicable taxes.

Previous OECD data collections on broadband prices have not included PSTN line rental charges even though subscribers often must have a PSTN line to subscribe to DSL. Cable operators also commonly require a basic television subscription for subscribers to have a cable Internet connection.

This data collection is a shift from the past and includes the associated “line charges” which may be required to purchase stand-alone broadband. For DSL operators this line charge is typically a PSTN line from the incumbent telecommunications operator. For cable companies, the “line charge” corresponds to any television subscription which is required for Internet access. The least-expensive cable and PSTN subscriptions are selected as the line charge if a line is required. This is more representative of the true prices subscribers must pay as they shop for telecommunication services.

There are some operators who only offer triple-play packages and do not sell stand-alone services. In these cases the triple-play price is also used as the stand-alone and double-play prices since it is also the price a user would have to pay for any combination of services from the provider.

Modem rental fees are commonly included in the monthly subscription price but some operators still charge them separately. The additional modem fees are included only if they are required for access. Some operators offer a rental option but also allow subscribers to purchase their own modem. In these cases the analysis assumes that the user already has a modem and no rental fees recorded.

Some plans offer a number of included phone calls as part of the broadband plan. If simple Internet access prices cannot be disaggregated then the calls are included in the price.

The final monthly price calculations include discounts which are provided for up to 24 months. The calculation to determine the average monthly charge in US dollars is simply the price of 24 months of services (including discounts) divided by 24 and then multiplied by the appropriate exchange rate (nominal or PPP).

### ***Bit caps***

Roughly 26% of OECD broadband offers have explicit limitations on how much data subscribers can download/upload each month. Typically these data/bit caps apply only to downloads but some operators include both downloads and uploads in the calculations of the caps. Data caps are given in megabytes per month

Bit caps are for all domestic and international traffic. The bit caps are for international traffic only in countries such as Iceland where national and international traffic are capped differently. The reported prices for additional traffic are given in price per additional megabyte. When operators offer additional monthly traffic in different bundles the price reflects the lowest price per MB across offers. Some operators have maximum excess charges per month which limits the total possible monthly cost of the connection. Prices and bit cap measures do not take into account bandwidth offered during "happy hours".

### **Time series analysis**

The data in this collection should only be compared with other years with extreme caution. They represent a snapshot of broadband prices in a given period using a common methodology. As mentioned earlier, the methodology has varied over the previous data collections and this means that simple year-to-year comparisons of prices would be inappropriate. For example, this data set is appropriate for comparing 2009 prices in Belgium and Luxembourg but would be inappropriate for comparing the evolution of Australian prices over time.

The OECD does publish a separate data set which compares the price of the same broadband offer in national currencies as a way to follow general price, speed and data capping trends in OECD countries<sup>15</sup>.

## NOTES

1 Shaw Bundle 1, 27 April 2010, Digital TV + High Speed Broadband (7.5 Mbit/s) + Digital phone basic. The stand-alone price is CAD 141.90 but the bundled price is CAD 121.90 for the same services.

2 Ficora: Available in Finnish at:

[www.ficora.fi/attachments/suomiry/5n2kRC9zk/Tutkimusraportti\\_2009\\_Telepalveluiden\\_kayttotutkimus.pdf](http://www.ficora.fi/attachments/suomiry/5n2kRC9zk/Tutkimusraportti_2009_Telepalveluiden_kayttotutkimus.pdf)

3 It is important to note that the data collection did not include mobile services due to their added complexity even though mobile is increasingly available as a component of service bundles.

4 The 14 countries are: Australia, Austria, Belgium, the Czech Republic, France, Germany, France, Italy, Japan, Spain, Sweden, Switzerland, Turkey and the United States.

5 YouTube 5 Year Anniversary press site; 18 May 2010, at:

<https://sites.google.com/a/pressatgoogle.com/youtube5year/>

6 The Progress and Freedom Foundation, "Media Metrics: The True Story of the Modern Media Marketplace, 2009, p. 65; ComScore, "(Re)introducing online video, and online video measurement: U.K, France and Germany," 2009.

7 International Phone Traffic Growth Slow, while Skype Accelerates, TeleGeography, 19 Jan 2010, at: [www.telegeography.com/cu/article.php?article\\_id=31718&email=html](http://www.telegeography.com/cu/article.php?article_id=31718&email=html).

8 See conditions for the HomeLine Budget plan at:

[www.telstra.com.au/homephone/plans/compare\\_and\\_order\\_a\\_plan.html](http://www.telstra.com.au/homephone/plans/compare_and_order_a_plan.html).

9 Details on Elisa's broadband voice services are available in Finnish at: [www.elisa.fi/yksityisille/lankapuhelin/liittyma/elisa\\_puhekaista/](http://www.elisa.fi/yksityisille/lankapuhelin/liittyma/elisa_puhekaista/)

10 [www.ofcom.org.uk/consult/condocs/ocp/statement/pricescheme/consumerfaq/](http://www.ofcom.org.uk/consult/condocs/ocp/statement/pricescheme/consumerfaq/)

11 [www.ofcom.org.uk/consult/condocs/topcomm/statement/](http://www.ofcom.org.uk/consult/condocs/topcomm/statement/)

12 [www.ofcom.org.uk/telecoms/ioi/copbb/copbb](http://www.ofcom.org.uk/telecoms/ioi/copbb/copbb)

13 [www.ofcom.org.uk/consult/condocs/draftannplan1011/draftannplan1011.pdf](http://www.ofcom.org.uk/consult/condocs/draftannplan1011/draftannplan1011.pdf)

14 On March 11, the Court of Justice released a judgment interpreting the scope of the Framework and Universal Service Directives to protect consumers, ultimately ruling that consumer rules did not permit a total prohibition on bundled service offerings. In a case involving Telecom Poland versus its national regulator (Telekomunikacja Polska SA w Warszawie v Prezes Urzedu Komunikacji Elektronicznej), the Court reviewed a law that prohibited service providers from conditioning sale of one service on the consumer buying another. The Polish context involved the NRA using that law to prohibit Telecom Poland



from a forced bundling of broadband Internet service with telephony service, i.e. linked sales. Telecom Poland argued this prohibition essentially was a remedy inconsistent with the framework remedies. In response to this, the Court held that the framework was without prejudice to consumer laws, and so did not prohibit such a remedy. But the Court ruled on a second question that the Unfair Commercial Practices Directive precludes national legislation which, subject to certain exceptions, and without taking account of the specific circumstances of the case in question, imposes a general prohibition of combined offers made by a vendor to a consumer. This ruling stems from the Belgian case where the Court ruled against national laws prohibiting bundling in joined Cases C- 261/07 and C-299/07 VTB-VAB and Galatea [2009] ECR I-0000, paragraph 68). See the Judgment of the Court of Justice in Case C-522/08 Telekomunikacja Polska.

15

See the OECD Broadband Portal at [www.oecd.org/sti/ict/broadband](http://www.oecd.org/sti/ict/broadband) for more data. Time series data is available at: [www.oecd.org/document/54/0,3343,en\\_2649\\_34225\\_38690102\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_1,00.html).

## ANNEX: SUMMARY STATISTICS

			Offers/Combos evaluated (can include same package for multiple bundle definitions)		Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels
Country	Company	Included services																
Australia	Bigpond/Telstra	Data	9	\$21.02	\$59.63	\$58.46	\$112.28	\$2.46	\$14.03	\$40.91	\$168.33		256	13 056	11 492	24 576	100%	35
		Phone	2	\$14.71	\$17.16	\$17.16	\$19.62											
		Video	1	\$29.48	\$29.48	\$29.48	\$29.48											
		Data + Phone	27	\$21.02	\$56.79	\$59.95	\$119.97	\$0.93	\$3.54	\$21.13	\$227.16	256	24 576	17 636	30 720	100%		
	Bigpond/Telstra Total		39															
	Internode	Data	18	\$35.06	\$66.65	\$68.99	\$129.83	\$0.72	\$1.68	\$1.81	\$4.93	24 576	25 600	48 014	102 400	100%		
		Phone	2	\$17.55	\$19.29	\$19.29	\$21.02											
		Data + Phone	22	\$45.56	\$70.13	\$75.07	\$119.27	\$2.45	\$4.82	\$22.65	\$182.23	256	24 576	15 511	24 576	100%		
	Internode Total		42															
	Optus	Data	3	\$42.11	\$56.15	\$58.49	\$77.21	\$2.16	\$2.81	\$2.92	\$3.87	20 480	20 480	20 480	20 480	100%		
		Phone	1	\$28.04	\$28.04	\$28.04	\$28.04											
		Data + Phone	10	\$32.93	\$65.00	\$67.07	\$98.23	\$1.65	\$3.25	\$3.35	\$4.91	20 480	20 480	20 480	20 480	100%		
	Optus Total		14															
Australia Total			95															
Austria	AON	Data	2	\$46.89	\$46.89	\$46.89	\$46.89	\$4.69	\$14.07	\$14.07	\$23.44	2 048	6 144	6 144	10 240	0%		
		Phone	1	\$18.78	\$18.78	\$18.78	\$18.78											
		Data + Phone	4	\$23.38	\$47.40	\$45.96	\$65.66	\$1.36	\$4.74	\$9.45	\$26.96	2 048	9 216	12 800	30 720	0%		
		Data + Video	4	\$49.00	\$64.27	\$64.27	\$79.53	\$6.75	\$16.23	\$18.10	\$33.89	2 048	6 144	6 144	10 240	0%	70	
		Phone + Video	2	\$26.77	\$26.77	\$26.77	\$26.77										70	
		Data + Phone + Video	2	\$29.26	\$38.01	\$38.01	\$46.77	\$1.56	\$2.61	\$2.61	\$3.66	8 192	19 456	19 456	30 720	0%	70	
	AON Total		15															
	blizznet	Data	4	\$23.38	\$41.01	\$43.95	\$70.39	\$0.74	\$1.05	\$1.29	\$2.34	10 240	40 960	48 640	102 400	0%		
		Data + Phone	3	\$50.41	\$58.64	\$66.86	\$91.54	\$4.58	\$5.86	\$6.84	\$1.82	5 120	10 240	11 947	20 480	0%		
		Data + Phone + Video	5	\$35.14	\$46.89	\$52.76	\$82.14	\$0.82	\$1.56	\$3.19	\$8.78	4 096	30 720	39 731	102 400	0%	56	
	blizznet Total		12															
	UPC	Data	5	\$26.91	\$57.58	\$57.30	\$86.96	\$0.87	\$1.68	\$2.14	\$4.25	8 192	25 600	40 755	102 400	0%		
		Phone	1	\$11.63	\$11.63	\$11.63	\$11.63											
		Video	1	\$24.62	\$24.62	\$24.62	\$24.62	\$1.54	\$1.54	\$1.54	\$1.54						63	
		Data + Phone	10	\$15.16	\$32.20	\$43.27	\$89.28	\$0.89	\$2.15	\$2.50	\$4.39	8 192	18 432	24 883	102 400	0%		
		Data + Video	4	\$41.01	\$84.64	\$78.14	\$102.27	\$1.23	\$2.74	\$2.43	\$3.21	16 384	28 160	43 776	102 400	0%		
		Phone + Video	1	\$35.84	\$35.84	\$35.84	\$35.84											
		Data + Phone + Video	8	\$35.14	\$64.10	\$66.22	\$104.59	\$1.46	\$3.15	\$4.29	\$1.25	4 096	20 992	31 360	102 400	0%	75	
	UPC Total		30															
Austria Total			57															

