

A4. Analysis of provider data

Introduction

- A4.1 In order to determine whether some groups of customers pay different prices for similar services, even within the same provider, as well as to establish whether vulnerable customers are paying higher prices, we collected customer level data from the largest providers of fixed broadband.
- A4.2 Using customer level data allows us to compare prices for *similar services*, which is important because calculating and comparing simple averages may lead to erroneous conclusions due to potential product-mix effects. If, for example, one group of customers buys more expensive products, e.g. higher speed broadband, the average price of that group will be higher than that of another group that buys lower speed products, but the difference in average prices between two groups stems from the choice of product and not from other characteristics that may distinguish the two groups (such as contract status, or age, for example).¹ Just using aggregate pricing data by contract status would not allow us to compare like-for-like.
- A4.3 Our approach is therefore to compare prices for products with similar characteristics such as speed, tariff (by which we mean whether broadband is purchased stand-alone, with fixed voice (dual play) or also with pay-TV (triple play),² and data allowance.
- A4.4 This Annex is structured as follows:
- a) First, in paragraphs 1.5-1.17, we describe the data we collected and the data cleaning steps we made.
 - b) Second, in paragraphs 1.18-1.41, we present our analysis of average prices and price differentials across providers and product characteristics.
 - c) Third, in paragraphs 1.42-1.78, we analyse the relationship between vulnerability indicators and contract status, prices and price differentials.
 - d) Fourth, in paragraphs 1.79-1.110, we examine whether customers in some areas (without availability of super-fast broadband, for example) are more likely to have a certain contract status or pay higher or lower prices compared to customers in other areas.

¹ It is another potentially important question whether group characteristics determine or influence the choice of the product. While our main question is which groups pay higher prices for comparable products, we also highlight in the following sections when some groups are more likely to buy services of lower speeds.

² Quad play tariffs were excluded due to the small numbers of consumers who purchase their broadband services in this way.

Data collection

- A4.5 We collected customer level data from BT, EE, Plusnet, Sky, TalkTalk and Virgin Media. Data was collected in two stages. First, in February 2019, we obtained customer-level data for all fixed broadband customers as of November 2018 covering product characteristics and prices. Then, in April 2019 we received additional data for the same customers, now with customer characteristics such as postcode, age, disability and other types of vulnerability. We matched the two datasets using unique customer identifiers assigned to each customer by providers who compiled the data.
- A4.6 For each customer we collected the following information³:
- a) Customer ID;
 - b) Product name;
 - c) Tariff (standalone broadband, dual play or triple play);
 - d) Advertised speed;
 - e) Technology used;
 - f) Data allowance per month;
 - g) Date of current/latest contract;
 - h) Minimum contract duration;
 - i) Date of first contract with current provider;
 - j) Monthly payment for broadband in November 2018.
 - k) Postcode of the customer;
 - l) Age (or an indicator that the customer is 65+);⁴
 - m) Vulnerability indicators.⁵
- A4.7 We used the information on dates of last/current contract, minimum contract duration and date of first contract in order to classify all customers into one of three groups:
- a) Out-of-of contract customers (or OOC) are customers whose latest contract ended as of November 2018.
 - b) Customers in their first contract with the provider and whose minimum contract duration had not finished by November 2018 – for brevity we call this group “new customers” or NC.⁶

³ Here we only list characteristics we used in the analysis.

⁴ Date of birth, or age, or an indicator for 65+ were provided only by ✕, ✕ and ✕.

⁵ These vary by provider and are described in more detailed below.

⁶ Customers are classified as NC in our dataset if “date of current/latest contract” + “minimum contract duration” > November 2018, i.e. their contract would end after November 2018, and the date of their first contract with the current provider coincides with the date of their current/latest contract.

- c) Customers still in-contract with the provider (the minimum contract duration had not finished) as of November 2018, but for whom the latest contract was not their first contract with the provider – for brevity we call this group “re-contracted” or RC.⁷
- A4.8 In order for us to be able to compare prices across providers, as well as to simplify our analysis, we created the following bands of speeds to classify products (we also took into account average prices of products when creating these bands):
- a) <30Mbit/s
 - b) 30-55Mbit/s;
 - c) 56-100Mbit/s;
 - d) 101-200Mbit/s;
 - e) >200Mbit/s.
- A4.9 For some providers, the tariffs, speeds and data allowance types were dropped if there were very few customers which made like for like comparison difficult. Also, about 18 thousand observations with customers of unknown contract status were dropped from the dataset, which represents less than 0.1% of all customers. About 3% of BT Basic customers were excluded from the dataset as they pay a fixed price irrespective of contract status and their price is significantly lower than other customers, but eligibility is restricted (i.e. requires the customer to be in receipt of state income benefits). This was done so as not to distort average prices (as most broadband customers would not be eligible for BT Basic) and to obtain a consistent picture of prices by contract status. By excluding BT Basic customers from those out-of-contract (and assuming no other customers would be eligible), the price differentials reported here are very slightly higher compared to if we included them in the full dataset.⁸
- A4.10 Overall, across all providers about 1.6% customers were dropped in the final dataset compared to the initially received data. The final dataset has 21,646,213 records.
- A4.11 The overwhelming majority of customers in our dataset are on an unlimited data allowance. Only about 2.9% of customers have some sort of data cap. Data allowances vary by provider; some have only one type of capped data allowance while others have several. To simplify our analysis, we group products into two categories: unlimited and capped.
- A4.12 TalkTalk informed us that some legacy customers may have inclusive calls within their package bundle and these are not charged for separately as a call package and cannot therefore be split out from the data. We could not determine to which extent this may

⁷ Customers are classified as RC in our dataset if “date of current/latest contract” + “minimum contract duration” > November 2018, i.e. their contract would end after November 2018, and the date of their first contract with the current provider was earlier than the date of their current/latest contract, meaning that their current contract was not their first contract.

⁸ BT Basic customers in effect constitute a separate group as being on such a tariff requires meeting several criteria (see See BT, [BT Basic + Broadband](#) and KCOM, [Social Access Package](#)). Their prices do not increase when their minimum contract duration ends, and therefore for these customers price differentials are essentially zero. If we add all BT Basic customers to the dataset, then the proportion of OOC customers for BT increases very slightly, average OOC-NC and OOC-RC price differentials for BT decreases by 3% per month, and the average RC-NC price differential 3%.

influence the results of our analysis, or how many customers this affects. This means that the comparison between TalkTalk's out-of-contract prices and prices for new and re-contracted customers is not like-for-like.

Virgin Media data

- A4.13 Virgin Media could not provide us with the data on the separate “broadband-only” monthly payment for their dual- and triple-play customers and included billed calls as well as payment for TV packages in the monthly payment. This needs to be kept in mind when comparing Virgin Media's prices for dual and triple play tariffs with those of other providers.
- A4.14 For the calculation of aggregate and average price differentials for triple play customers of Virgin Media we used two approaches and presented a range (and in the following sections we will emphasise, where relevant, any distinction in our approach to the calculations):
- a) The upper bound represents price differentials for triple play customers as they are in the dataset, which is equivalent to attributing all the difference in prices between customers with different contract status to broadband services. This assumes that when customers go OOC, for example, the price rise is entirely attributed to the broadband component.
 - b) The lower bound represents a scenario when we used price differentials of dual play customers and applied them to triple play customers on the same combination of tariff, speed band and data allowance⁹. This was done in an attempt to strip out the effects of TV price changes on the price differentials. Given the limitations of the data we received, we believe this was the best approach.
- A4.15 Another issue with the Virgin Media data, potentially related to the inclusion of calls and TV packages in the monthly payment, is that there is large variation in prices within the same product segment.
- A4.16 For example, for the Virgin Media triple play tariff, unlimited data allowance, 51-100Mbit/s speed band, average prices by product name for OOC customers varied between £X and £X per month, and for NC customers – between £X and £X per month. In the presence of [£X] price variations, if we simply compare average OOC and NC prices for all customers on the triple play tariff, unlimited data allowance, 51-100Mbit/s speed band, we would fail to take account of product mix effects between the two groups – as one of these groups may on average buy more expensive products within the same product segment than the other group (with larger call or TV packages, for example).
- A4.17 To control for such product mix effects, for Virgin Media we calculate price differentials at the level of a specific combination of product name, tariff, data allowance and speed band. For other providers, product mix effects are not present to the same extent as for Virgin

⁹ For example, if for OOC customers on a dual play, unlimited data allowance, 30-55Mbit/s speed band, the average price differential between OOC and NC prices was £X, we applied this price differential of £X to triple play OOC customers with an unlimited data allowance, 30-55Mbit/s speed band.

