The Communications Market in Scotland

1 The market context

1.1 Scotland: setting the scene

Key facts about Scotland

Figure	Scotland	UK
Population[1]	Total for Scotland: 5,194,000 City of Glasgow: 588,470 City of Edinburgh: 477,660 City of Aberdeen: 213,810	Approximately 8.4% of total UK population
Age profile[2]	Scotland has the youngest population in the UK, with 60% of people aged 15 – 44. It is also an ageing population, with the number of 60-74 year olds up 12 percent between 1999 and 2009. During this time the over 75 age group grew 14 percent.	15 – 44: 51% 45+: 49%
Language[3]	86,000 people in Scotland, 1.8% of the population in Scotland, say they have at least some competence in Gaelic.	n/a
Income[4]	Weekly household income: £611 Weekly household expenditure: £432.80	Weekly household income: £669 Weekly household expenditure: £459.70
Unemployment[5]	7.8%	8.0% (Labour Force Survey – December 2009 – February 2010

Sources: 1. Figures are estimates for 30 June 2009 from the General Register Office for Scotland 2. Figures compare 1999 to 2009 - General Register Office for Scotland. 3. 2001 Census. 4. ONS 5. Labour Force Survey – December 2009 – February 2010

A note on our research

A note on the Scotland survey data

We conducted a face-to-face survey of 9,013 adults in the UK, with 1,468 interviews conducted in Scotland. Fieldwork took place in January and February 2010.

Some of the survey data in this section of the report are split by geographic areas of Scotland.

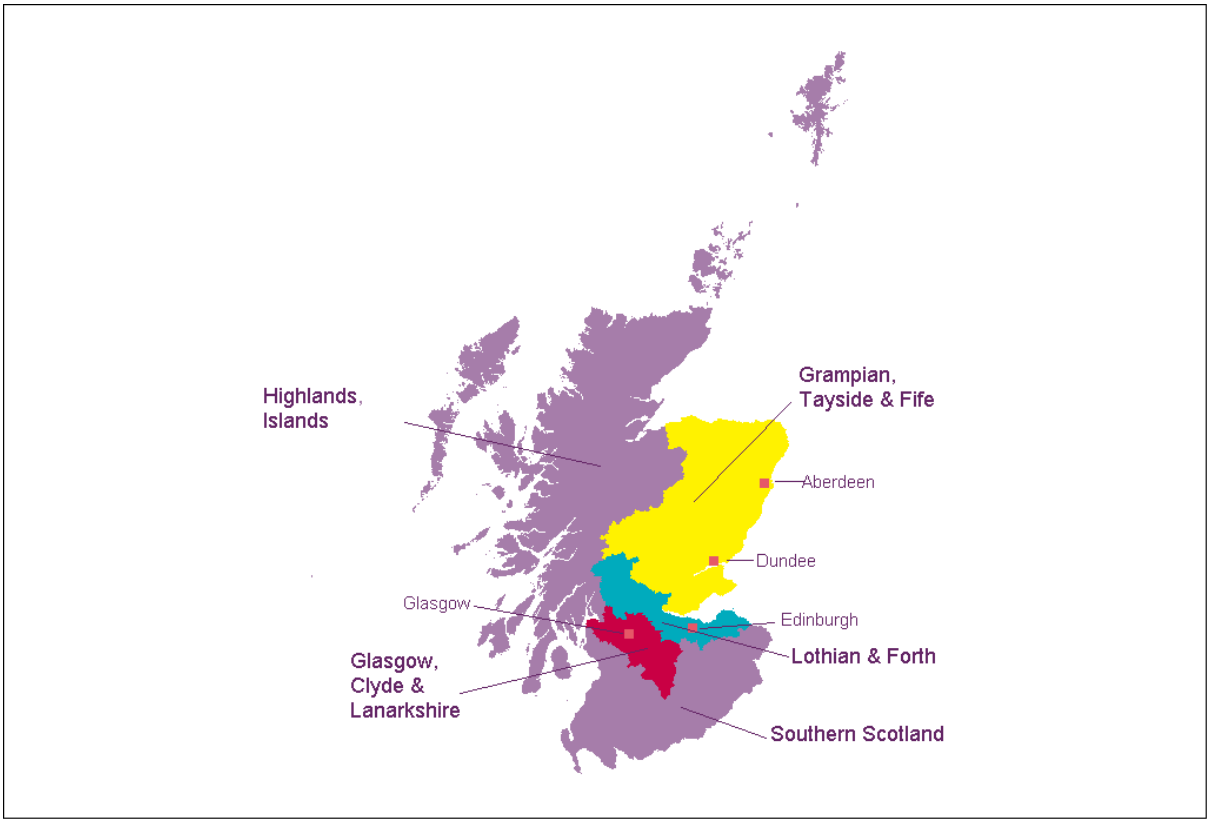
This year we report on wider geographic areas than in previous years, using larger sample sizes; this has the benefit of providing narrower error margins, which in turn improves the comparability of the results from different parts of Scotland.

In Scotland we have used Health Board geographic definitions to report on Glasgow, Clyde & Lanarkshire (sample size 368), Lothian & Forth Valley (sample size 357) Grampian, Tayside & Fife (sample size 363) and other areas of Scotland (sample size 380).

Respondents were defined as urban if they lived in a settlement with a population of 2000 or more and rural if they lived in areas with smaller populations.