## DSTI/ICCP/CISP(2010)2/FINAL

			Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels	
Country	Company	Included services																
Belgium	Base	Data	3	\$28.27	\$33.93	\$35.81	\$45.24	\$3.77	\$8.48	\$13.51	\$28.27	1 024	4 096	5 803	12 288	33%		
		Data + Phone	3	\$28.27	\$33.93	\$35.81	\$45.24	\$3.77	\$8.48	\$13.51	\$28.27	1 024	4 096	5 803	12 288	33%		
	Base Total		6															
	Belgacom	Data	4	\$29.59	\$36.96	\$38.68	\$51.22	\$2.85	\$5.29	\$12.28	\$35.68	1 024	8 192	8 960	18 432	100%		
		Phone	1	\$19.94	\$19.94	\$19.94	\$19.94											70
		Video	1	\$20.92	\$20.92	\$20.92	\$20.92											
		Data + Phone	3	\$40.60	\$47.50	\$48.97	\$58.81	\$4.96	\$11.87	\$19.12	\$4.60	1 024	4 096	5 803	12 288	100%		
		Data + Video	3	\$41.70	\$50.18	\$50.18	\$58.67	\$3.26	\$4.18	\$5.96	\$1.43	4 096	12 288	11 605	18 432	100%		70
		Phone + Video	1	\$38.45	\$38.45	\$38.45	\$38.45											70
		Data + Phone + Video	3	\$56.49	\$68.02	\$67.95	\$79.33	\$4.47	\$5.67	\$8.07	\$14.12	4 096	12 288	11 605	18 432	100%		70
	Belgacom Total		16															
	Telenet	Data	4	\$22.62	\$41.59	\$43.79	\$69.35	\$2.77	\$4.51	\$8.60	\$22.62	1 024	10 752	12 032	25 600	100%		
		Phone	5	\$20.66	\$26.32	\$26.36	\$33.93											122
		Video	1	\$15.35	\$15.35	\$15.35	\$15.35											
		Data + Phone	4	\$39.58	\$54.85	\$57.11	\$79.16	\$2.94	\$3.70	\$5.06	\$9.90	4 096	16 384	15 616	25 600	100%		
		Data + Video	4	\$39.58	\$54.85	\$57.11	\$79.16	\$2.94	\$3.70	\$5.06	\$9.90	4 096	16 384	15 616	25 600	100%		122
		Phone + Video	1	\$39.10	\$39.10	\$39.10	\$39.10											122
		Data + Phone + Video	4	\$50.89	\$64.46	\$66.16	\$84.82	\$3.39	\$7.41	\$17.27	\$5.90	1 024	10 752	12 032	25 600	100%		122
	Telenet Total		23															
Belgium Total		45																
Canada	Bell Canada	Data	4	\$28.04	\$40.64	\$40.64	\$53.23	\$3.33	\$4.90	\$6.79	\$14.22	2 048	9 216	9 216	16 384	100%		
		Phone	2	\$23.77	\$23.77	\$23.77	\$23.77											
		Video	1	\$19.31	\$19.31	\$19.31	\$19.31											57
		Data + Phone	4	\$43.11	\$55.70	\$55.70	\$68.29	\$4.27	\$6.79	\$9.85	\$21.55	2 048	9 216	9 216	16 384	100%		
		Data + Video	4	\$45.68	\$58.27	\$58.27	\$70.86	\$4.43	\$7.11	\$10.37	\$22.84	2 048	9 216	9 216	16 384	100%		
		Phone + Video	1	\$41.09	\$41.09	\$41.09	\$41.09											
		Data + Phone + Video	4	\$64.94	\$77.53	\$77.53	\$90.12	\$5.63	\$9.52	\$14.28	\$32.47	2 048	9 216	9 216	16 384	100%		
	Bell Canada Total		20															
	Rogers	Data	6	\$24.34	\$47.43	\$60.58	\$128.45	\$2.57	\$4.74	\$12.50	\$48.69	512	10 240	16 811	51 200	100%		
		Phone	1	\$26.25	\$26.25	\$26.25	\$26.25											89
		Video	1	\$25.56	\$25.56	\$25.56	\$25.56											
		Data + Phone	6	\$45.59	\$68.68	\$81.83	\$149.70	\$2.99	\$6.87	\$21.68	\$91.18	512	10 240	16 811	51 200	100%		
		Data + Video	6	\$49.90	\$72.99	\$86.14	\$154.01	\$3.82	\$7.30	\$23.54	\$99.80	512	10 240	16 811	51 200	100%		
		Phone + Video	1	\$49.33	\$49.33	\$49.33	\$49.33											89
		Data + Phone + Video	6	\$74.23	\$97.32	\$110.05	\$175.82	\$3.52	\$9.73	\$34.05	\$148.47	512	10 240	16 811	51 200	100%		89
	Rogers Total		27															
	Videotron	Data	7	\$22.49	\$54.49	\$49.54	\$67.13	\$1.34	\$5.45	\$17.55	\$66.97	600	10 240	17 375	51 200	100%		
		Phone	1	\$19.27	\$19.27	\$19.27	\$19.27											
		Video	1	\$15.10	\$15.10	\$15.10	\$15.10											14
		Data + Phone	5	\$50.50	\$71.28	\$72.16	\$83.88	\$1.68	\$4.19	\$4.40	\$7.12	7 782	20 480	24 084	51 200	100%		
Data + Video		6	\$37.59	\$69.61	\$66.36	\$82.22	\$1.64	\$5.54	\$14.44	\$64.15	600	15 360	20 170	51 200	100%		14	
Phone + Video		1	\$31.85	\$31.85	\$31.85	\$31.85											14	
Data + Phone + Video		6	\$51.82	\$83.84	\$80.59	\$96.46	\$1.93	\$6.60	\$19.29	\$88.43	600	15 360	20 170	51 200	100%		14	
Videotron Total		27																
Canada Total		74																