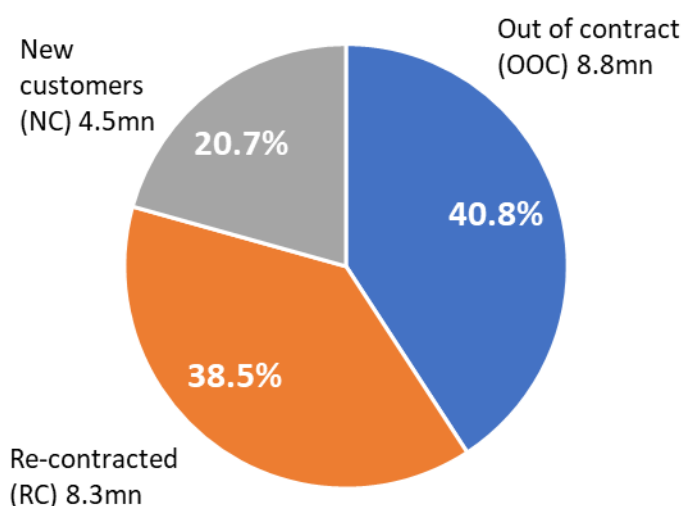
Media, and for other providers we calculate price differentials at the level of a specific combination of only tariff, data allowance and speed band (i.e. we do so across all products in such a combination).

Prices and contract status

Contract status

A4.18 Overall, we have 21.6 million customers in our dataset. Out of them, around 41% are OOC (out of contract), around 21% are NC (new customers), and around 39% are RC (re-contracted with the same provider).

Figure 1: Shares of customers by contract status, November 2018



A4.19 Shares of customers by contract status vary by provider, tariff and speed of service (see Tables 1 and 2).

Table 1: Shares of customers by contract status by provider and tariff type

	Tariff	Number of customers	% OOC	% RC	% NC
BT	TOTAL	✂	31%	57%	12%
BT	Dual	✂	✂	✂	✂
BT	Triple	✂	✂	✂	✂
EE	TOTAL	✂	28%	41%	32%
EE	Dual	✂	✂	✂	✂
EE	Triple	✂	✂	✂	✂
Plusnet	TOTAL	✂	41%	30%	29%
Plusnet	Dual	✂	✂	✂	✂
Plusnet	Standalone	✂	✂	✂	✂
Plusnet	Triple	✂	✂	✂	✂
Sky	TOTAL	✂	47%	28%	25%
Sky	Dual	✂	✂	✂	✂

Sky	Triple	✂	✂	✂	✂
TalkTalk	TOTAL	✂	26%	44%	30%
TalkTalk	Dual	✂	✂	✂	✂
TalkTalk	Triple	✂	✂	✂	✂
Virgin Media	TOTAL	✂	56%	26%	18%
Virgin Media	Dual	✂	✂	✂	✂
Virgin Media	Standalone	✂	✂	✂	✂
Virgin Media	Triple	✂	✂	✂	✂
TOTAL	All	21,646,213	41%	39%	21%

Note: Percentages may not always sum up to 100% due to rounding. All data allowance types.

Table 2: Shares of customers by contract status by provider and speed band

	Speed band	Number of customers	% OOC	% RC	% NC
BT	<30Mbit/s	✂	✂	✂	✂
	30-55Mbit/s	✂	✂	✂	✂
	56-100Mbit/s	✂	✂	✂	✂
	101-200Mbit/s	✂	✂	✂	✂
	>200Mbit/s	✂	✂	✂	✂
EE	<30Mbit/s	✂	✂	✂	✂
	30-55Mbit/s	✂	✂	✂	✂
	56-100Mbit/s	✂	✂	✂	✂
Plusnet	<30Mbit/s	✂	✂	✂	✂
	30-55Mbit/s	✂	✂	✂	✂
	56-100Mbit/s	✂	✂	✂	✂
Sky	<30Mbit/s	✂	✂	✂	✂
	30-55Mbit/s	✂	✂	✂	✂
	56-100Mbit/s	✂	✂	✂	✂
TalkTalk	<30Mbit/s	✂	✂	✂	✂
	30-55Mbit/s	✂	✂	✂	✂
	56-100Mbit/s	✂	✂	✂	✂
Virgin Media	<30Mbit/s	✂	✂	✂	✂
	30-55Mbit/s	✂	✂	✂	✂
	56-100Mbit/s	✂	✂	✂	✂
	101-200Mbit/s	✂	✂	✂	✂
	>200Mbit/s	✂	✂	✂	✂
Total	<30Mbit/s	7,089,945	51%	30%	19%
Total	=>30Mbit/s	14,556,268	36%	43%	22%
TOTAL	All speeds	21,646,213	41%	39%	21%

Note: Percentages may not always sum up to 100% due to rounding. All data allowance types and tariffs.

A4.20 There is some indication that customers on lower speed bands are more likely to be OOC.

Price levels

A4.21 Next, we examine how prices vary by contract status for a given tariff and speed band across the providers (Figures 2 and 3).

Figure 2: Average prices by provider and contract status, dual play, unlimited data¹⁰

[✂]

Figure 3: Average prices by provider and contract status, triple play, unlimited data¹¹

[✂]

A4.22 Figures 2 and 3 show that for all providers, tariffs and speed bands, average OOC prices are higher than average NC or RC prices, sometimes considerably so. Moreover, for many providers average OOC prices for standard broadband (with speeds of 30Mbit/s or less) are higher than NC prices for 30-55Mbit/s superfast products.

Price differentials

A4.23 While differences between average prices are informative, they do not show the full picture due to significant price variation. In order to analyse individual price differentials, for each OOC customer we calculate two measures:¹²

- a) OOC-NC price differential – the difference between their individual OOC price and the average NC price of a comparable product (same combination of tariff, speed band and data allowance);
- b) OOC-RC price differential – the difference between their individual OOC price and the average RC price of a comparable product.

A4.24 For each RC customer we calculate the RC-NC price differential, or the difference between their individual RC price and average NC price of a comparable product.

A4.25 For Virgin Media the methodology was slightly different as we calculated individual price differentials at the product level (i.e. comparator prices were calculated for the same combination of product name, speed band, tariff and data allowance) in order to control for product mix effects described earlier.

A4.26 Figures 4 and 5 show average price differentials for dual and triple play unlimited data allowances by provider and speed band. For all providers except Virgin Media, average price differentials are equal to the difference between the relevant average prices, so, for example the average OOC-NC price differential for a given provider, tariff and speed band

¹⁰ Virgin Media prices include billable calls.

¹¹ Virgin Media prices include billable calls and TV packages.

¹² Which measure is more appropriate to focus on depends on the relevant question. If we are interested in what price an OOC customer could pay if they re-contracted with the same provider (if comparison is made at an individual level we could assume no waterbed effect for simplicity), it would be appropriate to compare OOC and RC prices, for example, since many providers do not offer NC prices to RC customers. If we are interested in comparing deals to new customers (NC prices) and prices paid by OOC customers, we would look at OOC-NC differentials.

will be equal to the difference between average OOC and average NC prices for that provider and speed band.¹³

A4.27 For Virgin Media, due to the difference in methodology this equivalence does not hold at the level of tariff/speed band/data allowance (it would hold at the level of product name/tariff/speed band/data allowance), but in the presence of product mix effects average price differentials provide a more accurate picture (because this approach removes product mix effects) compared to a picture we would see if we just compared average prices.