In addition to the survey data, this section of the report refers to data from a range of other sources, including data provided to Ofcom by stakeholders.

Figure 1.1 Map of Scotland



Based on Ordnance Survey data and National Statistics Postcode Directory
Source: Ordnance Survey © Crown copyright 2010 and Office for National Statistics.

1.2 Scotland's communications market in the UK context

This section sets out a selection of headline figures for Scotland's communications market, putting them into a UK-wide context.

1.2.1 Availability of communications platforms and services in Scotland

Most homes in Scotland are connected to a broadband-enabled telephone exchange

Figure 1.2 illustrates the availability of communications services in Scotland. It compares coverage levels to the comparable figures for the other UK nations and the UK-wide average. With many communications services now well-established, service availability in Scotland changed little between 2009 and 2010.

Coverage of communications services in Scotland varied from universality for some, to those that extend to only a minority of the population:

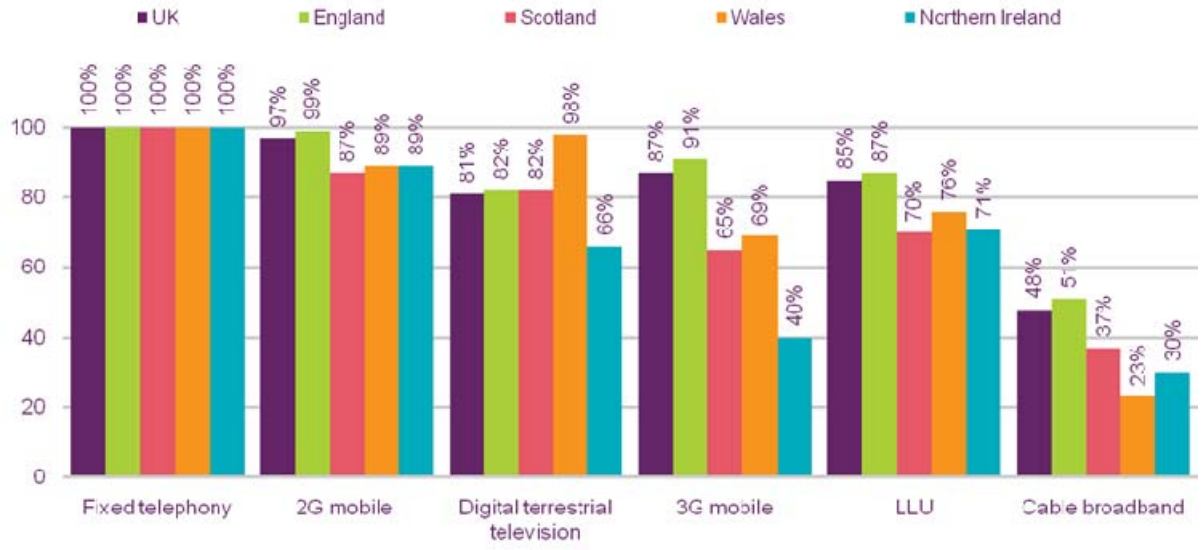
- Digital terrestrial television (DTV) availability, offering the full channel line-up, was available to 82% of Scotland's population in 2010. This figure is higher than for England or Northern Ireland; only coverage in Wales is higher, as a result of the completion of digital switchover. As switchover is completed in Scotland (by the end of 2011), DTV coverage will rise as the signal strength is increased.

- Broadband delivered over a standard fixed telephony line is available to most (99.86%) homes and commercial properties in Scotland. But factors such as line length and contention influence the actual broadband speed at customer premises. Cable broadband, offering access to a high-speed internet service, is available to 37% of homes in Scotland, the second-highest level of coverage in the UK after England (53%).

- 2G mobile services were available to 87% of the Scottish population; this was lower than in Northern Ireland or Wales. Population coverage in England was the highest among the four nations at 99%. 3G population coverage in Scotland is lower than 2G (at 66%). The service is more widely available in Scotland than it is in Northern Ireland (40%); coverage in Wales and England is higher (69% and 91% respectively).

- The universal service obligation on fixed-line telephony services and dial-up internet access means that it is available to all premises in Scotland, in common with the other UK nations.

Figure 1.2 Communications infrastructure availability across the UK's nations, 2010



Sources: Ofcom
1. Proportion of population living in postal districts where at least one operator reports at least 90% 2G area coverage. Sourced from GSM Association / Europa Technologies (Q1 2008). Note that coverage data has been restated; this means that year-on-year comparisons are not possible.
2. Proportion of population living in postal districts where at least one operator reports at least 90% 3G area coverage. Sourced from GSM Association / Europa Technologies (Q1 2008). Note that coverage data has been restated; this means that year-on-year comparisons are not possible.
3. Proportion of premises able to receive DSL services based on data reported by BT
4. Proportion of households passed by Virgin Media's broadband-enabled network
5. Proportion of households connected to an LLU-enabled exchange
6. Availability of at least 17 services. Ofcom estimates.
7. New DAB coverage estimates are forthcoming. Ofcom is currently leading a process to consider the future spectrum planning requirements of digital radio, to prepare for the digital radio upgrade and to make recommendations to Ministers.