Country	Company	Included services	Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels	
Czech Republic	GTS Novera	Data	4		\$61.60				\$6.02			8 192	12 288	12 288	16 384	0%		
	GTS Novera Total		4															
	O2	Data	3	\$32.56	\$48.83	\$46.66	\$58.60	\$3.52	\$3.66	\$3.59	\$4.70	8 192	16 384	13 653	16 384	0%		
		Phone	1	\$15.43	\$15.43	\$15.43	\$15.43											29
		Video	1	\$42.32	\$42.32	\$42.32	\$42.32											
		Data + Phone	3	\$37.83	\$54.11	\$51.94	\$63.88	\$3.38	\$3.99	\$4.03	\$4.73	8 192	16 384	13 653	16 384	0%		
		Phone + Video	1	\$51.24	\$51.24	\$51.24	\$51.24											
	Data + Phone + Video	3	\$32.56	\$37.83	\$36.07	\$37.83	\$4.70	\$4.73	\$4.51	\$4.73	8 192	8 192	8 192	8 192	0%	29		
	O2 Total		12															
	UPC	Data	4	\$15.95	\$35.00	\$35.73	\$56.97	\$0.57	\$0.88	\$0.98	\$1.60	10 240	40 960	48 640	102 400	0%		
		Phone	1	\$7.19	\$7.20	\$7.19	\$7.19											
		Video	1	\$17.04	\$17.04	\$17.04	\$17.04											21
		Data + Video	2	\$60.55	\$60.56	\$60.55	\$60.55	\$6.55	\$6.06	\$6.06	\$6.55	10 240	10 240	10 240	10 240	0%	60	
		Data + Phone + Video	4	\$38.35	\$56.42	\$71.74	\$135.76	\$3.84	\$4.34	\$4.91	\$7.13	10 240	10 240	15 360	30 720	0%	65	
	UPC Total		12															
	Czech Republic Total			28														
	Denmark	Dansk Bredbånd	Data	6	\$37.42	\$52.78	\$52.78	\$68.13	\$1.23	\$2.11	\$2.51	\$4.54	10 240	25 600	29 013	51 200	0%	
Video			1	\$10.12	\$10.12	\$10.12	\$10.12										9	
Data + Phone			9	\$37.42	\$56.65	\$55.32	\$79.39	\$1.36	\$2.50	\$3.02	\$5.66	10 240	25 600	29 013	51 200	0%		
Phone + Video			3	\$45.38	\$56.76	\$56.76	\$68.13	\$1.36	\$2.27	\$2.72	\$4.54						9	
Data + Phone + Video			3	\$45.38	\$56.76	\$56.76	\$68.13	\$1.36	\$2.27	\$2.72	\$4.54	10 240	25 600	29 013	51 200	0%	9	
Dansk Bredbånd Total		22		\$25.59														
Stofa		Video	2	\$11.37		\$25.59	\$39.81											31
		Data + Video	25	\$29.46	\$45.38	\$47.32	\$73.71	\$1.14	\$3.69	\$4.58	\$11.62	4 096	12 288	19 866	51 200	0%	17	
		Phone + Video	2	\$11.26	\$16.95	\$16.95	\$22.64											
		Data + Phone + Video	15	\$40.72	\$54.37	\$54.75	\$73.71	\$1.36	\$4.53	\$5.39	\$11.62	4 096	12 288	19 866	51 200	0%	17	
Stofa Total		44																
TDC		Data	3	\$27.75	\$35.72	\$34.92	\$41.29	\$2.64	\$3.57	\$4.19	\$6.94	4 096	10 240	11 605	20 480	0%		
		Phone	3	\$15.24	\$15.81	\$17.90	\$22.64											
		Video	1	\$51.07	\$51.07	\$51.07	\$51.07	\$5.17	\$5.11	\$5.11	\$5.17							28
		Data + Phone	6	\$28.32	\$41.86	\$44.06	\$66.88	\$1.34	\$3.99	\$4.50	\$9.47	4 096	10 240	16 896	51 200	0%		
		Data + Video	2	\$34.01	\$42.54	\$42.54	\$51.07	\$5.17	\$5.95	\$5.95	\$6.82	5 120	7 680	7 680	10 240	0%	21	
		Phone + Video	2	\$34.01	\$42.54	\$42.54	\$51.07	\$5.17	\$5.95	\$5.95	\$6.82							21
	Data + Phone + Video	2	\$34.01	\$42.54	\$42.54	\$51.07	\$5.17	\$5.95	\$5.95	\$6.82	5 120	7 680	7 680	10 240	0%	21		
	TDC Total		19															
Denmark Total			85															

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Finland	Elisa	Data	14	\$15.89	\$30.53	\$30.10	\$44.29	\$0.42	\$4.79	\$9.40	\$27.12	600	6 656	17 979	102 400	0%		
		Phone	2	\$2.42	\$5.08	\$5.08	\$7.75										6	
		Video	1	\$9.20	\$9.20	\$9.20	\$9.20											
		Data + Phone	14	\$18.31	\$32.95	\$32.52	\$46.71	\$0.44	\$5.18	\$10.43	\$31.25	600	6 656	17 979	102 400	0%	6	
		Data + Video	14	\$23.81	\$38.46	\$38.57	\$52.21	\$0.57	\$6.21	\$12.91	\$4.64	600	6 656	17 979	102 400	0%	6	
		Phone + Video	1	\$16.95	\$16.95	\$16.95	\$16.95											
		Data + Phone + Video	14	\$26.23	\$41.52	\$41.09	\$54.64	\$0.53	\$6.60	\$13.99	\$44.77	600	6 656	17 979	102 400	0%	6	
	Elisa Total			60														
	Sonera	Data	3	\$29.47	\$37.53	\$35.94	\$40.84	\$1.72	\$4.69	\$7.04	\$14.73	2 048	8 192	11 605	24 576	0%		
		Phone	1	\$7.98	\$7.98	\$7.98	\$7.98											
		Video	2	\$9.59	\$9.59	\$9.59	\$9.59											7
		Data + Phone	3	\$39.84	\$48.55	\$47.94	\$55.42	\$2.39	\$6.07	\$9.43	\$19.92	2 048	8 192	11 605	24 576	0%		
		Data + Video	3	\$41.44	\$50.16	\$49.54	\$57.03	\$2.38	\$6.27	\$9.79	\$2.72	2 048	8 192	11 605	24 576	0%	7	
		Phone + Video	1	\$49.42	\$49.42	\$49.42	\$49.42	\$24.72	\$24.71	\$24.71	\$24.72							7
		Data + Phone + Video	3	\$49.42	\$58.14	\$57.52	\$65.01	\$2.79	\$7.27	\$11.56	\$24.72	2 048	8 192	11 605	24 576	0%	7	
	Sonera Total			16														
	Welho	Data	11	\$19.27	\$34.76	\$34.50	\$53.16	\$0.43	\$6.95	\$12.75	\$77.76	256	5 120	23 855	112 640	0%		
		Video	1	\$11.52	\$11.52	\$11.52	\$11.52											19
		Data + Video	11	\$30.79	\$46.28	\$46.02	\$64.68	\$0.55	\$9.26	\$19.26	\$123.17	256	5 120	23 855	112 640	0%		
	Welho Total			23														
Finland Total			99															
France	Free	Data + Phone + Video	14	\$33.66	\$33.66	\$33.66	\$33.66	\$0.34	\$0.77	\$0.77	\$1.22	28 672	65 536	65 536	102 400	0%	150	
	Free Total			14														
	Numericable	Phone	1	\$22.33	\$22.33	\$22.33	\$22.33											
		Video	1	\$38.08	\$38.08	\$38.08	\$38.08										180	
		Data + Phone	2	\$22.33	\$23.46	\$23.46	\$24.58	\$0.22	\$0.23	\$0.23	\$0.25	102 400	102 400	102 400	102 400	0%		
		Data + Video	1	\$22.33	\$22.33	\$22.33	\$22.33	\$0.22	\$0.22	\$0.22	\$0.22	102 400	102 400	102 400	102 400	0%	71	
		Phone + Video	1	\$35.80	\$35.80	\$35.80	\$35.80										71	
		Data + Phone + Video	1	\$34.68	\$34.68	\$34.68	\$34.68	\$0.35	\$0.35	\$0.35	\$0.35	102 400	102 400	102 400	102 400	0%	71	
	Numericable Total			7														
	Orange	Data	3	\$33.56	\$33.56	\$35.24	\$38.61	\$1.86	\$1.86	\$1.96	\$2.14	18 432	18 432	18 432	18 432	0%		
		Phone	1	\$17.96	\$17.96	\$17.96	\$17.96											
		Data + Phone	3	\$49.27	\$49.27	\$56.79	\$71.83	\$0.72	\$49.27	\$33.09	\$49.27	1 024	1 024	34 816	102 400	0%		
		Data + Video	1	\$71.83	\$71.83	\$71.83	\$71.83	\$0.72	\$0.72	\$0.72	\$0.72	102 400	102 400	102 400	102 400	0%		
Data + Phone + Video		10	\$42.54	\$54.32	\$54.71	\$76.21	\$0.54	\$2.89	\$3.59	\$6.86	8 192	18 432	32 154	102 400	0%	93		
Orange Total			18															
France Total			39															

				Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels
Germany	Kabel Deutschland	Phone	1		\$11.64	\$11.64	\$11.64	\$11.64										
		Video	1		\$19.87	\$19.87	\$19.87	\$19.87										133
		Data + Phone	6		\$19.28	\$25.16	\$25.16	\$31.04	\$1.35	\$2.12	\$2.12	\$3.21	6 144	18 432	18 432	30 720	0%	
		Data + Phone + Video	6		\$43.27	\$49.15	\$49.15	\$55.03	\$1.83	\$4.52	\$4.52	\$7.21	6 144	18 432	18 432	30 720	0%	133
	Kabel Deutschland Total		14															
	T Home	Phone	1		\$21.11	\$21.11	\$21.11	\$21.11										
		Data + Phone	8		\$39.92	\$54.62	\$53.15	\$63.43	\$2.32	\$6.29	\$8.71	\$19.96	2 048	11 264	12 544	25 600	0%	
		Data + Phone + Video	8		\$58.24	\$64.12	\$65.59	\$75.88	\$3.36	\$5.10	\$4.76	\$5.82	10 240	13 312	15 616	25 600	0%	70
	T Home Total		17															
	Vodafone	Data	3		\$29.38	\$35.26	\$35.25	\$41.09	\$1.84	\$2.20	\$2.20	\$2.57	16 384	16 384	16 384	16 384	0%	
		Phone	1		\$35.26	\$35.26	\$35.26	\$35.26	\$2.24	\$2.20	\$2.20	\$2.24						
		Data + Phone	3		\$29.38	\$35.26	\$35.25	\$41.09	\$1.84	\$2.20	\$2.20	\$2.57	16 384	16 384	16 384	16 384	0%	
	Vodafone Total		7															
Germany Total			38															
Greece	forthnet/Nova	Data	2		\$29.06	\$29.06	\$29.06	\$29.06	\$1.22	\$1.21	\$1.21	\$1.22	24 576	24 576	24 576	24 576	0%	
		Phone	2		\$19.17	\$29.01	\$29.01	\$38.86										
		Video	1		\$25.86	\$25.86	\$25.86	\$25.86										150
		Data + Phone	2		\$44.52	\$48.19	\$48.19	\$51.85	\$1.86	\$2.01	\$2.01	\$2.16	24 576	24 576	24 576	24 576	0%	
		Data + Video	1		\$46.58	\$46.58	\$46.58	\$46.58	\$1.95	\$1.94	\$1.94	\$1.95	24 576	24 576	24 576	24 576	0%	
		Phone + Video	2		\$36.02	\$43.90	\$43.90	\$51.77										
		Data + Phone + Video	2		\$60.14	\$61.16	\$61.16	\$62.17	\$2.56	\$2.55	\$2.55	\$2.59	24 576	24 576	24 576	24 576	0%	
	forthnet/Nova Total		12															
	OTE	Data	3		\$21.44	\$29.24	\$28.98	\$36.26	\$1.52	\$3.66	\$5.30	\$1.72	2 048	8 192	11 605	24 576	0%	
		Phone	1		\$19.18	\$19.18	\$19.18	\$19.18										
		Video	1		\$40.94	\$40.94	\$40.94	\$40.94	\$2.47	\$20.47	\$20.47	\$2.47						34
		Data + Phone	4		\$40.62	\$51.93	\$55.74	\$78.49	\$2.40	\$6.05	\$9.56	\$2.31	2 048	8 192	11 605	24 576	0%	
		Data + Video	3		\$40.94	\$48.73	\$48.47	\$55.75	\$2.32	\$6.09	\$9.63	\$2.47	2 048	8 192	11 605	24 576	0%	
		Phone + Video	1		\$38.67	\$38.67	\$38.67	\$38.67	\$19.34	\$19.34	\$19.34	\$19.34						
		Data + Phone + Video	6		\$40.94	\$57.90	\$58.05	\$74.93	\$2.32	\$7.29	\$11.75	\$3.19	2 048	8 192	11 605	24 576	0%	
	OTE Total		19															
	Vivodi	Data	1		\$28.59	\$28.59	\$28.59	\$28.59	\$1.19	\$1.19	\$1.19	\$1.19	24 576	24 576	24 576	24 576	0%	
Phone		1		\$19.23	\$19.23	\$19.23	\$19.23											
Data + Phone		6		\$23.18	\$42.76	\$39.65	\$43.22	\$1.78	\$3.60	\$9.22	\$23.18	1 024	16 384	14 165	24 576	0%		
Data + Phone + Video		4		\$45.35	\$45.35	\$45.35	\$45.35	\$1.89	\$1.89	\$1.89	\$1.89	24 576	24 576	24 576	24 576	0%		
Vivodi Total		12																
Greece Total			43															