Figure 4: Average monthly price differentials. Dual play, unlimited data

[X]

Figure 5: Average monthly price differentials. Triple play, unlimited data

[X]

A4.28 Figures 4 and 5 show there is variation among providers in the magnitude of price differentials. In particular, we note that X and X have quite low RC-NC price differentials, suggesting that re-contracting customers are able to get deals as good as or close to those offered to new customers. X also seems to have lower OOC-NC price differentials compared to other providers.

A4.29 Next, in order to get a sense of the magnitude of aggregate price differentials for all customers, we aggregate individual price differentials, and by multiplying them by 12 months arrive at the annual aggregate figures (Table 3).¹⁴

Table 3: Annual aggregate price differentials by provider (all tariffs, speed bands and data allowances)

	OOO customers, mn. (% of all customers)	Aggregate price diff. OOC-NC, 12 months, £mn	Aggregate price diff. OOC-RC, 12 months, £mn	RC customers, mn (% of all customers)	Aggregate price diff. RC-NC, 12 months, £mn	NC customers, mn, (% of all customers)
BT	X (31%)	X	X	X (57%)	X	X (12%)
EE	X (28%)	X	X	X (41%)	X	X (32%)
Plusnet	X (41%)	X	X	X (30%)	X	X (29%)
Sky	X (47%)	X	X	X (28%)	X	X (25%)
TalkTalk	X (26%)	X	X	X (44%)	X	X (30%)

¹³ To illustrate, if the average NC price is $Y^* = \sum Y_i / n$, where n is the number of NC customers in a given product segment, then for each OOC customer their individual OOC-NC price differential is $X_j - Y^*$, and if there are m OOC customers, then the average OOC-NC price differential in that product segment is $\sum(X_j - Y^*)/m$, but because Y^* is the same for all OOC customers in that group this is equivalent to $\sum X_j/m - Y^* = \sum X_j/m - \sum Y_i/n$, i.e. the difference between the average OOC price and the average NC price.

¹⁴ Aggregating individual price differentials and multiplying by 12 months is a reasonable approach to estimating aggregate price differentials experienced by a group of customers in a year, if we assume that November 2018 was a reasonably representative month, and customers go in and out of contract more or less evenly throughout a year. This calculation was done to obtain a sense of the order of magnitude and identify the main factors contributing to aggregate differentials (such as number of customers by contract status and average price differentials by provider).

VM*	✂ (56%)	✂	✂	✂ (26%)	✂	✂ (18%)
TOTAL*	8.8 (41%)	975 - 1,107	832 - 914	8.3 (39%)	322 - 366	4.5 (21%)

* Lower bound presents a scenario when for Virgin Media we apply average dual play price differentials to triple play customers in the same product segment, to attempt to exclude the TV component from prices. For the upper bound we use triple play differentials for triple play VM customers. VM dual and triple play numbers include call charges.

A4.30 Table 3 and Figure 6 show that the magnitude of the aggregate OOC-NC price differential is about £1-£1.1bn a year, with ✂, ✂ and ✂ contributing the most to this number. If instead we were to compare OOC and RC prices, the aggregate OOC-RC price differential is about £0.8-£0.9bn a year.¹⁵ The aggregate RC-NC price differential is about £0.3-£0.4bn a year.

Figure 6: Aggregate OOC-NC price differential by provider, £mn per year

[✂]

A4.31 As we saw above, average price differentials vary by tariff and speed. For illustrative purposes, in Table 4 we show average price differentials by provider. These average price differentials are calculated by averaging individual price differentials across all customers of a certain contract status for each provider, rather than as a difference between average prices of customers with different contract statuses.

Table 4: Average monthly price differentials per customer¹⁶

	Average individual price diff. OOC-NC		Average individual price diff. OOC-RC		Average individual price diff. RC-NC	
	£/month	As % of average NC spend	£/month	As % of average RC spend	£/month	As % of average NC spend
BT	£12.70	✂	£7.50	✂	✂	✂
EE	£7.10	✂	£7.50	✂	✂	✂
Plusnet	£9.40	✂	£6.50	✂	✂	✂
Sky	£6.90	✂	£5.50	✂	✂	✂
TalkTalk	£13.70	✂	£12.70	✂	✂	✂
Virgin Media*	£8.10-12.00	✂	£9.30-11.70	✂	✂	✂
TOTAL*	£9.20-10.40	30-35%	£7.90-8.60	20-22%	£3.20-3.70	11-12%

* The lower bound presents a scenario when for Virgin Media we apply average dual play price differentials to triple play customers in the same product segment, to attempt to exclude the TV component from prices. For the upper bound we use triple play differentials for triple play VM customers. VM dual and triple play numbers include call charges.

¹⁵ The OOC-NC differential does not equal the sum of the OOC-RC and RC-NC differentials because the RC-NC differential is calculated for a different group of customers to the other two (i.e. for RC customers, not OOC customers).

¹⁶ These are not differences between average prices by provider but rather averages of individual price differentials calculated according to our methodology explained above.

A4.32 While the average OOC-NC price differential across all providers is about £9-10 per month, it is higher for BT, TalkTalk and Virgin Media. As we saw in the previous charts, ☒, ☒ and ☒ have low RC-NC price differentials.

Variation in individual prices

A4.33 Further analysis of the data showed that there is also variation in prices at the individual level even within a group of customers of the same contract status. Figure 7 shows this variation for ☒, ☒, ☒ and ☒, unlimited data products of 30-55Mbit/s speed band, as an example.

Figure 7: Variation in individual customer prices by provider and contract status for dual play, unlimited data, 30-55Mbit/s speed band

[☒]

A4.34 For many product segments for many customers prices are quite concentrated around the average (i.e. mean or median), but in some cases there is wide variation. This suggests that while, for example, the average OOC price is always higher than the average RC price, there are some OOC customers paying less than some RC customers (and in some cases less than some NC customers) in the same product segment.

A4.35 Our calculations of aggregate price differentials in Table 3 took into account both customers for whom price differentials were positive (i.e. those whose prices are higher than the relevant average comparator price), and those for whom price differentials were negative. Table 5 below shows the relative sizes of these two groups of customers.

Table 5: Customers with positive and negative price differentials¹⁷

	OOO-NC price comparison for a comparable service		OOO-RC price comparison for a comparable service		RC-NC price comparison for a comparable service	
	% of OOC customers paying <u>less</u> than the average NC price	% of OOC customers paying <u>more</u> than the average NC price	% of OOC customers paying <u>less</u> than the average RC price	% of OOC customers paying <u>more</u> than the average RC price	% of RC customers paying <u>less</u> than the average NC price	% of RC customers paying <u>more</u> than the average NC price
BT	☒	☒	☒	☒	☒	☒
EE	☒	☒	☒	☒	☒	☒
Plusnet	☒	☒	☒	☒	☒	☒
Sky	☒	☒	☒	☒	☒	☒
TalkTalk	☒	☒	☒	☒	☒	☒

¹⁷ As before, we first calculate individual price differentials and then report proportions of customers with positive or negative price differentials by provider. For Virgin Media, the comparison is done by a combination of product/speed band/tariff/data allowance, while for other providers – by product segment (speed band/tariff/data allowance). For some providers in some product segments, the average comparable RC price is lower than the average comparable NC price, hence in some cases the share of OOC customers paying less than the NC price is larger than the share of OOC customers paying less than the relevant average RC price.