1.2.2 Take-up of communications platforms and services in Scotland

Take-up of fixed telephone lines in Scotland is low relative to the UK average

Take-up of communications services in Scotland remained relatively flat year on year (Figure 1.3):

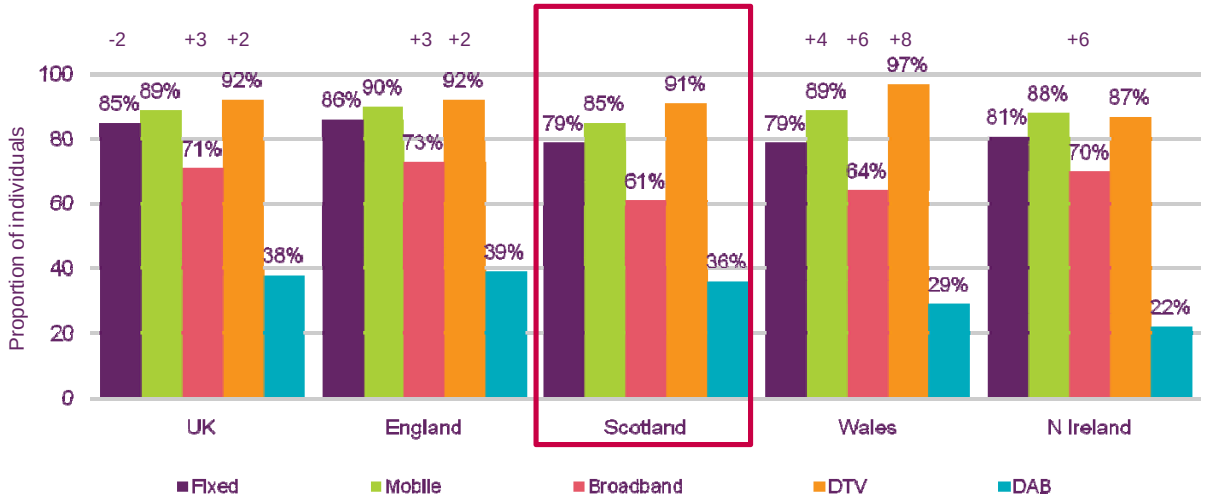
- In common with people in Wales, less than eight in ten (79%) in Scotland claimed to have a fixed telephone line at home. This compares to 81% in Northern Ireland and 86% in England. The gap with the UK-wide average narrowed by two percentage points over the year.

- Broadband take-up is lower in Scotland than anywhere else in the UK (at 61% of individuals). The figure remained flat year on year, and compares to 64% of people in Wales claiming to have broadband at home, 70% in Northern Ireland and 71% in England. The margin with the UK average grew by two percentage points over the period.

- Mobile phone take-up in Scotland, at 85% of individuals, fell below the UK-wide average of 89% in Q1 2010. Ownership of a mobile handset was lower in Scotland

than anywhere else in the UK; the gap was widest with England, where take-up was five percentage points higher, at 90% of individuals.

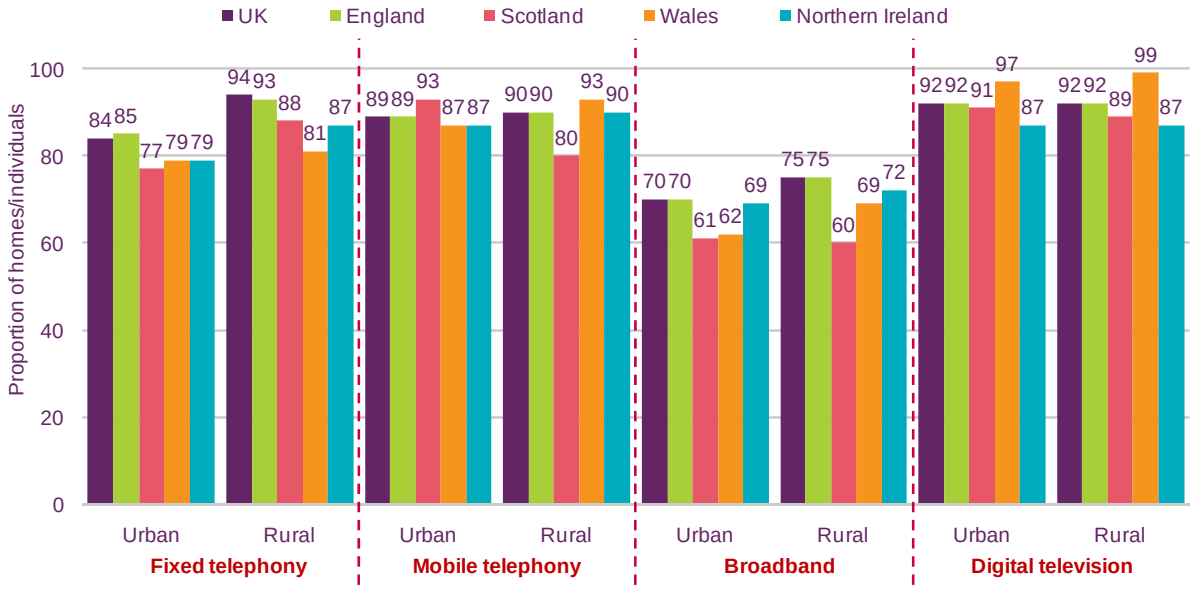
Figure 1.3 Patterns of communications service adoption across the nations of the UK, 2010