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Hungary	GTS-Datanet	Data	5	\$20.55	\$26.69	\$27.47	\$35.93	\$3.59	\$5.34	\$6.72	\$12.48	1 696	5 120	5 254	10 240	0%	16
		Data + Phone	6	\$27.20	\$32.87	\$32.97	\$42.59	\$4.26	\$6.67	\$8.52	\$16.42	1 696	5 120	5 254	10 240	0%	
		Data + Video	6	\$36.45	\$42.35	\$43.16	\$51.84	\$5.18	\$8.52	\$11.02	\$22.97	1 696	5 120	5 254	10 240	0%	
		Data + Phone + Video	6	\$43.11	\$48.77	\$48.87	\$58.49	\$5.85	\$11.30	\$15.03	\$26.28	1 696	4 608	4 661	10 240	0%	
	GTS-Datanet Total			23													
	T-Online	Data	6	\$18.63	\$47.91	\$51.85	\$92.17	\$1.15	\$2.46	\$2.75	\$5.12	5 120	20 480	30 720	81 920	17%	7
		Phone	1	\$8.32	\$8.32	\$8.32	\$8.32										
		Video	1	\$6.16	\$6.16	\$6.16	\$6.16										
		Data + Phone	6	\$26.95	\$56.23	\$60.17	\$100.48	\$1.26	\$2.91	\$3.50	\$6.79	5 120	20 480	30 720	81 920	17%	
		Data + Video	6	\$24.79	\$54.07	\$58.01	\$98.32	\$1.23	\$2.79	\$3.30	\$6.36	5 120	20 480	30 720	81 920	17%	
		Data + Phone + Video	7	\$33.11	\$55.40	\$61.58	\$106.64	\$1.33	\$3.69	\$4.42	\$8.19	5 120	15 360	27 063	81 920	29%	
	T-Online Total			27													
	UPC	Data	6	\$16.64	\$37.43	\$36.88	\$59.89	\$0.50	\$1.77	\$3.60	\$8.32	2 048	23 040	39 083	122 880	0%	12
		Phone	1	\$8.32	\$8.32	\$8.32	\$8.32										
		Video	1	\$12.41	\$12.41	\$12.41	\$12.41										
		Data + Phone	4	\$39.93	\$56.56	\$55.32	\$68.21	\$0.57	\$1.37	\$1.49	\$2.66	15 360	46 080	57 600	122 880	0%	
		Data + Video	4	\$44.02	\$60.66	\$59.41	\$72.30	\$0.63	\$1.47	\$1.62	\$2.93	15 360	46 080	57 600	122 880	0%	
		Phone + Video	1	\$20.73	\$20.73	\$20.73	\$20.73	\$1.38	\$1.38	\$1.38	\$1.38						
		Data + Phone + Video	4	\$52.34	\$68.97	\$67.73	\$80.62	\$0.67	\$1.68	\$1.88	\$3.49	15 360	46 080	57 600	122 880	0%	
	UPC Total			21													
	Hungary Total			71													
Iceland	Hringiðan	Data	9	\$33.25	\$54.65	\$56.75	\$99.08	\$1.00	\$3.93	\$8.22	\$33.25	1 024	16 384	29 468	102 400	100%	5
	Hringiðan Total			9													
	Siminn	Data	10	\$32.54	\$46.80	\$48.76	\$71.35	\$2.38	\$6.33	\$13.51	\$34.32	1 024	8 192	9 830	30 720	50%	
		Phone	1	\$12.18	\$12.18	\$12.18	\$12.18										
		Video	1	\$16.99	\$16.99	\$16.99	\$16.99										
		Data + Phone	10	\$32.54	\$46.80	\$48.76	\$71.35	\$2.38	\$6.33	\$13.51	\$34.32	1 024	8 192	9 830	30 720	50%	
		Data + Video	4	\$55.39	\$73.16	\$71.31	\$83.53	\$2.78	\$6.72	\$10.98	\$27.69	2 048	12 288	14 336	30 720	100%	
		Data + Phone + Video	17	\$44.73	\$56.94	\$57.55	\$83.53	\$2.78	\$8.59	\$20.95	\$46.53	1 024	8 192	8 252	30 720	35%	
	Siminn Total			43													
	Vodafone	Data	10	\$28.06	\$44.32	\$44.33	\$61.31	\$0.75	\$3.51	\$6.71	\$28.65	1 024	12 288	25 293	51 200	100%	
		Phone	2	\$11.77	\$19.14	\$19.14	\$26.51										
		Video	1	\$5.85	\$5.85	\$5.85	\$5.85										
		Data + Phone	8	\$42.80	\$53.91	\$54.28	\$66.50	\$3.57	\$4.49	\$4.52	\$5.54	12 288	12 288	12 288	12 288	100%	
		Data + Video	10	\$33.91	\$50.17	\$50.18	\$67.16	\$0.87	\$4.00	\$7.86	\$33.91	1 024	12 288	25 293	51 200	100%	
		Data + Phone + Video	6	\$55.24	\$66.76	\$67.11	\$78.94	\$1.15	\$1.49	\$2.78	\$6.29	12 288	51 200	38 229	51 200	100%	
	Vodafone Total			37													
	Iceland Total			89													

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Country Ireland	eircom	Phone	1	\$24.82	\$24.83	\$24.82	\$24.82											
		Data + Phone	9	\$45.19	\$52.95	\$53.67	\$62.18	\$8.40	\$17.65	\$24.66	\$49.28	1 024	3 072	3 755	7 168	0%		
	eircom Total		10															
	Irish Broadband	Data	3	\$18.52	\$26.32	\$32.81	\$53.61	\$13.16	\$13.40	\$15.03	\$18.52	1 024	2 048	2 389	4 096	67%		
		Data + Phone	8	\$39.44	\$47.24	\$48.46	\$59.90	\$7.76	\$28.08	\$27.28	\$45.28	1 024	2 048	3 226	7 782	100%		
	Irish Broadband Total		11															
	UPC Ireland	Data	3	\$21.44	\$31.19	\$31.19	\$40.94	\$2.47	\$3.12	\$4.10	\$7.15	3 072	10 240	11 264	20 480	0%		
		Video	1	\$67.01	\$67.01	\$67.01	\$67.01											90
		Data + Phone	3	\$23.39	\$48.73	\$43.53	\$58.48	\$2.92	\$4.87	\$10.40	\$23.39	1 024	10 240	10 581	20 480	0%		
		Data + Video	3	\$48.25	\$57.99	\$57.99	\$67.74	\$3.39	\$5.80	\$8.42	\$16.82	3 072	10 240	11 264	20 480	0%		
		Phone + Video	2	\$31.68	\$34.60	\$34.60	\$37.52										70	
		Data + Phone + Video	4	\$50.19	\$84.43	\$87.72	\$131.82	\$6.59	\$19.33	\$23.86	\$5.19	1 024	6 656	8 704	20 480	0%	83	
	UPC Ireland Total		16															
	Ireland Total		37															
	Italy	Alice	Phone	1	\$18.32	\$18.33	\$18.32	\$18.32										
			Data + Phone	4	\$40.84	\$46.27	\$45.60	\$49.04	\$2.43	\$4.14	\$4.26	\$6.35	7 168	13 824	13 824	20 480	0%	
			Data + Phone + Video	7	\$47.84	\$51.26	\$52.24	\$55.82	\$2.62	\$6.83	\$5.29	\$7.32	7 168	7 168	12 873	20 480	0%	200
Alice Total		12																
Fastweb		Data	3	\$29.83	\$34.07	\$34.56	\$39.77	\$1.49	\$1.70	\$2.39	\$3.98	10 240	20 480	17 067	20 480	0%		
		Phone	1	\$16.98	\$16.98	\$16.98	\$16.98											
		Data + Phone	4	\$38.29	\$38.29	\$38.29	\$38.29	\$1.91	\$2.87	\$2.87	\$3.83	10 240	15 360	15 360	20 480	0%		
		Data + Video	2	\$29.83	\$34.06	\$34.06	\$38.29	\$1.49	\$2.66	\$2.66	\$3.83	10 240	15 360	15 360	20 480	0%	30	
		Phone + Video	2	\$25.44	\$25.46	\$25.46	\$25.47	\$1.27	\$1.91	\$1.91	\$2.55						30	
		Data + Phone + Video	1	\$25.47	\$25.47	\$25.47	\$25.47	\$2.55	\$2.55	\$2.55	\$2.55	10 240	10 240	10 240	10 240	0%	30	
Fastweb Total		13																
Tiscali		Data	2	\$21.79	\$24.40	\$24.40	\$27.01	\$1.35	\$2.04	\$2.04	\$2.72	8 192	14 336	14 336	20 480	0%		
		Phone	1	\$21.79	\$21.79	\$21.79	\$21.79											
		Data + Phone	2	\$32.23	\$37.69	\$37.69	\$43.15	\$2.16	\$3.09	\$3.09	\$4.29	8 192	14 336	14 336	20 480	0%		
Tiscali Total		5																
Italy Total		30																