Virgin Media	✂	✂	✂	✂	✂	✂
TOTAL	12%	88%	10%	90%	33%	67%

A4.36 Table 5 shows that while about 12% of OOC customers currently have prices lower than the comparable average NC price for a similar service, for 88% of them the prices are higher. Given that for many providers RC prices are quite close to NC prices for comparable products, it is not surprising that about 33% of RC customers already pay less than the average NC price for a comparable service.

Customers who remain OOC for longer periods of time

A4.37 We have compared the proportion of customers by the length of time they remained OOC (as of November 2018) by provider. Given that in general OOC customers pay higher prices, the longer a customer remains OOC, the larger is the total amount of money they end up paying compared to what they could have paid if they re-contracted or switched.

A4.38 Overall, across all providers there are around 3.3 million OOC customers who have been OOC for more than 2 years. Overall, 41% of OOC customers have been OOC for up to 1 year, while 20% have been so for 1-2 years, and 37% for more than two years. Figure 8 shows how providers compare regarding the composition of their OOC customers by the length of time they have been OOC. ✂ and ✂ have around ✂ of their OOC customers staying OOC for more than 2 years, while for ✂, ✂ and ✂ this proportion is about ✂ and ✂ stands out with almost ✂ of longer-term OOC customers.

Figure 8: Shares of OOC customers by length of time they have been OOC

[✂]

A4.39 We have also looked at whether longer OOC duration is associated with higher prices for comparable services. Table 6 below shows the results of our analysis.

Table 6: Average effect of longer OOC tenure on price (£ per month)¹⁸

	1-2 years OOC compared to <1 year OOC	>2 years OOC compared to <1 year OOC
BT	✂	✂
EE	✂	✂
Plusnet	✂	✂
TalkTalk	✂	✂
Sky	✂	✂
VM-BB	✂	✂
VM-DP	✂	✂
VM-TP	✂	✂
Overall	£0.10 to £7.80	-£0.20 to £8.20

Note: "Overall" numbers present ranges of average effects for individual providers.

- A4.40 Table 6 shows weighted average differences between OOC prices for comparable services: the second column compares prices of OOC customers who have been OOC for 1-2 years and prices of OOC customers who have been OOC for up to a year, and the third column compares prices of OOC customers who have been OOC for more than 2 years and prices of OOC customers who have been OOC for up to a year.
- A4.41 While OOC customers who have been OOC for longer than 2 years do seem to pay on average higher prices than customers who went OOC less than a year ago, the magnitude of the price difference varies by provider (for ✂ it is ✂ whereas for ✂ the difference is ✂). Also, for some providers price differences seem higher for customers who have been OOC for 1-2 years than for customers who have been OOC for more than 2 years (e.g. ✂, ✂ and ✂).

Vulnerability and age

- A4.42 In this section we examine whether older customers, or customers with vulnerability indicators are more likely to be OOC and whether they pay higher prices compared to customers in general. Overall, in our dataset there are about 1.5 million potentially vulnerable OOC customers (including age as an indicator of potential vulnerability). Excluding age as an indicator of potential vulnerability, there are about 380,000 OOC customers with at least one vulnerability indicator.

¹⁸ These numbers come from a regression of individual OOC prices on a set of dummy variables for tariff, speed band and data allowance, as well as for OOC tenure (1-2 years or >2years). The numbers in the table are the coefficients for the dummy variables for the OOC tenure, where OOC tenure of up to 1 year is taken as the default. Coefficients of other variables are not shown. All coefficients in the table are significant at the 5% level. For Virgin Media we ran regressions for each tariff separately because dual and triple play prices include calls, and calls and TV, respectively. Virgin Media results are not entirely free from product mix effects for the same combination of speed, tariff and data allowance and should be interpreted with caution.

Age, contract status and prices

A4.43 We acknowledge that simply being aged 65 or older does not mean that a consumer is vulnerable. However, as we explain in Section 4, older consumers may find it more difficult to engage with providers and therefore get a good deal.

A4.44 Only 3, 4 and 5 provided us with data on their customers' date of birth, age or age band.¹⁹ Age data is missing for about 12% of 4 customers, for 3% of 3 customers and for 21% of 5 customers, so the analysis should be interpreted with some caution.

A4.45 Table 7 shows how many customers for each provider fall into 65+ or 75+ categories (75+ is a sub-group of 65+), what proportion of all customers they represent and how the shares of different contract status compare to the average for a given provider.

Table 7: Age categories by provider and shares of customers by contract status

	Indicator	Number of customers (% of all)	% who are OOC (% for customers of all ages)	>2 years OOC as % of all OOC (% for customers of all ages)	% who are RC (% for customers of all ages)	% who are NC (% for customers of all ages)
	3	3	3	(3)	3	(3)
	4	4	4	(4)	4	(4)
	5	5	5	(5)	5	(5)
	3	3	3	(3)	3	(3)
	4	4	4	(4)	4	(4)
	5	5	5	(5)	5	(5)
	3	3	3	(3)	3	(3)
	4	4	4	(4)	4	(4)
	5	5	5	(5)	5	(5)
Overall	Age 65+	2.9mn (17%)	46%	(41%)	42%	(37%)
			45%	(39%)	9%	(21%)

"Overall" numbers presented for comparison in brackets in the last row are for all consumers in the dataset and all providers together.

A4.46 For the three providers who hold age data combined, we observe that customers aged 65+ are more likely to be OOC and longer-term OOC, but also more likely to be RC, and consequently much less likely to be a new customer, compared to an average customer.

A4.47 The next question we asked was whether older customers pay higher (or perhaps lower) prices for similar products within the same contract status.

A4.48 In order to simplify this analysis, we ran a series of provider-specific regressions²⁰ of price levels for a given contract status²¹ (as well as different types of price differentials) on a number of dummy variables to control for speed band, tariff and data allowance, and then included a dummy variable for an age indicator (for example, 65+).

¹⁹ 3 provided an indicator whether a customer was 65+ or not.

²⁰ For [3].

²¹ Separate regressions were run for OOC prices, NC prices and RC prices.

A4.49 The estimate of the coefficient on the age dummy variable can be interpreted as the weighted average difference in the relevant prices (or price differentials, depending on the choice of the dependent variable) across all products after any differences that can be attributed to speed, tariff or data allowance have been removed. Table 8 below summarises our findings.

Table 8: Average differences in prices by contract status between older customers and others

Indicator	Number of customers (% of all)	Difference of prices (£/month) by contract status of the relevant age group compared to younger customers ²²		
		OOC	NC	RC
✂	✂	✂	✂	✂
✂	✂	✂	✂	✂
✂	✂	✂	✂	✂
✂	✂	✂	✂	✂
✂	✂	✂	✂	✂
✂	✂	✂	✂	✂
✂	✂	✂	✂	✂

Note: only coefficients significant at 5% level are shown. N/a means coefficient is not significant at 5% level.

A4.50 For ✂ and ✂ most estimates of the age-related price difference are below £1 in absolute terms, except for the ✂ RC price. Those aged 65+ with ✂ seem to pay on average ✂ a month more than those below 65 when re-contracting.

A4.51 For ✂ (see Table 9 below).

Table 9: ✂

A4.52 [✂] Table 10 below shows the results of regressions in price differentials as the dependent variable.

²² This means that for the 65+ the group of comparison is those younger than 65, and for 75+ the comparison is against those younger than 75.

Table 10: Comparison between price differentials of customers aged 65+ and others

Indicator		Number of customers (% of all)	Price differential (£/month) of the relevant age group compared to price differential for younger customers ²³		
			OOO-NC	OOO-RC	RC-NC
✂	✂	✂	✂	✂	✂
✂	✂	✂	✂	✂	✂
✂	✂	✂	✂	✂	✂
✂	✂	✂	✂	✂	✂
✂	✂	✂	✂	✂	✂
✂	✂	✂	✂	✂	✂
✂	✂	✂	✂	✂	✂

Note: only coefficients significant at 5% level are shown. N/a means coefficient is not significant at 5% level.