Source: Ofcom research, Q1 2010
Fixed line base: All adults aged 15+ (n = 9013 UK, 5709 England, 1468 Scotland, 1075 Wales, 761 Northern Ireland)
Fixed line question: Is there a landline phone in your home that can be used to make and receive calls?
DTV base: Adults aged 15+ (n= 9013 UK, 5709 England, 1468 Scotland, 970 Wales, 640 Northern Ireland)
DTV question. Which, if any, of these types of television does your household use at the moment?
Broadband base: All adults aged 15+ (n= 9013 UK, 5709 England, 1468 Scotland, 970 Wales, 640 Northern Ireland)
Broadband question: Which of these methods does your household use to connect to the internet at home?
DAB base: Adults aged 15+ who listen to radio (n= 7017 UK, 4476 England, 1034 Scotland, 854 Wales, 653 Northern Ireland)
DAB question: How many DAB sets do you have in your household? Response represents those with one or more sets.
Note: Remaining percentages are Don't know responses
Mobile base: All adults aged 15+ (n= 9013 UK, 5709 England, 1468 Scotland, 970 Wales, 640 Northern Ireland)
Mobile question: Do you personally use a mobile phone?
Note: The DTV take-up figures in this chart will differ from those presented in the 'Fast facts' table. The difference is explained by the base of households over which the two figures are calculated. In this chart, is it all homes with television; in the Fast Facts, it is all homes (including those that do not have television).

Patterns of communications service take-up among people living in urban and rural locations vary by service and type nation. Take-up of fixed telephony services in Scotland is higher among homes situated in rural locations (88% versus 77% in urban). Conversely, take-up of mobile handsets is higher in urban locations (93% versus 80%) – contrary to the pattern in some other parts of the UK. In the adoption of either broadband or digital television, there are no substantial differences between consumers in urban and rural Scotland.

Figure 1.4 Adoption of communications technology/service in urban and rural locations



Source: Ofcom research, Q1 2010. For questions see notes beneath Figure 1.3.

1.2.3 Consumer take-up of bundled services in Scotland

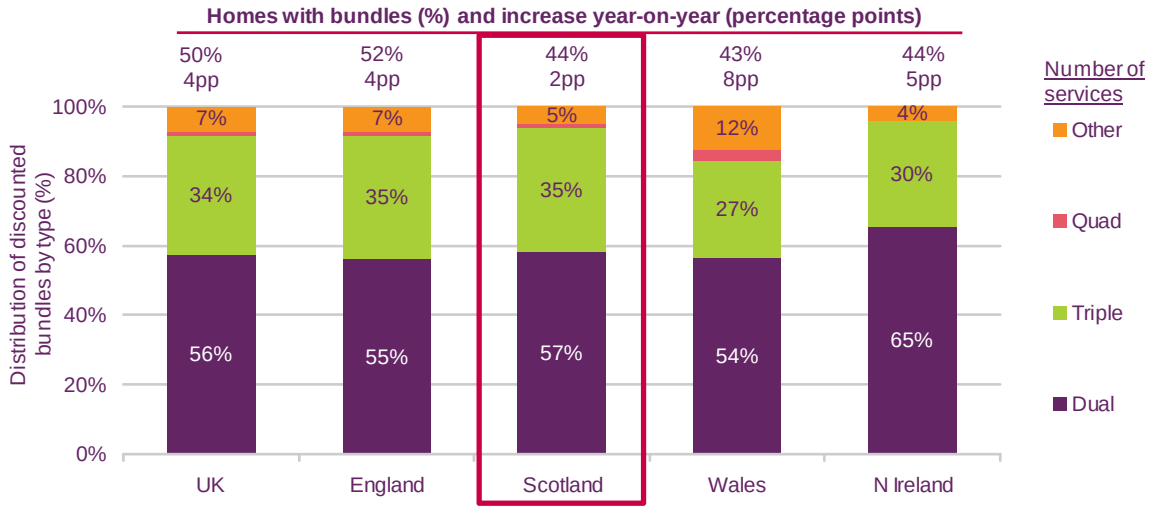
44% of homes in Scotland took a bundle of communications services, up by two percentage points year on year

Across the UK, 50% of homes took a bundle of communications services in Q1 2010. This was up by four percentage points on the year. The most popular type of bundle – taken by more than half (56%) of those who chose a bundle – was a 'dual' package of services such as fixed-line telephony and broadband.

In Scotland, 44% of homes took a bundle; their popularity grew a little during 2009, with take-up rising by two percentage points over the year. This was the lowest rate of growth among the UK's four nations. As a result, the gap with the UK-wide average widened by two percentage points to seven percentage points. Bundles were marginally more popular in Scotland than in Wales and on a par with take-up in Northern Ireland; a larger proportion of homes in England took bundles (52%).

The distribution of bundles by type in Scotland was broadly in line with the UK-wide average. Fifty-seven per cent of those who bundled chose the dual package, in contrast to 56% of those who bundled across the UK. The comparable figures for triple-play packages were 35% and 34%.