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			Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels	
Country Japan	J:COM	Data	4	\$24.40	\$42.91	\$39.84	\$49.13	\$0.38	\$1.41	\$6.88	\$24.42	1 024	32 768	57 600	163 840			
		Phone	1	\$10.89	\$10.90	\$10.89	\$10.89											
		Video	1	\$34.23	\$34.23	\$34.23	\$34.23										55	
		Data + Phone	4	\$29.15	\$51.10	\$47.17	\$57.32	\$0.36	\$1.69	\$8.22	\$29.15	1 024	32 768	57 600	163 840	0%		
		Data + Video	4	\$49.22	\$71.08	\$67.09	\$76.97	\$0.48	\$2.35	\$13.60	\$49.22	1 024	32 768	57 600	163 840	0%		
		Data + Phone + Video	4	\$65.84	\$83.32	\$80.41	\$89.18	\$0.56	\$2.76	\$17.98	\$65.84	1 024	32 768	57 600	163 840	0%		
	J:COM Total		18															
	NTT	Data	11	\$27.44	\$35.62	\$36.14	\$42.99	\$0.14	\$0.21	\$0.25	\$0.41	102 400	204 800	167 564	204 800	0%		
		Phone	2	\$12.28	\$13.10	\$13.10	\$13.92											
		Data + Phone	11	\$39.72	\$47.91	\$48.43	\$55.28	\$0.20	\$0.27	\$0.33	\$0.54	102 400	204 800	167 564	204 800	0%		
		Data + Video	13	\$32.76	\$40.95	\$42.17	\$52.00	\$0.16	\$0.23	\$0.27	\$0.47	102 400	204 800	173 292	204 800	0%		
		Data + Phone + Video	12	\$45.04	\$52.82	\$53.02	\$60.60	\$0.23	\$0.29	\$0.35	\$0.59	102 400	204 800	170 667	204 800	0%		
	NTT Total		49															
	Yahoo! BB	Video	1	\$53.31	\$53.31	\$53.31	\$53.31	\$6.66	\$6.66	\$6.66	\$6.66							34
		Data + Phone	27	\$20.48	\$31.11	\$32.47	\$52.41	\$0.31	\$0.52	\$2.69	\$25.60	1 024	102 400	64 474	102 400	0%		
		Data + Phone + Video	24	\$48.97	\$58.47	\$59.74	\$76.97	\$0.56	\$0.73	\$1.62	\$6.12	8 192	102 400	72 107	102 400	0%	36	
	Yahoo! BB Total		52															
Japan Total			119															
Korea	KT	Data	6	\$39.18	\$42.46	\$42.46	\$45.74	\$0.46	\$0.62	\$1.31	\$4.90	8 192	76 800	69 632	102 400	0%		
		Phone	1	\$2.30	\$2.30	\$2.30	\$2.30											
		Video	1	\$13.14	\$13.14	\$13.14	\$13.14										50	
		Data + Phone	6	\$30.99	\$33.88	\$33.88	\$36.76	\$0.37	\$0.49	\$1.04	\$3.87	8 192	76 800	69 632	102 400	0%		
		Data + Video	6	\$39.98	\$42.86	\$42.86	\$45.74	\$0.46	\$0.63	\$1.33	\$5.00	8 192	76 800	69 632	102 400	0%	50	
		Data + Phone + Video	6	\$41.94	\$44.82	\$44.82	\$47.70	\$0.48	\$0.66	\$1.39	\$5.24	8 192	76 800	69 632	102 400	0%	50	
	KT Total		26															
	SK Broadband	Data	4	\$36.88	\$38.21	\$37.88	\$38.21	\$0.37	\$3.82	\$2.96	\$3.83	10 240	10 240	33 280	102 400	0%		
		Phone	1	\$3.46	\$3.46	\$3.46	\$3.46											
		Video	1	\$21.89	\$21.89	\$21.89	\$21.89										60	
		Data + Phone + Video	6	\$38.91	\$43.69	\$45.22	\$52.10	\$0.39	\$2.45	\$2.42	\$4.37	10 240	56 320	56 320	102 400	0%	60	
	SK Broadband Total		12															
	Tbroad	Data	4	\$16.71	\$18.92	\$19.42	\$23.12	\$0.20	\$0.57	\$0.75	\$1.67	10 240	61 440	58 880	102 400	0%		
		Phone	1	\$8.07	\$8.07	\$8.07	\$8.07											
		Video	9	\$4.61	\$22.19	\$18.81	\$28.48										76	
		Data + Phone	4	\$20.17	\$22.38	\$22.87	\$26.57	\$0.23	\$0.67	\$0.90	\$2.17	10 240	61 440	58 880	102 400	0%		
		Data + Video	24	\$21.53	\$34.38	\$32.98	\$44.24	\$0.24	\$0.79	\$1.33	\$3.82	10 240	61 440	58 880	102 400	0%	84	
Phone + Video		9	\$8.07	\$25.65	\$22.26	\$31.94										76		
Data + Phone + Video		24	\$23.83	\$36.68	\$35.28	\$46.55	\$0.27	\$0.86	\$1.43	\$4.53	10 240	61 440	58 880	102 400	0%	84		
Tbroad Total		75																
Korea Total			113															

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Country	Company	Included services															
Luxembourg	Cegecom	Data	4	\$21.06	\$32.70	\$36.40	\$59.15	\$3.29	\$4.18	\$4.23	\$5.26	4 096	8 192	9 728	18 432	0%	
		Phone	1	\$17.46	\$17.46	\$17.46	\$17.46										
		Data + Phone	8	\$45.08	\$59.84	\$64.37	\$92.70	\$6.18	\$7.48	\$10.92	\$22.54	2 048	8 192	8 448	15 360	50%	
	Cegecom Total		13														
	EPT	Phone	1	\$19.47	\$19.47	\$19.47	\$19.47										
Video		1	\$71.31	\$71.31	\$71.31	\$71.31	\$35.66	\$35.66	\$35.66	\$35.66						80	
Data + Phone		6	\$50.16	\$69.21	\$74.14	\$103.07	\$6.87	\$8.65	\$13.53	\$25.79	2 048	8 192	8 533	15 360	67%		
Data + Phone + Video		7	\$71.31	\$90.36	\$91.87	\$124.22	\$8.28	\$11.30	\$20.87	\$35.66	2 048	8 192	7 607	15 360	71%		
	EPT Total		15														
	Numericable	Data	2	\$26.35	\$34.29	\$34.29	\$42.22	\$1.47	\$5.10	\$5.10	\$8.78	3 072	16 896	16 896	30 720	50%	
Phone		1	\$15.87	\$15.87	\$15.87	\$15.87											
Video		1	\$24.33	\$24.33	\$24.33	\$24.33										95	
Data + Phone		2	\$42.22	\$50.16	\$50.16	\$58.10	\$1.94	\$8.01	\$8.01	\$14.75	3 072	16 896	16 896	30 720	50%		
Data + Video		1	\$26.35	\$26.35	\$26.35	\$26.35	\$8.78	\$8.78	\$8.78	\$8.78	3 072	3 072	3 072	3 072	100%		
Phone + Video		1	\$26.35	\$26.35	\$26.35	\$26.35										95	
Data + Phone + Video		2	\$42.22	\$52.80	\$52.80	\$63.39	\$1.47	\$1.76	\$1.76	\$2.11	30 720	30 720	30 720	30 720	0%	128	
	Numericable Total		10														
	Luxembourg Total		38														
Mexico	Cablevision	Data	3	\$24.77	\$36.97	\$36.56	\$47.95	\$31.97	\$84.54	\$70.38	\$94.64	300	400	745	1 536	0%	
		Phone	1	\$16.84	\$16.84	\$16.84	\$16.84										
		Video	1	\$33.55	\$33.55	\$33.55	\$33.55										87
		Data + Phone	5	\$43.92	\$62.10	\$63.27	\$81.50	\$31.55	\$54.33	\$101.78	\$199.61	300	1 024	1 062	2 048	0%	
		Data + Video	5	\$41.60	\$53.81	\$53.24	\$64.79	\$31.55	\$43.92	\$79.58	\$142.81	300	1 024	1 062	2 048	0%	106
		Phone + Video	2	\$43.92	\$53.01	\$53.01	\$62.10										135
		Data + Phone + Video	5	\$60.88	\$85.28	\$81.40	\$98.34	\$42.65	\$65.56	\$129.85	\$256.54	300	1 024	1 062	2 048	0%	106
		Cablevision Total		22													
	Megacable	Data	3	\$24.28	\$36.48	\$52.75	\$97.48	\$9.75	\$18.24	\$17.42	\$24.28	1 024	2 048	4 437	10 240	0%	
		Phone	1	\$18.30	\$18.30	\$18.30	\$18.30										
		Video	1	\$41.48	\$41.48	\$41.48	\$41.48										70
		Data + Phone	3	\$42.58	\$54.78	\$71.05	\$115.78	\$11.58	\$27.39	\$27.18	\$42.58	1 024	2 048	4 437	10 240	0%	
		Data + Video	3	\$65.76	\$77.96	\$94.23	\$138.96	\$13.90	\$38.98	\$39.55	\$65.76	1 024	2 048	4 437	10 240	0%	70
		Phone + Video	1	\$59.78	\$59.78	\$59.78	\$59.78										70
		Data + Phone + Video	6	\$60.88	\$90.16	\$106.02	\$158.49	\$15.73	\$54.51	\$50.64	\$84.62	1 024	1 536	4 267	10 240	0%	98
		Megacable Total		18													
	Telmex	Data	3	\$47.46	\$73.08	\$80.81	\$121.88	\$3.48	\$36.54	\$38.16	\$47.46	1 024	2 048	2 389	4 096	0%	
		Phone	1	\$23.06	\$23.06	\$23.06	\$23.06		\$0.00	\$0.00							
		Data + Phone	3	\$47.46	\$73.08	\$80.81	\$121.88	\$3.48	\$36.54	\$38.16	\$47.46	1 024	2 048	2 389	4 096	0%	
		Telmex Total		7													
	Mexico Total		47														