A4.53 [✂]The coefficients for ✂.²⁴ The coefficients for ✂ are very close to the results of regressions in terms of price levels (Table 8).

A4.54 Another price-related check we did was to investigate whether those aged 65+ are over- or under-represented among those customers who pay the highest prices or experience the highest price differentials. If 65+ customers pay in general similar prices to those younger than 65, then in each price band the proportion of 65+ customers will be close to their proportion among all customers.

A4.55 First, for each contract status (OOO/NC/RC) and each combination of tariff/speed band/data allowance we identified customers paying the highest prices (and OOO-NC price differentials). Then in this group viewed as a whole we calculated the proportion of those aged 65+. We present the results of this analysis in Table 11, looking at those in the top 10 and top 25 percentile by prices or OOO-NC price differentials.

Table 11: Proportions of customers aged 65+ among all customers and among those paying highest prices or price differentials

Indicator	% of 65+ among all consumers	% of 65+ among those paying prices (or price diff.) in Top 10 percentile	% of 65+ among those paying prices (or price diff.) in Top 25 percentile
Looking at those paying highest prices:			
✂ Age 65+	✂	✂	✂
✂ Age 65+	✂	✂	✂
✂ Age 65+	✂	✂	✂
Looking at those with highest OOO-NC price differentials:			
✂ Age 65+	✂	✂	✂
✂ Age 65+	✂	✂	✂
✂ Age 65+	✂	✂	✂

²³ This means that for the 65+ the group of comparison is those younger than 65, and for 75+ the comparison is against those younger than 75.

²⁴ ✂

A4.56 For \mathcal{X} , the proportion of those 65+ among customers paying the highest prices or price differentials is quite close to the proportion of 65+ among all customers. For \mathcal{X} , 65+ customers are under-represented in the group of customers paying the highest prices or price differentials. For \mathcal{X} , however, those aged 65+ are over-represented in the group with the highest prices or price differentials compared to their proportion among customers as a whole. This is consistent with our previous finding of higher prices for customers aged 65+ with \mathcal{X} .

Vulnerability and contract status

- A4.57 We asked providers to submit data on individual customers regarding any indicator that may help identify customers as vulnerable. Most of the data is self-reported by customers and so may understate the overall proportion of vulnerable customers. Also, indicators vary by provider and are not always strictly comparable.
- A4.58 Table 12 summarises the vulnerability indicators obtained from providers as well as the proportion of each provider's customers accounted for by each type of vulnerability. Overall, there are about 3.7mn customers in our dataset who are either aged 65+ (keeping in mind that only three providers submitted age data to us) or have at least one vulnerability indicator recorded, which represents 17% of all customers; if we exclude age as a potential vulnerability indicator, the number of vulnerable customers becomes 1.2mn (or 5.5% of all customers).
- A4.59 If we also exclude financial vulnerability indicators in addition to age, to approximate the number of customers with a disability, we get about 222,000 or 1% of all customers in our dataset.

A4.60 Next, we compared the proportions of vulnerable customers by their contract status and those proportions of all customers overall. For many vulnerability types there are no significant differences between, for example, the percentage of OOC customers among customers with a specific vulnerability flag and the percentage of OOC customers overall. At the same time, for some providers and types of vulnerability there were differences of more than 5 percentage points compared to the overall proportions among all customers by contract status, both positive and negative.

A4.61 Table 13 lists all the cases when the proportion of OOC customers was higher by 5 percentage points or more among vulnerable customers than among all customers, as well as cases of a higher proportion staying OOC for more than 2 years (we omitted cases when the number of vulnerable customers in a specific group was less than 1,000).

Table 13: Comparison of OOC shares and long term OOC shares among vulnerable customers and customers in general

Indicator	% among vulnerable	% among all customers
Higher % OOC:		
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
Higher % OOC >2 years (as % of OOC customers):		
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂

A4.62 For example, while ✂ of all ✂ customers are OOC, ✂ of customers with the ✂ are OOC.

A4.63 At the same time, for some types of vulnerability there is a higher likelihood of being in contract, being re-contracted or lower likelihood of being long-term OOC. Table 14 below shows all examples where differences are larger than 5 percentage points compared to the relevant share among all customers. (Again, we omitted cases when the number of vulnerable customers in a specific group was less than 1,000.)

Table 14: Comparison of RC, NC shares and long term OOC shares among vulnerable customers and customers in general

Indicator	% among vulnerable	% among all customers
Higher % re-contracted		
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
Higher % new customer		
✂	✂	✂
✂	✂	✂
✂	✂	✂
✂	✂	✂
Lower % of OOC >2years (out of all OOC)		
✂	✂	✂
✂	✂	✂

A4.64 For other types of vulnerability either differences are smaller than five percentage points, or the number of customers in those specific groups is very low so we cannot say with confidence that there are systematic differences. These results suggest that there is large variation in the likelihood of vulnerable customers to be in a specific contract status, both by provider and by type of vulnerability, and we do not observe a uniform pattern.

A4.65 Table 15 below shows a comparison of shares by contract status for customers with any vulnerability flags together (✂).

Table 15: Proportions of customers by contract status among vulnerable groups and all customers (numbers for all customers as a whole are shown in brackets)

Indicator		% OOC	>2 years OOC (as % of all OOC)	% RC	% NC
BT	Any	✂ (31%)	✂ (✂)	✂ (57%)	✂ (12%)
EE	Any	✂ (28%)	✂ (✂)	✂ (41%)	✂ (32%)
Plusnet	Any	✂ (41%)	✂ (✂)	✂ (30%)	✂ (29%)
Sky	Any	✂ (47%)	✂ (✂)	✂ (28%)	✂ (25%)
TalkTalk	Any	✂ (26%)	✂ (✂)	✂ (44%)	✂ (30%)
Virgin Media	Any	✂ (56%)	✂ (✂)	✂ (26%)	✂ (18%)
Overall	Any excl age	32% (41%)	45% (37%)	53% (39%)	15% (21%)

A4.66 Significant (by more than 5 percentage points) differences in proportions of contract status compared to customers as a whole are highlighted in bold font in Table 15. We do not observe a uniform pattern regarding vulnerable customers as a whole. In some cases vulnerable customers are more likely to be OOC (or longer-term OOC), in others – more likely to be RC or NC.

A4.67 While it is important to note that there is large variation across different types of vulnerability and likelihood of having a specific contract status, as described above, if we combine all types of vulnerability across all providers, we get the following picture (see Table 16):

Table 16: Proportions and numbers of customers by contract status by groups of vulnerability and overall

Group of customers	OOC %	RC %	NC %	OOC, mn.	RC, mn.	NC, mn.
Any vulnerability (except age)	32%	53%	15%	0.4	0.6	0.2
Any vulnerability (except age and financial vulnerability)	41%	47%	11%	0.1	0.1	0.02
Any vulnerability (including age and financial vulnerability)	43%	46%	11%	1.5	1.7	0.4
For comparison - all customers	41%	39%	21%	8.8	8.3	4.5

A4.68 Looking at all customers identified as potentially vulnerable across all providers combined, we note that they are only slightly more likely to be OOC (43% vs 41% of the general population of broadband customers). However, if we exclude the age flag, vulnerable customers are much less likely to be OOC (only 32% vs 41% of the population of broadband customers). Customers who are identified as vulnerable seem to be much more likely to be re-contracted compared to the general population (overall 46% vs 39% for the population of broadband customers, and even higher at 53% if we exclude age as a factor).

Vulnerability and prices

A4.69 Next, we examine whether prices paid by vulnerable customers, or price differentials, are significantly different from those paid by customers without vulnerability flags. As we have

a large number of vulnerability indicators for some providers, and some customers have several flags (one can be visually impaired and be registered for priority fault repair, for example), in order to keep our analysis tractable, we adopt a similar approach to our analysis of prices for customers aged 65+ above.