Figure 1.5 Take-up of bundles, by nation

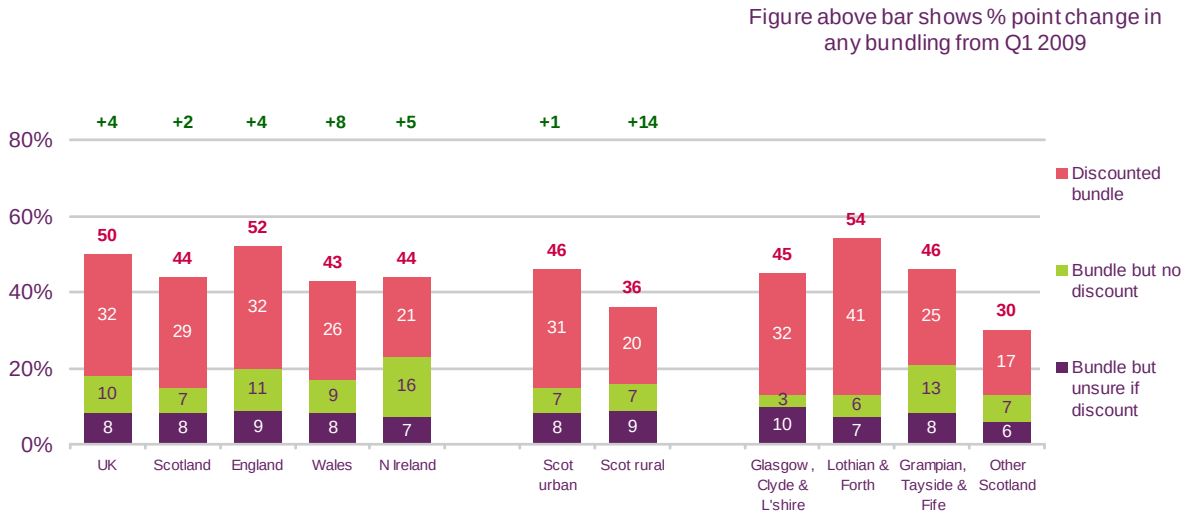


Source: Ofcom research, Q1 2010
Base: All adults aged 15+ with a package of services regardless of whether or not these include a discount (n = 4167 UK, 2793 England, 605 Scotland, 437 Wales, 332 Northern Ireland)
Notes: 1. Remaining percentages are Don't know responses. 2. Bundling is also considered in the UK report; that analysis is based on bespoke research, with a headline bundling figure of 48% (not 50%). The difference arises from different definitions of bundles used in the two pieces of research. In this report a bundle is defined as one where all services are on a single bill, with or without discount. In the UK report research, the definition was of two or more services from one supplier on a single bill and receiving a discount.

Consumers in Lothian and Forth Valley most likely to take bundles of communications services

Across Scotland, take-up of bundles is lower in rural parts of the nation (36% versus 46% for urban locations). This may reflect the fact that these areas are less well-served by both cable and unbundled exchanges than the rest of the UK, reducing the supply of bundles and discounted packages available, most of which include broadband. Take-up peaked at 54% of homes in Lothian & Forth Valley (above the UK-wide average of 50%).

Figure 1.6 Proportion of customers buying bundled services, 2009-2010



Source: Ofcom research, Q1 2010
Base: All adults aged 15+ (n = 9013 UK, 1468 Scotland, 5709 England, 1075 Wales, 761 Northern Ireland, 1172 Scotland urban, 296 Scotland rural, 368 Glasgow, Clyde & Lanarkshire, 357 Lothian & Forth Valley, 363 Grampian Tayside & Fife, 380 other Scotland)
QG1. Do you receive more than one of these services as part of an overall deal or package from the same supplier? QG3b. Do you receive a discount or special deal for subscribing to this package of services?

1.2.4 Spending by public service broadcasters on television and radio content in Scotland

Figure 1.7 illustrates patterns of expenditure in Scotland on broadcasting output. It adjusts for population size by expressing spend on a per-head basis. The chart sets out four types of expenditure:

- the value of networked television spending in Scotland – programmes that are produced in Scotland, which are then broadcast to all UK viewers;
- BBC spending on radio services for listeners in Scotland (such as BBC Radio Scotland);
- spend by the BBC and STV on television programmes specifically for viewers in Scotland; and
- Gaelic language television programmes commissioned by BBC ALBA.

Total spending per head on broadcast-based output in Scotland totalled £33.20 in 2009, up from £30.50 twelve months earlier. This represented one of the lowest spends per head across the four nations. The increase over 2009 was driven primarily by rising spend on networked television output produced in Scotland.

Figure 1.7 Spend per head on UK-originated content broadcast by PSBs on TV and radio, 2010

Source: Ofcom analysis and broadcasters

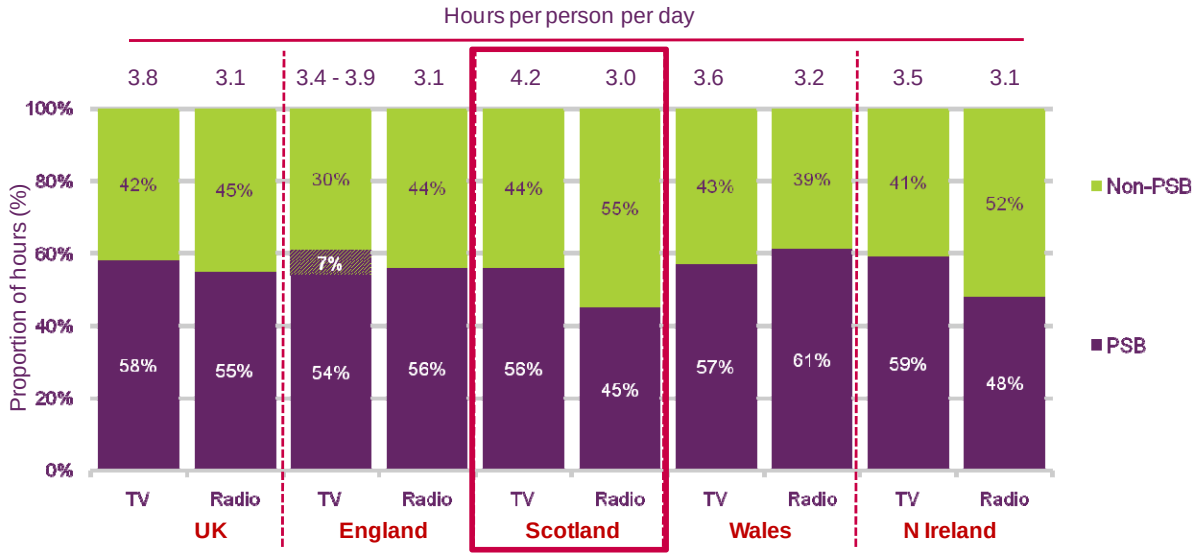
1.2.5 Consumption of television and radio services by people in Scotland