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Netherlands	KPN	Data	3	\$26.04	\$37.62	\$39.54	\$54.98	\$2.75	\$4.70	\$5.38	\$8.69	3 072	8 192	10 581	20 480	0%		
		Phone	2	\$12.67	\$17.33	\$17.33	\$21.99											
		Video	1	\$40.45	\$40.45	\$40.45	\$40.45	\$13.48	\$13.48	\$13.48	\$13.48						50	
		Data + Phone	3	\$40.51	\$57.87	\$56.42	\$70.89	\$2.36	\$7.23	\$7.70	\$13.54	3 072	8 192	13 995	30 720	0%		
		Data + Video	6	\$40.45	\$64.35	\$68.93	\$115.74	\$1.53	\$2.15	\$4.62	\$13.48	3 072	30 720	30 891	61 440	0%	62	
		Data + Phone + Video	8	\$52.08	\$72.34	\$76.32	\$127.31	\$1.77	\$2.63	\$6.83	\$17.36	3 072	30 720	27 392	61 440	0%	70	
	KPN Total		23															
	UPC	Phone	1	\$30.90	\$30.90	\$30.90	\$30.90											
		Video	1	\$19.33	\$19.33	\$19.33	\$19.33											30
		Data + Video	15	\$40.16	\$54.05	\$62.46	\$100.35	\$0.84	\$1.80	\$2.77	\$9.19	5 120	30 720	51 200	122 880	0%	30	
		Phone + Video	1	\$30.90	\$30.90	\$30.90	\$30.90											
		Data + Phone + Video	11	\$45.95	\$71.41	\$68.26	\$88.77	\$0.99	\$1.29	\$2.22	\$9.19	5 120	61 440	49 804	92 160	0%		
	UPC Total		29															
	Ziggo	Video	1	\$18.81	\$18.81	\$18.81	\$18.81											60
		Data + Video	6	\$39.97	\$50.58	\$53.41	\$69.68	\$2.79	\$5.06	\$7.06	\$13.32	3 072	10 240	12 971	25 600	0%		
		Phone + Video	2	\$30.32	\$30.32	\$30.32	\$30.32											60
		Data + Phone + Video	6	\$46.24	\$59.48	\$61.86	\$80.24	\$1.53	\$4.66	\$10.23	\$3.83	1 536	15 360	18 688	51 200	0%	60	
	Ziggo Total		15															
Netherlands Total		67																
New Zealand	Telecom	Phone	1	\$26.96	\$26.96	\$26.96	\$26.96											
		Data + Phone	15	\$52.60	\$67.40	\$68.16	\$84.70	\$2.27	\$2.92	\$3.57	\$13.16	4 096	24 576	23 211	24 576	80%		
	Telecom Total		16															
	TelstraClear	Data	5	\$35.27	\$70.58	\$80.20	\$147.60	\$5.13	\$7.06	\$7.31	\$9.63	4 096	10 240	12 083	25 600	100%		
		Phone	2	\$23.72	\$26.30	\$26.30	\$28.88											
		Data + Phone	19	\$46.15	\$67.40	\$76.06	\$171.32	\$2.11	\$3.26	\$6.38	\$23.76	2 048	24 576	19 025	25 600	100%		
		Phone + Video	2	\$50.19	\$50.19	\$50.19	\$50.19											38
		Data + Phone + Video	14	\$67.82	\$96.71	\$110.00	\$192.99	\$7.72	\$14.16	\$16.54	\$33.92	2 048	10 240	9 509	25 600	100%	38	
	TelstraClear Total		42															
	Vodafone	Phone	1	\$25.68	\$25.68	\$25.68	\$25.68											
Data + Phone		6	\$44.93	\$51.35	\$51.35	\$57.77	\$1.87	\$2.14	\$2.14	\$2.48	24 576	24 576	24 576	24 576	100%			
Vodafone Total		7																
New Zealand Total		65																

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Country Norway	Company Get	Data	11	\$21.37	\$48.11	\$55.00	\$128.75	\$2.57	\$6.12	\$7.94	\$21.82	1 250	7 168	14 749	51 200	0%		
		Video	1	\$24.27	\$24.27	\$24.27	\$24.27										32	
		Data + Phone	12	\$21.37	\$45.48	\$52.20	\$128.75	\$2.57	\$6.12	\$7.94	\$21.82	1 250	7 168	14 749	51 200	0%		
		Data + Video	11	\$45.64	\$72.37	\$79.27	\$153.02	\$3.63	\$9.59	\$13.92	\$41.70	1 250	7 168	14 749	51 200	0%	55	
		Phone + Video	1	\$45.64	\$45.64	\$45.64	\$45.64										55	
		Data + Phone + Video	14	\$45.64	\$77.90	\$82.05	\$153.02	\$3.63	\$7.33	\$12.41	\$41.70	1 250	12 544	15 209	51 200	0%	55	
		Get Total	50															
	Lyse	Data	3	\$48.21	\$75.06	\$92.99	\$155.70	\$2.52	\$3.11	\$3.48	\$4.82	10 240	30 720	30 720	51 200	0%		
		Phone	1	\$15.03	\$15.03	\$15.03	\$15.03											
		Video	1	\$26.74	\$26.74	\$26.74	\$26.74										47	
		Data + Phone	3	\$63.25	\$90.09	\$108.02	\$170.73	\$3.35	\$3.41	\$4.25	\$6.32	10 240	30 720	30 720	51 200	0%		
		Data + Video	3	\$74.95	\$101.80	\$119.73	\$182.44	\$3.39	\$3.65	\$4.85	\$7.50	10 240	30 720	30 720	51 200	0%		
		Data + Phone + Video	3	\$89.98	\$116.83	\$136.91	\$203.91	\$3.89	\$4.08	\$5.66	\$9.00	10 240	30 720	30 720	51 200	0%	47	
		Lyse Total	14															
	Telenor	Data	3	\$48.21	\$58.95	\$85.47	\$149.26	\$2.36	\$2.99	\$3.79	\$6.27	8 192	25 600	28 331	51 200	0%		
		Phone	3	\$9.56	\$17.07	\$17.79	\$26.74											
		Video	2	\$21.37	\$25.40	\$25.40	\$29.42										27	
		Data + Phone	14	\$33.18	\$47.76	\$58.73	\$150.33	\$2.42	\$5.43	\$8.49	\$25.28	1 536	16 384	14 895	51 200	0%		
		Data + Video	7	\$53.47	\$69.58	\$87.08	\$170.63	\$3.21	\$6.70	\$10.65	\$35.65	1 536	16 384	17 774	51 200	0%		
		Data + Phone + Video	7	\$54.55	\$70.66	\$88.16	\$171.70	\$3.26	\$6.76	\$10.83	\$36.37	1 536	16 384	17 774	51 200	0%		
		Telenor Total	36															
Norway Total			100															
Poland	Dialog	Data	4	\$21.76	\$41.67	\$39.58	\$53.24	\$4.44	\$12.59	\$18.28	\$43.52	512	5 120	5 760	12 288	0%		
	Dialog Total		4															
	TP	Phone	2	\$23.15	\$32.41	\$32.41	\$41.67											
		Data + Phone	12	\$41.21	\$50.47	\$54.71	\$80.56	\$13.43	\$74.54	\$90.09	\$183.34	256	768	1 707	6 144	0%		
		Phone + Video	1	\$37.04	\$37.04	\$37.04	\$37.04										34	
		Data + Phone + Video	12	\$50.88	\$63.61	\$63.23	\$76.35	\$31.23	\$62.46	\$70.94	\$129.54	512	1 024	1 195	2 048	0%	34	
	TP Total		27															
	UPC	Data	5	\$25.46	\$41.67	\$50.00	\$92.60	\$0.77	\$1.39	\$2.14	\$5.93	5 120	30 720	45 056	122 880	0%		
		Phone	1	\$18.52	\$18.52	\$18.52	\$18.52											
		Video	1	\$30.09	\$30.09	\$30.09	\$30.09										80	
		Data + Phone	5	\$46.30	\$60.19	\$68.98	\$111.12	\$0.93	\$2.01	\$3.44	\$9.26	5 120	30 720	45 056	122 880	0%		
Data + Video		5	\$57.87	\$71.76	\$80.56	\$122.69	\$1.22	\$2.39	\$4.20	\$11.57	5 120	30 720	45 056	122 880	0%			
Phone + Video		1	\$48.61	\$48.61	\$48.61	\$48.61	\$9.72	\$9.72	\$9.72	\$9.72								
	Data + Phone + Video	5	\$76.39	\$90.28	\$99.08	\$141.21	\$1.18	\$3.01	\$5.42	\$15.28	5 120	30 720	45 056	122 880	0%			
	UPC Total	23																
Poland Total			54															