- A4.70 For each provider we run a series of regressions for the price related to each contract status (and for each type of price differential), controlling for tariff, speed band and data allowance, and now also adding vulnerability indicators.²⁵ For each regression we included dummy variables to represent different vulnerability indicators specific to each customer, which take the value 1 if a particular customer has that vulnerability flag recorded in their profile, and 0 otherwise. The total number of indicators added into a regression depends on the individual provider's data.
- A4.71 The estimate of the coefficients for these dummy variables can then be interpreted as the weighted average difference in the relevant prices (or price differentials, depending on the choice of the dependent variable) across all products after any differences that can be attributed to speed, tariff or data allowance have been removed, between customers with a specific vulnerability flag and customers without that flag. The coefficients are additive, and if a specific customer has two or more types of vulnerability flags, the coefficients need to be added to calculate a cumulative difference in price for that customer.
- A4.72 For a lot of vulnerable customers there are no appreciable differences in prices compared to the general population of broadband customers. We report the average differences in comparable prices between vulnerable and non-vulnerable customers in Table 17 below. For brevity we only list cases when the differences are larger than £1, coefficients are statistically significant, and the number of customers in the relevant vulnerability group is larger than 1,000.

²⁵ [3<]

Table 17: Types of vulnerability associated with largest positive or negative differences in prices compared to non-vulnerable customers

	Vulnerability indicator	Type of price	Average monthly £ difference between vulnerable and non-vulnerable
Cases of higher prices for vulnerable customers:			
✂	✂	OOC	✂
✂	✂	OOC	✂
✂	✂	OOC	✂
✂	✂	OOC	✂
✂	✂	OOC	✂
✂	✂	NC	✂
✂	✂	NC	✂
✂	✂	NC	✂
✂	✂	RC	✂
✂	✂	RC	✂
✂	✂	RC	✂
✂	✂	RC	✂
✂	✂	RC	✂
Cases of lower prices for vulnerable customers:			
✂	✂	NC	✂
✂	✂	RC	✂
✂	✂	RC	✂
✂	✂	RC	✂

* - For ✂ Note: Table only includes cases when the differences are larger than £1, coefficients are statistically significant at 5%, and the number of customers in the relevant vulnerability group is larger than 1,000.

A4.73 [✂]

Table 18: [£]

A4.74 ✂

A4.75 We also examined whether prices are different for customers with any vulnerability flag compared to customers without any vulnerability flag. This was done by running the regressions with only one vulnerability indicator with a value 1 if a customer has any vulnerability and 0 otherwise. The results are presented in Table 19 (only coefficients that are statistically significant at the 5% level are shown).

Table 19: Average differences in prices between groups of vulnerable customers [£] and other customers

Indicator		Average differences between prices for customers with at least one vulnerability indicator and customers without any vulnerability flags, £		
		OOO price	NC price	RC price
Sky	Any	✂	✂	✂
BT	Any	✂	✂	✂
TalkTalk	Any	✂	✂	✂
Plusnet	Any	✂	✂	✂
EE	Any	✂	✂	✂
VM-BB	Any	✂	✂	✂
VM-DP	Any	✂	✂	✂
VM-TP	Any	✂	✂	✂

[£] Coefficients with absolute value exceeding £1 are shown in bold font. Note: only coefficients significant at 5% level are shown. N/a means coefficient is not significant at 5% level.

A4.76 Looking at vulnerable customers as a whole, we note that for ✂, ✂, ✂ and ✂ the differences are quite small; for ✂ vulnerable customers pay on average about ✂ per month more than non-vulnerable in their first contract or if they are re-contracted (no significant difference for OOC); vulnerable customers of ✂ pay about ✂ more if they are OOC compared to non-vulnerable OOC customers. For ✂ customers the differences are very close to [£]

A4.77 We also investigated whether customers with at least one vulnerability flag are over- or under-represented among those customers who pay the highest prices (or experience the highest price differentials). We present the results of this analysis in Table 20, looking at those in the top 10 and top 25 percentile by prices (looking at all customers) or OOC-NC price differentials (looking at OOC customers only). We can see that for ✂ in particular vulnerable customers are over-represented among those customers with higher prices or price differentials and this seems primarily linked to age.

Table 20: Proportions of vulnerable customers among all customers, and among those paying the highest prices and price differentials

Indicator		% of vulnerable customers among all customers	% of vulnerable customers among those paying prices (or price diff.) in top decile	% of vulnerable customers among those paying prices (or price diff.) in top quartile
Looking at those paying highest prices:				
BT	Any	✂	✂	✂
EE	Any	✂	✂	✂
Plusnet	Any	✂	✂	✂
Sky	Any	✂	✂	✂
TalkTalk	Any	✂	✂	✂
VM	Any	✂	✂	✂
Overall	ANY excl age (and financial vulnerability for ✂)²⁶	5.3	3.8	3.9
Looking at those OOC customers with the highest OOC-NC price differentials:				
BT	Any	✂	✂	✂
EE	Any	✂	✂	✂
Plusnet	Any	✂	✂	✂
Sky	Any	✂	✂	✂
TalkTalk	Any	✂	✂	✂
VM	Any	✂	✂	✂
Overall	ANY excl age (and financial vulnerability for ✂)²⁷	4.2	4.8	4.4

Summary

A4.78 In summary, we do not see a uniform picture of impacts on customers by vulnerability indicator. Some vulnerable customers pay more, some pay less, for many there is no difference. The result that stands out is prices for ✂ for ✂ products – their prices seem on average higher than those ✂.

Geographical analysis

A4.79 In this section we concentrate on potential geographical differences in price levels, price differentials, or likelihood of having a particular contract status (i.e. OOC, NC, or RC). Customer-level data contains postcode information for most customers (fewer than 0.2%

²⁶ We exclude ✂ financially vulnerable from the overall number because prices for those customers include arrears.

²⁷ We exclude ✂ financially vulnerable from the overall number because prices for those customers include arrears.

of customers had missing postcode data). We used postcode data to match customers with specific geographic definitions that we wanted to test:

- a) Areas with high levels of deprivation;
- b) Areas with limited choice regarding provision of broadband;²⁸
- c) Areas with no or limited access to superfast broadband;
- d) Rural vs urban areas.

Areas with high levels of deprivation

- A4.80 In the absence of good customer-level information on individual financial vulnerability, we analysed whether customers in areas with high levels of deprivation are more likely to be out-of-contract or to pay higher prices. This is, of course, a simplification as not all customers living in those areas are financially vulnerable, but nevertheless they have a higher likelihood of being financially vulnerable.
- A4.81 We used statistical sources of England, Wales, Scotland and Northern Ireland that classify areas according to various indices of deprivation and looked at areas in the top 10 and top 25 percentiles in each nation with the highest deprivation in terms of income, employment and according to IMD (index of multiple deprivation which takes into account a combination of factors including income and employment).²⁹
- A4.82 To supplement this analysis, we also used data on the proportion of people in social grades DE in the population as a higher proportion for these social grades may be indicative of greater financial vulnerability.³⁰
- A4.83 Because there is a large overlap between areas defined as most deprived according to different measures (IMD, employment, income, DE share in the local population), the results are very similar for all the measures we used (including on the basis of the percentile threshold – i.e. 10th or 25th). We therefore only present our analysis for the areas in the top 10 percentile according to the IMD measure. In our dataset around 1.95 million customers live in such areas, which represents 9% of all customers.
- A4.84 Table 21 shows proportions of customers by contract status in such areas and how they compare to those proportions (by provider) in the rest of the UK. Overall, 39% of customers living in the top 10% deprived areas are OOC, compared to 41% in the rest of the UK.

²⁸ These are defined as Market A in the 2018 Wholesale Broadband Access review.