BBC radio services least popular with Scottish listeners

People in Scotland spent a total of 7.2 hours a day watching television and listening to the radio. This was above the UK-wide average of 6.9 hours per day, and was driven by higher levels of television viewing per head in Scotland. At 4.2 hours/day, viewers in Scotland are the only ones to watch more than four hours of television on a daily basis. Levels of radio listening in Scotland were broadly comparable to the UK-wide average (3.0 hours/day versus 3.1 hours/day). Television viewing was stable year on year in Scotland, while hours of listening per head fell by 0.1 hours over the same period.

The BBC's radio services were least popular in Scotland, commanding a 45% share of listening in 2009, compared to the UK-wide figure of 55%. PSB channels took a 56% share of all viewer hours in Scotland – broadly in line with the UK-wide figure of 58%. In terms of station choice, there are 39 local commercial analogue radio stations licensed to broadcast within Scotland; equivalent to around 13% of the UK's total of 296. This compares to ten local commercial stations licensed in Northern Ireland, 15 in Wales and 232 in England.The BBC national stations, BBC Radio Scotland and nan Gàidheal, are also available to listeners in Scotland, and there are 18 community radio licences serving local populations across the country.

Figure 1.8 Hours of daily viewing of television and radio, by nation, 2010



Source: BARB and RAJAR

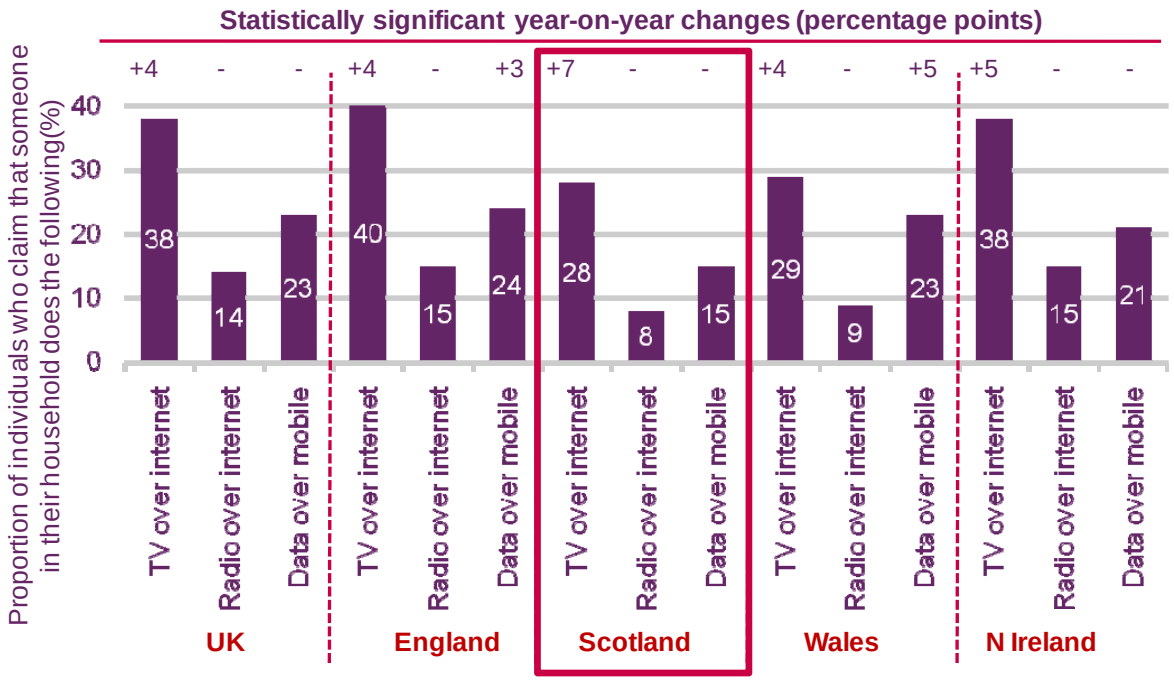
1.2.6 Scottish consumers' use of converged platforms and devices.