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Country	Company	Included services	Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels	
Portugal	Clix	Data	1	\$28.48	\$28.48	\$28.48	\$28.48	\$1.19	\$1.19	\$1.19	\$1.19	24 576	24 576	24 576	24 576	100%		
		Data + Phone	9	\$1.57	\$46.15	\$46.38	\$74.64	\$0.64	\$1.36	\$1.30	\$2.37	24 576	30 720	55 296	102 400	67%		
		Data + Video	1	\$42.71	\$42.71	\$42.71	\$42.71										0%	60
		Phone + Video	5	\$42.71	\$56.95	\$56.17	\$74.64											90
		Data + Phone + Video	6	\$56.95	\$72.91	\$74.10	\$96.01	\$0.96	\$2.19	\$2.23	\$3.56	24 576	27 648	43 008	102 400	33%	70	
	Clix Total			22														
	Portugal Telecom	Data	6	\$28.48	\$34.71	\$36.07	\$49.13	\$1.48	\$2.89	\$3.44	\$7.12	4 096	12 288	14 336	24 576	0%		
		Phone	1	\$17.93	\$17.93	\$17.93	\$17.93											
		Video	1	\$21.35	\$21.35	\$21.35	\$21.35											25
		Data + Phone	7	\$50.11	\$57.24	\$58.42	\$70.77	\$0.63	\$4.18	\$4.97	\$12.53	4 096	12 288	26 917	102 400	0%		
		Data + Video	3	\$63.73	\$65.87	\$71.98	\$86.35	\$0.86	\$3.19	\$2.45	\$3.29	20 480	20 480	47 787	102 400	0%		90
		Phone + Video	5	\$42.85	\$49.31	\$49.89	\$58.32											74
		Data + Phone + Video	9	\$63.73	\$77.31	\$79.52	\$99.99	\$1.00	\$3.98	\$6.72	\$16.95	4 096	20 480	27 193	102 400	0%		79
	Portugal Telecom Total			32														
	ZON TV Cabo	Video	3	\$16.01	\$34.10	\$30.45	\$41.23											67
		Phone + Video	1	\$45.46	\$45.46	\$45.46	\$45.46											65
		Data + Phone + Video	40	\$53.28	\$85.33	\$115.95	\$359.54	\$0.36	\$1.08	\$5.41	\$26.64	2 048	76 800	172 749	1 024 000	20%		84
	ZON TV Cabo Total			44														
Portugal Total			98															
Slovak Republic	Swan / Max Multimedia	Data	19	\$15.71	\$31.46	\$62.70	\$568.70	\$0.57	\$5.30	\$6.99	\$18.88	1 024	6 144	64 781	1 024 000	5%		
		Phone	1	\$15.80	\$15.80	\$15.80	\$15.80											
		Video	1	\$10.53	\$10.53	\$10.53	\$10.53											16
		Data + Video	2	\$42.25	\$42.25	\$42.25	\$42.25	\$2.11	\$2.46	\$2.46	\$2.82	15 360	17 920	17 920	20 480	0%		63
		Data + Phone + Video	5	\$31.46	\$51.82	\$49.47	\$68.21	\$1.14	\$2.59	\$8.12	\$31.46	1 024	20 480	25 190	61 440	0%		54
	Swan / Max Multimedia Total			28														
	T-Com	Data	16	\$19.64	\$29.37	\$30.52	\$41.95	\$0.52	\$9.91	\$8.49	\$16.76	2 048	2 816	12 608	81 920	31%		
		Phone	1	\$14.26	\$14.26	\$14.26	\$14.26											
		Video	4	\$14.07	\$16.86	\$18.25	\$25.22											30
		Data + Phone	16	\$18.18	\$41.84	\$42.12	\$54.42	\$0.68	\$13.96	\$11.90	\$22.99	2 048	2 816	12 608	81 920	31%		
		Data + Video	20	\$32.05	\$54.49	\$55.51	\$68.29	\$0.85	\$10.86	\$13.28	\$29.93	2 048	6 912	18 278	81 920	25%		45
		Data + Phone + Video	16	\$32.05	\$55.71	\$55.99	\$68.29	\$0.85	\$17.92	\$16.17	\$29.93	2 048	2 816	12 608	81 920	31%		
	T-Com Total			73														
	UPC	Data	5	\$20.71	\$36.64	\$38.87	\$63.72	\$0.54	\$1.22	\$3.09	\$1.35	2 048	30 720	45 466	122 880	0%		
		Phone	2	\$4.78	\$11.95	\$11.95	\$19.12											
		Video	4	\$7.46	\$19.91	\$18.41	\$26.38											30
		Data + Phone	5	\$25.49	\$41.42	\$53.16	\$116.05	\$0.88	\$1.38	\$3.80	\$12.74	2 048	30 720	45 466	122 880	0%		
		Data + Video	4	\$39.82	\$46.99	\$48.19	\$58.94	\$1.96	\$4.70	\$7.82	\$19.91	2 048	10 240	13 312	30 720	0%		48
Phone + Video		4	\$12.23	\$24.69	\$23.19	\$31.16											30	
Data + Phone + Video		9	\$35.05	\$58.94	\$60.53	\$93.99	\$0.78	\$5.10	\$6.78	\$2.79	2 048	10 240	31 175	122 880	0%		47	
UPC Total			33															
Slovak Republic Total			134															

			Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels	
Spain	Ono	Phone	1	\$38.52	\$38.52	\$38.52	\$38.52											
		Data + Phone	8	\$51.40	\$64.28	\$63.48	\$73.95	\$1.48	\$7.77	\$8.54	\$17.13	3 072	9 216	18 176	51 200	0%	40	
		Phone + Video	2	\$44.96	\$44.96	\$44.96	\$44.96											
		Data + Phone + Video	4	\$57.84	\$70.73	\$69.92	\$80.39	\$1.68	\$8.57	\$9.51	\$19.29	3 072	9 216	18 176	51 200	0%	40	
	Ono Total		15															
	Orange	Data + Phone	5	\$43.15	\$47.73	\$45.90	\$47.73	\$2.16	\$7.96	\$5.64	\$7.96	6 144	6 144	11 878	20 480	0%		
		Data + Phone + Video	4	\$43.15	\$43.15	\$43.15	\$43.15	\$2.16	\$2.16	\$2.16	\$2.16	20 480	20 480	20 480	20 480	0%	32	
	Orange Total		9															
	Telefonica	Phone	2	\$18.00	\$25.10	\$25.10	\$32.19											
		Data + Phone	8	\$43.63	\$59.41	\$57.16	\$66.18	\$6.62	\$27.01	\$29.29	\$56.52	1 024	3 584	4 608	10 240	25%		
Phone + Video		1	\$58.58	\$58.58	\$58.58	\$58.58										70		
Data + Phone + Video		5	\$66.18	\$66.18	\$68.24	\$71.33	\$7.13	\$11.03	\$9.47	\$11.30	6 144	6 144	7 782	10 240	0%	39		
Telefonica Total		16																
Spain Total			40															
Sweden	Bredbandsbolaget	Phone	1	\$5.40	\$5.41	\$5.40	\$5.40											
		Video	1	\$19.35	\$19.35	\$19.35	\$19.35											
		Data + Phone	12	\$24.75	\$34.54	\$33.60	\$43.13	\$0.35	\$2.22	\$3.73	\$12.38	2 048	18 432	34 816	102 400	0%		
		Data + Phone + Video	12	\$40.97	\$51.13	\$51.17	\$62.48	\$0.46	\$3.30	\$6.25	\$22.58	2 048	18 432	34 816	102 400	0%		
	Bredbandsbolaget Total		26															
	Com Hem AB	Data	8	\$10.70	\$28.67	\$28.74	\$43.13	\$0.86	\$3.10	\$6.93	\$21.42	512	10 240	15 680	51 200	0%		
		Phone	1	\$7.46	\$7.46	\$7.46	\$7.46											
		Video	1	\$4.22	\$4.22	\$4.22	\$4.22											9
		Data + Phone	6	\$15.67	\$34.37	\$32.34	\$50.59	\$1.12	\$5.96	\$10.90	\$36.32	512	6 144	15 104	51 200	0%		
		Data + Video	5	\$14.92	\$34.37	\$31.78	\$47.34	\$0.95	\$3.44	\$9.72	\$29.83	512	10 240	17 715	51 200	0%	9	
		Phone + Video	1	\$11.67	\$11.67	\$11.67	\$11.67										9	
		Data + Phone + Video	5	\$18.16	\$37.62	\$35.02	\$50.59	\$1.12	\$3.76	\$11.45	\$36.32	512	10 240	17 715	51 200	0%	9	
	Com Hem AB Total		27															
	Telia	Data	8	\$34.37	\$42.48	\$45.05	\$74.37	\$0.46	\$4.79	\$38.32	\$137.49	256	9 216	31 296	102 400	0%		
		Phone	3	\$15.67	\$15.67	\$18.02	\$22.70											
		Video	2	\$4.49	\$6.93	\$6.92	\$9.36											12
		Data + Phone	3	\$42.05	\$47.45	\$47.45	\$52.86	\$2.22	\$5.93	\$9.72	\$21.24	2 048	8 192	11 605	24 576	0%		
Data + Phone + Video		17	\$41.13	\$47.45	\$48.77	\$57.34	\$0.45	\$5.93	\$9.20	\$23.27	2 048	8 192	16 866	102 400	0%	6		
Telia Total		33																
Sweden Total			86															