²⁹ Sources are as follows. England: [National Statistics, English indices of deprivation 2015](#). Scotland: [Scottish Index of Multiple Deprivation 2016](#). Northern Ireland: [Northern Ireland Multiple Deprivation Measure 2017](#). Wales: [Welsh Index of Multiple Deprivation 2014](#). We note that the data refers to different years for each nation, but we compare areas within each nation and not across nations using deprivation indices so this should not present concerns for the analysis presented here.

³⁰ Source: UK Data Service, [Approximated social grade \(Household Reference Persons\) 2011](#).

Table 21: Proportions of customers by contract status in more deprived areas and comparison with less deprived areas

	% by contract status in Top 10% deprived areas according to IMD			Differences in contract status % in Top 10% deprived areas compared to rest of UK (% points)		
	OOO	NC	RC	OOO	NC	RC
BT	✂	✂	✂	✂	✂	✂
EE	✂	✂	✂	✂	✂	✂
Plusnet	✂	✂	✂	✂	✂	✂
Sky	✂	✂	✂	✂	✂	✂
TalkTalk	✂	✂	✂	✂	✂	✂
VM-BB	✂	✂	✂	✂	✂	✂
VM-DP	✂	✂	✂	✂	✂	✂
VM-TP	✂	✂	✂	✂	✂	✂
VM-Total	✂	✂	✂	✂	✂	✂
Overall	39%	27%	34%	-2%	7%	-5%

Note: “Overall” differences in contract status shares do not correspond to a weighted average of individual providers’ differences in contract status shares. This is because individual differences compare proportions in two separate populations of very different sizes: in this Table they are more deprived and less deprived areas. “Overall” number compares proportions in contract status across all the UK in the same two populations, and the relationship between individual providers’ numbers and the overall number is not straightforward and depends on relative sizes of all groups involved in the calculation, in each area, for each provider and for each contract status.

A4.85 Across all providers, customers in more deprived areas are slightly less likely to be OOO, and more likely to be in their first contract.

A4.86 We also examined whether there are any differences in shares by contract status across different tariffs and speeds (see Figure 9). We can see that for all tariffs and speed bands the proportion of NC and, in some cases, RC customers is higher (so the difference is positive) in areas with higher deprivation.

Figure 9: Differences in contract shares in areas of higher deprivation compared to the rest of the UK, dual and triple play, unlimited data allowance

[✂]

A4.87 Next, we examine differences in prices in areas with higher deprivation compared to other areas. We do so using regression analysis, controlling for speed, data allowance and tariff, and adding a 0/1 indicator for each customer depending on their postcode (1 if they live in a deprived area and 0 otherwise). The results are presented in Table 22 (only results significant at the 5% level are shown).

Table 22: Average differences in prices in most deprived areas compared to the rest of the UK, and number of customers in those areas

	Average difference in prices in the top 10% deprived areas compared to the rest of UK, £			Number of customers in top 10% deprived areas	As % of customers by provider
	OOO price	NC price	RC price		
BT	£	£	£	£	£
EE	£	£	£	£	£
Plusnet	£	£	£	£	£
Sky	£	£	£	£	£
TalkTalk	£	£	£	£	£
VM-BB	£	£	£	£	£
VM-DP	£	£	£	£	£
VM-TP	£	£	£	£	£
Overall	£2.60 to £0.80	£0.50 to £1.20	£2.40 to £1.70	1,952,639	9.0%

Note: For Virgin Media we also ran a regression using price differentials as the dependent variable to remove potential product mix effects. All coefficients of those regressions were £ and ranged between £ and £.

- A4.88 Apart from customers with £, customers who live in more deprived areas seem to pay slightly lower prices compared to the rest of the UK.
- A4.89 We also examined whether there are any differences in price levels across different tariffs and speeds (see Figure 10). We can see that for [£] apart from £ and, to a lesser extent, £ for all speed bands, average prices are lower in the areas with higher deprivation. For [£].

Figure 10: Differences in price levels in areas of higher deprivation compared to the rest of the UK, dual and triple play, unlimited data allowance

[£]

Comparison between competitive and less competitive areas of the UK

- A4.90 Next, we turn our attention to less competitive areas of the UK, which we defined as the areas where we found there to be significant market power in the wholesale broadband access market in our most recent review of that market.³¹ One of the hypotheses we tested is whether customers in less competitive areas experience higher prices or are more likely to be OOC, given their limited choice of providers and because such areas are likely to be higher cost to serve than elsewhere.
- A4.91 There are around 170,000 customers in our dataset living in less competitive areas (which represents about 1% of all customers), £ of whom are BT main-brand customers, and about £ of whom buy their broadband from a BT brand, i.e. BT, EE or Plusnet.

³¹ We use wholesale broadband access (WBA) “Market A” as the area of limited competition. For exact definitions and more details, see [Ofcom, 31 July 2018, Wholesale Broadband Access Market Review 2018](#).

A4.92 Table 23 shows proportions of customers by contract status in less competitive areas and how they compare to those proportions (by provider) in the rest of the UK.

Table 23: Proportions of customers by contract status in less competitive areas and comparison with more competitive areas

	% by contract status in less competitive areas			Differences in contract status % in less competitive areas compared to more competitive areas (% points)		
	OOO	NC	RC	OOO	NC	RC
BT	✂	✂	✂	✂	✂	✂
EE	✂	✂	✂	✂	✂	✂
Plusnet	✂	✂	✂	✂	✂	✂
Sky	✂	✂	✂	✂	✂	✂
TalkTalk	✂	✂	✂	✂	✂	✂
Overall	37%	15%	49%	0%	-7%	6%

Note: Only providers with more than 1,000 customers in less competitive areas are shown. "Overall" differences in contract status shares do not correspond to a weighted average of individual providers' differences in contract status shares. This is because individual differences compare proportions in two separate populations of very different sizes: in this Table they are areas with more and less competition. "Overall" number compares proportions in contract status across all the UK in the same two populations, and the relationship between individual providers' numbers and the overall number is not straightforward and depends on relative sizes of all groups involved in the calculation, in each area, for each provider and for each contract status. Virgin Media is not shown in the table because its presence in less competitive areas is negligible (it is also not included in the "Overall" numbers for the same reason).

A4.93 For ✂, ✂, ✂ and ✂ the share of customers in less competitive areas who are OOO is slightly larger than the share of customers in competitive areas who are OOO. For ✂ the proportion of customers who are NC is much larger (by ✂ percentage points) in less competitive areas than in the rest of the UK.

A4.94 Next, we examine differences in prices in less competitive areas compared to the more competitive ones. We do so by again using regression analysis, controlling for speed, data allowance and tariff, and adding a 0/1 indicator for each customer depending on their postcode (1 if they live in less competitive areas and 0 otherwise). The results are presented in Table 24 (only results significant at the 5% level are shown).

Table 24: Average differences in prices in less competitive areas compared to more competitive areas, and corresponding number of customers

	Average difference in prices in less competitive areas compared to more competitive areas, £			Number of customers in less competitive areas	As % of customers by provider
	OOO price	NC price	RC price		
BT	£	£	£	£	£
EE	£	£	£	£	£
Plusnet	£	£	£	£	£
Sky	£	£	£	£	£
TalkTalk	£	£	£	£	£
Overall	£-1.10 to £5.60	£0.20 to £5.30	£0.50 to £5.60	170,743	0.8%

N/a means coefficient is not significant at the 5% level.

A4.95 We see that for the £, on average, there is no material difference in prices between areas with less competition and those with more competition.³² For [£], prices are sometimes higher. In particular, we note that £ prices are approximately £ higher in less competitive areas, and £ OOO prices are higher by about £ and £ OOO and RC prices, by about £-£.