A growing proportion of people in Scotland are watching television over the internet

A growing proportion (28%) of consumers in Scotland claim to be using their internet connection to watch television services. This represents a seven percentage point increase over 12 months. But accessing television through the internet is still less popular in Scotland than across the UK as a whole (28% versus 38%) which may be explained by the lower levels of internet take-up in Scotland. Take-up of broadband services may also explain the differences between Wales and Scotland, and England and Northern Ireland (see page 20)

Eight per cent of respondents also claimed to use the internet to listen to the radio over the internet in Q1 2010, on a par with people in Wales, but behind England and Northern Ireland. A further 15% of people in Scotland used their mobile handset to access data services (including the internet) – substantially below the UK-wide average of 23%. This is in part because of lower 3G coverage in Scotland than other parts of the UK (see Figure 1.27)

Figure 1.9 Consumers' use of converging platforms



Source: Ofcom research, Q1 2010
Base: All adults aged 15+ (n = 9013 UK, 5709 England, 1468 Scotland, 1075 Wales, 761 Northern Ireland)
Q: For the TV and radio question - Which, if any, of these do you or members of your household use the internet for whilst at home?
For the Data question - Which if any, of the following activities, other than making and receiving voice calls, do you use your mobile for? Figure represents the of responses to the following: download free applications, download paid for applications, send/ receive emails, access the internet, connect to the internet using WiFi,, use VoIP service, download a new video clip, video streaming, TV streaming, accessing/ receive sports/ team news/ scores, access/ receive news, use IM/ instant messaging

1.3 Scotland: Communications and the economy

1.3.1 Introduction

Since the last *Communications Market Report: Scotland* was published in August 2009, the UK economy has shown signs of recovery after the official end of the recession. In last year's report we explored the impact of the economic downturn on consumer attitudes towards communications services. In June 2010 we repeated last year's study, to update the findings and assess the extent to which consumer spending and attitudes towards communications services in Scotland have changed over the past 12 months.

1.3.2 Consumer spending on communications services

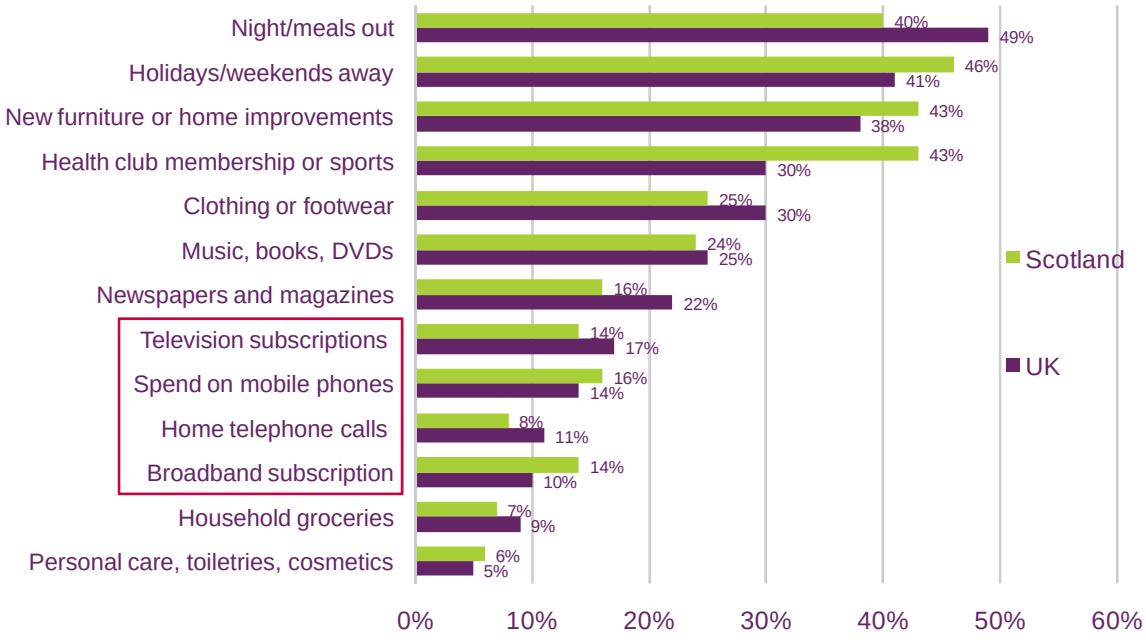
Consumers in Scotland continue to value communications services relative to other items

As shown in Figure 1.10 below, Scottish consumers continue to value communications services relative to spending on other items, even as overall economic conditions have begun to improve. Similarly to the UK as a whole, respondents in Scotland were more likely to cut back on items such as holidays/weekends away (46%) or new furniture/home improvements (43%) than on communication services.

Only 8% of respondents in Scotland placed home phone calls in their top three items most likely to be cut, while less than a fifth of Scottish consumers selected their mobile phone or pay-TV subscription. Similarly to 2009, the only items less likely to be cut than these four communications services were household groceries (7%) and toiletries/cosmetics (6%).