## DSTI/ICCP/CISP(2010)2/FINAL

BSP/RCF/CBI (2019) / FINAL																	
Country	Company	Included services	Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels
Switzerland	Cablecom	Data		7	\$18.93	\$32.85	\$36.18		\$0.53	\$2.15	\$2.97	\$9.46	2 048	15 360	31 013	102 400	0%
		Phone		4	\$11.13	\$13.92	\$13.92	\$16.70									
		Video		1	\$13.19	\$13.19	\$13.19	\$13.19									
		Data + Phone		8	\$14.65	\$45.12	\$45.20	\$67.39	\$0.67	\$3.49	\$11.27	\$58.63	256	12 800	27 168	102 400	0%
		Data + Video		7	\$33.11	\$47.76	\$50.82	\$68.86	\$0.69	\$2.93	\$4.67	\$16.56	2 048	15 360	31 013	102 400	0%
		Data + Phone + Video		8	\$16.12	\$56.55	\$53.26	\$80.58	\$0.86	\$5.66	\$26.82	\$111.35	256	10 240	25 280	102 400	0%
	Cablecom Total			35													
	Sunrise	Data		1	\$46.30	\$46.30	\$46.30	\$46.30	\$3.86	\$3.09	\$3.09	\$3.86	15 360	15 360	15 360	15 360	0%
		Phone		1	\$16.99	\$17.00	\$16.99	\$16.99									
		Data + Phone		5	\$34.58	\$46.30	\$41.61	\$46.30	\$3.86	\$3.09	\$4.62	\$6.92	5 120	15 360	11 264	15 360	0%
	Sunrise Total			7													
	Swisscom	Data		4	\$29.74	\$35.53	\$36.08	\$43.51	\$7.27	\$19.22	\$20.11	\$34.72	1 024	3 072	3 072	5 120	0%
		Phone		1	\$14.80	\$14.80	\$14.80	\$14.80									
		Video		1	\$25.00	\$25.00	\$25.00	\$25.00									
		Data + Phone		5	\$29.74	\$36.33	\$39.91	\$55.23	\$2.76	\$8.70	\$16.64	\$34.72	1 024	5 120	6 554	20 480	0%
		Phone + Video		1	\$25.00	\$25.00	\$25.00	\$25.00									
		Data + Phone + Video		6	\$43.66	\$52.45	\$54.31	\$66.37	\$3.25	\$10.49	\$19.51	\$45.86	1 024	5 120	8 875	20 480	0%
	Swisscom Total			18													
Switzerland Total			60														
Turkey	Superonline	Data		7	\$34.65	\$49.06	\$58.72	\$92.69	\$4.34	\$11.59	\$18.31	\$48.87	1 024	8 192	5 705	8 192	14%
		Data + Phone		13	\$23.23	\$49.06	\$54.51	\$98.05	\$0.55	\$4.33	\$10.77	\$48.87	1 024	8 192	23 552	102 400	8%
	Superonline Total			20													
	Turk Telekom / TTNet	Data		10	\$23.88	\$46.44	\$56.51	\$113.46	\$2.98	\$5.35	\$11.88	\$37.36	1 024	8 192	9 318	30 720	40%
		Phone		1	\$7.68	\$7.68	\$7.68	\$7.68									
	Turk Telekom / TTNet Total			11													
	Turksat/Uydunet	Data		18	\$13.37	\$41.99	\$219.50	\$1,527.90	\$2.96	\$18.80	\$24.85	\$76.39	512	6 144	6 997	20 480	44%
		Video		2	\$5.76	\$6.79	\$6.79	\$7.82									
		Data + Video		18	\$13.37	\$41.99	\$219.50	\$1,527.90	\$2.96	\$18.80	\$24.85	\$76.39	512	6 144	6 997	20 480	44%
Turksat/Uydunet Total			38														
Turkey Total			69														

Country	Company	Included services	Offers/Combos evaluated (can include same package for multiple bundle definitions)	Minimum monthly price USD PPP	Median monthly price USD PPP	Average monthly price USD PPP	Maximum monthly price USD PPP	Minimum monthly price per advertised Mbit/s USD PPP	Median monthly price per advertised Mbit/s USD PPP	Average monthly price per advertised Mbit/s USD PPP	Maximum monthly price per advertised Mbit/s USD PPP	Minimum advertised download speed (kbit/s)	Median advertised download speed (kbit/s)	Average advertised download speed (kbit/s)	Maximum advertised download speed (kbit/s)	Percentage of data offers with explicit caps	Average number of television channels	
United Kingdom	BT	Phone		2	\$17.03	\$20.77	\$20.77	\$24.52										
		Data + Phone		7	\$39.22	\$48.11	\$46.42	\$54.05	\$1.96	\$2.41	\$2.32	\$2.72	20 480	20 480	20 480	20 480	71%	
		Data + Video		6	\$43.03	\$56.74	\$54.64	\$64.14	\$2.15	\$2.84	\$2.73	\$3.27	20 480	20 480	20 480	20 480	33%	
		Data + Phone + Video		4	\$60.05	\$63.94	\$67.28	\$81.17	\$3.27	\$3.20	\$3.36	\$4.58	20 480	20 480	20 480	20 480	50%	
	BT Total			19														
	Sky	Video		1	\$27.24	\$27.24	\$27.24	\$27.24										23
		Data + Video		3	\$34.81	\$42.38	\$42.38	\$49.95	\$2.50	\$4.24	\$8.05	\$17.45	2 048	10 240	10 923	20 480	67%	23
		Phone + Video		1	\$43.89	\$43.89	\$43.89	\$43.89										
		Data + Phone + Video		10	\$34.81	\$49.53	\$51.11	\$64.25	\$2.50	\$5.67	\$10.11	\$24.56	2 048	10 240	10 923	20 480	60%	23
	Sky Total			15														
	Virgin	Data		3	\$29.32	\$44.46	\$43.45	\$56.57	\$2.22	\$2.83	\$2.66	\$2.93	10 240	20 480	17 067	20 480	0%	
		Phone		1	\$21.87	\$21.87	\$21.87	\$21.87	\$0.44	\$0.44	\$0.44	\$0.44						
		Video		1	\$34.05	\$34.05	\$34.05	\$34.05										65
		Data + Phone		3	\$45.03	\$57.13	\$53.10	\$57.13	\$1.14	\$1.14	\$1.51	\$2.25	20 480	51 200	40 960	51 200	0%	
		Data + Video		1	\$46.92	\$46.92	\$46.92	\$46.92	\$4.69	\$4.69	\$4.69	\$4.69	10 240	10 240	10 240	10 240	0%	100
		Phone + Video		1	\$24.28	\$24.28	\$24.28	\$24.28										65
		Data + Phone + Video		4	\$36.13	\$47.86	\$48.75	\$63.13	\$1.26	\$3.11	\$2.96	\$4.37	10 240	15 360	23 040	51 200	0%	65
	Virgin Total			14														
	United Kingdom Total				48													
United States	AT&T	Data		3	\$25.00	\$30.00	\$30.00	\$35.00	\$5.83	\$10.00	\$10.83	\$16.67	1 536	3 072	3 584	6 144	0%	
		Phone		2	\$20.50	\$26.25	\$26.25	\$32.00										
		Video		2	\$49.00	\$49.00	\$49.00	\$49.00										100
		Data + Phone		2	\$50.50	\$55.50	\$55.50	\$60.50	\$2.17	\$26.92	\$26.92	\$33.67	1 536	2 304	2 304	3 072	0%	
		Data + Video		5	\$74.00	\$84.00	\$91.00	\$114.00	\$6.33	\$14.00	\$20.93	\$49.33	1 536	6 144	8 294	18 432	0%	130
		Data + Phone + Video		20	\$50.50	\$97.00	\$97.33	\$134.50	\$6.89	\$17.42	\$25.63	\$63.00	1 536	6 144	7 142	18 432	0%	130
	AT&T Total			34														
	Comcast	Data		5	\$24.95	\$52.95	\$55.60	\$99.95	\$2.00	\$2.65	\$6.96	\$24.95	1 024	20 480	23 142	51 200	0%	
		Video		1	\$25.49	\$25.49	\$25.49	\$25.49										61
		Data + Phone		7	\$49.90	\$59.91	\$72.33	\$124.90	\$2.50	\$3.90	\$12.78	\$49.90	1 024	20 480	23 142	51 200	0%	
		Data + Video		5	\$49.90	\$77.90	\$79.30	\$124.90	\$2.50	\$3.90	\$12.78	\$49.90	1 024	20 480	23 142	51 200	0%	61
		Phone + Video		1	\$108.39	\$108.39	\$108.39	\$108.39										
		Data + Phone + Video		7	\$74.64	\$107.00	\$106.36	\$149.85	\$3.00	\$6.22	\$15.72	\$74.85	1 024	15 360	20 480	51 200	0%	66
	Comcast Total			26														
	Verizon	Data		6	\$19.99	\$47.84	\$59.62	\$144.95	\$2.68	\$4.83	\$7.54	\$19.99	1 024	11 264	17 237	51 200	0%	
		Phone		3	\$23.00	\$24.99	\$31.99	\$47.99										
		Video		1	\$47.99	\$47.99	\$47.99	\$47.99										
		Data + Phone		7	\$41.98	\$71.98	\$76.48	\$141.94	\$2.84	\$3.47	\$6.41	\$2.84	3 072	15 360	20 480	51 200	0%	
		Data + Video		1	\$84.99	\$84.99	\$84.99	\$84.99	\$3.40	\$3.40	\$3.40	\$3.40	25 600	25 600	25 600	25 600	0%	
		Phone + Video		1	\$79.99	\$79.99	\$79.99	\$79.99										
		Data + Phone + Video		2	\$88.74	\$94.37	\$94.37	\$99.99	\$6.67	\$18.12	\$18.12	\$29.59	3 072	9 216	9 216	15 360	0%	200
	Verizon Total			21														
	United States Total				81													
Grand Total				2050														



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