A4.96 A review of competition in these geographic areas is outside the scope of our Fairness for Customers programme but periodic reviews of competition are undertaken in accordance with the EU regulatory framework for electronic communications networks and services. The last such review concluded in 2018, when the vast majority of premises in the UK were found to be in areas which are effectively competitive for the period up to 2021. We also said that we will carry out and notify the next review in line with our obligations under the EU framework and the Act.³³

Areas without superfast availability

A4.97 Next, we looked at areas with zero availability of superfast broadband (which we refer to as “SFBB 0 areas”). We took the postcodes in which zero percent of premises had SFBB availability according to Connected Nations data from February 2018.³⁴ We recognise that some of these areas may have been reached by superfast broadband rollout between February and November 2018.

A4.98 We concentrate on customers in these areas that are on speeds lower than 30Mbit/s (i.e. standard broadband).³⁵ There are around 615,000 such customers in our dataset, about £ of them (£) are served by BT’s main brand, and £ are with a BT Group provider (BT, Plusnet

³² Upon closer examination we did not see any evidence of significant differences if we also look at each tariff/speed band/data allowance.

³³ See [Ofcom, 31 July 2018, Wholesale Broadband Access Market Review 2018](#), footnote 54. The EU framework has now been updated and replaced by the EECC, as set out in Annex A1.

³⁴ See Ofcom, 18 December 2018, [Connected Nations 2018](#).

or EE). ✂ are with ✂. Table 25 below compares contract status shares among such customers with those in the rest of the UK. Overall, our data shows that around 270,000 standard broadband customers are out-of-contract in areas without superfast availability.

Table 25: Proportions of customers by contract status in areas without SFBB and comparison with the rest of the UK

	% by contract status in SFBB 0 areas (standard broadband customers)			Differences in contract status % for standard broadband customers in SFBB 0 areas compared to the rest of the UK (% points)		
	OOO	NC	RC	OOO	NC	RC
BT	✂	✂	✂	✂	✂	✂
EE	✂	✂	✂	✂	✂	✂
Plusnet	✂	✂	✂	✂	✂	✂
Sky	✂	✂	✂	✂	✂	✂
TalkTalk	✂	✂	✂	✂	✂	✂
Overall	44%	18%	38%	-7%	-1%	9%

Note: "Overall" differences in contract status shares do not correspond to a weighted average of individual providers' differences in contract status shares. This is because individual differences compare proportions in two separate populations of very different sizes: in this Table they are areas with and without SFBB availability. The "Overall" number compares proportions in contract status across all the UK in the same two populations, and the relationship between individual providers' numbers and the overall number is not straightforward and depends on relative sizes of all groups involved in the calculation, in each area, for each provider and for each contract status. Virgin Media is not shown in the table and is not included in the "Overall" numbers because it has no standard broadband customers in non-superfast areas.

A4.99 For all providers, standard broadband customers in areas without SFBB are less likely to be OOO, with differences ranging from -2 to -12 percentage points.

A4.100 Table 26 shows differences in prices for standard broadband products in areas without SFBB and the rest of the UK.³⁶

Table 26: Average differences in prices in areas without SFBB compared to the rest of the UK, and number of customers in those areas.

	Average difference in prices in SFBB 0 areas for standard broadband compared to the rest of UK, £			Number of standard broadband customers in SFBB 0 areas	As % of all standard broadband customers by provider
	OOO price	NC price	RC price		
BT	✂	✂	✂	✂	✂
EE	✂	✂	✂	✂	✂
Plusnet	✂	✂	✂	✂	✂
Sky	✂	✂	✂	✂	✂

³⁶ Here and in the next sections we use regression analysis, controlling for speed, data allowance and tariff, and adding a 0/1 indicator for each customer depending on their postcode (1 if they live in the relevant geographical area, SFBB 0 area in this case, and 0 otherwise).

TalkTalk	✂	✂	✂	✂	✂
Overall	-£0.50 to £1.30	-£0.10 to £1.50	£0.10 to £1.20	615,099	8.8%

N/a means coefficient is not significant at 5% level.

A4.101 Most price differences are below £1 in absolute terms. ✂ RC price is on average about ✂ higher ✂ in areas without SFBB, whereas ✂ NC and RC prices are higher ✂ by about ✂ - ✂ a month, as well as ✂ OOC price (by ✂).

A4.102 Figure 11 shows differences in contract status and price levels in areas without SFBB compared to the rest of the UK for dual play, unlimited data allowance, speeds of less than 30Mbit/s.

Figure 11: Differences in price levels and contract status in areas without SFBB compared to the rest of the UK, dual play, unlimited data allowance, <30Mbit/s, by provider

[✂]

Rural vs urban areas

A4.103 Next, we looked at rural areas and how they compare to urban areas.³⁷ Table 27 below compares contract status shares among customers in rural and urban areas.

Table 27: Proportions of customers by contract status in rural areas and comparison with urban areas

	% by contract status in rural areas			Differences in contract status % in rural areas compared urban (% points)		
	OOO	NC	RC	OOO	NC	RC
BT	✂	✂	✂	✂	✂	✂
EE	✂	✂	✂	✂	✂	✂
Plusnet	✂	✂	✂	✂	✂	✂
Sky	✂	✂	✂	✂	✂	✂
TalkTalk	✂	✂	✂	✂	✂	✂
VM-BB	✂	✂	✂	✂	✂	✂
VM-DP	✂	✂	✂	✂	✂	✂
VM-TP	✂	✂	✂	✂	✂	✂
VM-Total	✂	✂	✂	✂	✂	✂
Overall	36%	17%	47%	-6%	-4%	10%

A4.104 Differences in contract status shares between rural and urban areas are quite low, with the largest differences for OOO customers occurring for ✂ (rural customers are ✂ more likely to be OOO by ✂ percentage points) and ✂ customers (rural customers are ✂ likely to be OOO by ✂ percentage points).

³⁷ Urban/rural postcodes definitions were also taken from the February 2018 Connected Nations dataset.

A4.105 Table 28 shows differences in prices in rural areas and urban areas.

Table 28: Average differences in prices in rural areas compared to urban areas, and number of customers in those areas.

	Average difference in prices in rural areas compared to urban, £			Number of customers in rural areas	As % of all customers by provider
	OOO price	NC price	RC price		
BT	✂	✂	✂	✂	✂
EE	✂	✂	✂	✂	✂
Plusnet	✂	✂	✂	✂	✂
Sky	✂	✂	✂	✂	✂
TalkTalk	✂	✂	✂	✂	✂
VM-BB	✂	✂	✂	✂	✂
VM-DP	✂	✂	✂	✂	✂
VM-TP	✂	✂	✂	✂	✂
Overall	£0.10 to £1.90	-£0.60 to £1.10	£0.10 to £1.10	2,918,957	13.5%

Note: For Virgin Media we also ran a regression using price differentials as the dependent variable to remove potential product mix effects. ✂. N/a means coefficient is not significant at the 5% level.

A4.106 Most price differences are below £1 in absolute terms except for ✂ OOO price, ✂ NC price, and ✂ RC price.

Summary

A4.107 In summary, customers in more deprived areas are slightly less likely to be OOO compared to the rest of the UK and their average prices are slightly lower (when compared on a like-for-like basis); standard broadband customers in non-superfast areas are less likely to be OOO (and more likely to be re-contracted overall), and while they tend to pay slightly more than customers in areas with access to SFBB, the differences are small (typically up to £1 per month more).

A4.108 Other types of geographical analysis did not show appreciable differences in contract status shares.

A4.109 In relation to pricing, even if most customers in areas with limited competition pay about the same for their broadband as customers with the same provider [✂] in other areas, customers in areas with little or no retail competition nevertheless pay more for their broadband overall.³⁸

A4.110 This is primarily because a higher proportion than average of customers in these areas are with the BT main brand. BT's main brand typically charges higher prices than other providers for similar speed tariffs but it largely prices the same nationally [✂].

³⁸ There is a separate issue of these areas being higher cost to serve, which is outside the scope of this review.