Figure 1.10 Items where consumers are most likely to cut back their spending

Items mentioned as first, second or third choice (%)

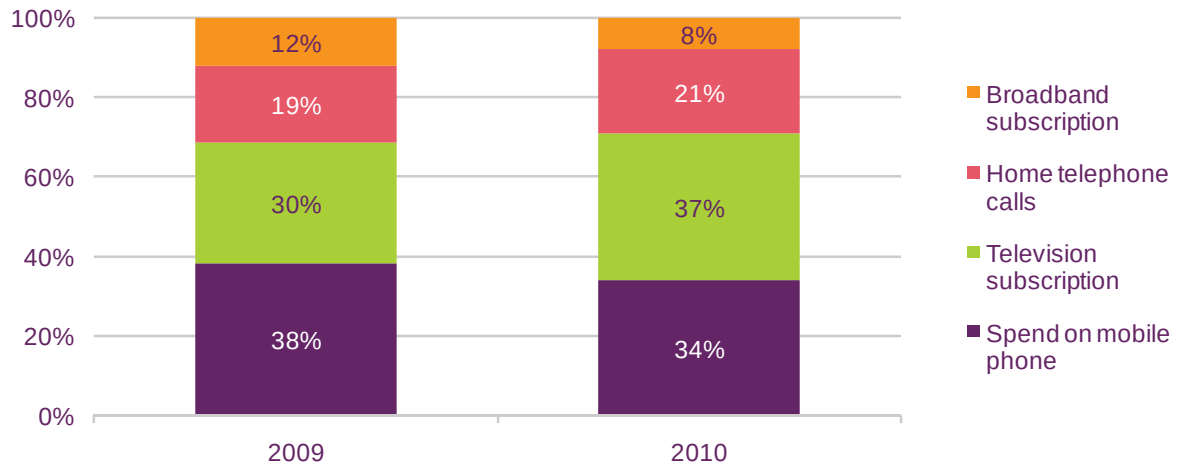


Source: Ofcom-commissioned research
Base: Total sample UK (n=2444) Scotland (n=285)
Question: If you were forced to cut back on spending, which of the following items would you be most likely to spend less on?

If forced to choose, consumers in Scotland with all four communications services were most likely to cut back spending on their pay-TV subscription (37%), with the proportion of respondents choosing pay-TV rising by seven percentage points compared to 2009. Similarly to last year, respondents in Scotland were reluctant to reduce spend on their broadband subscription. Only 8% chose broadband as the item they would cut back on, representing a slight decrease from 12% in 2009.

Figure 1.11 The communications service where consumers would be most likely to cut spend

Proportion of respondents (%)



Source: Ofcom-commissioned research
Base: Those with all four communications services 2009 (n=84) 2010 (n=99)
Question: Which ONE of the following would you be most likely to cut back spending on?

Consumers in Scotland perceive that communications providers are responding to the recession with better deals

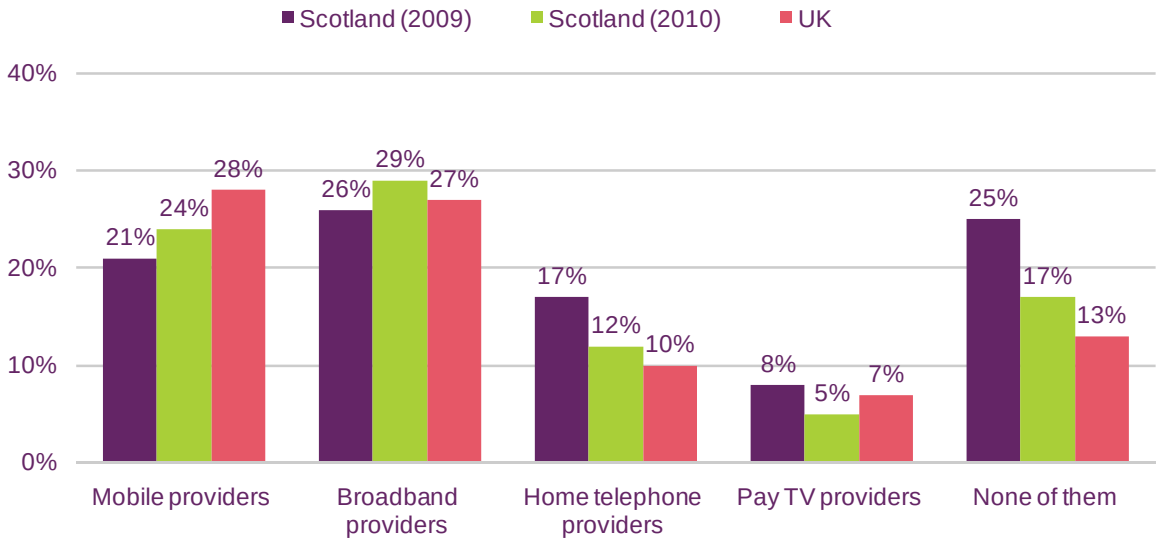
A greater proportion of consumers in Scotland and throughout the UK believe that communications providers are offering improved deals now compared with 12 months ago.

In 2009 a quarter of consumers in Scotland believed that *no* communications providers were offering better deals; in 2010 this figure dropped by seven percentage points to 17%. This decrease is consistent with the trend across the UK and in all nations and regions. It suggests that consumers throughout the UK are gaining confidence that providers are responding to the recession, by offering better value packages for communication services.

Our research indicated that some communications services are perceived to be offering better deals in Scotland than others, as around a quarter of respondents (24% and 29% respectively) agreed that mobile and broadband providers were offering better packages. The proportion of respondents in Scotland choosing home telephone providers in particular (12%) fell by five percentage points since 2009. Following a similar pattern to last year, only a minority of our sample agreed with this statement for pay-TV services (5%).

Figure 1.12 Proportion of Scottish consumers agreeing that communications providers offer better deals now than a year ago

Proportion of respondents agreeing/disagreeing (%)



Source Ofcom-commissioned research
Base: Total sample UK (n=2444) Scotland (2009 n=187, 2010 n=285)
Question: And which of the following providers, if any, are offering better deals than they were 12 months ago?

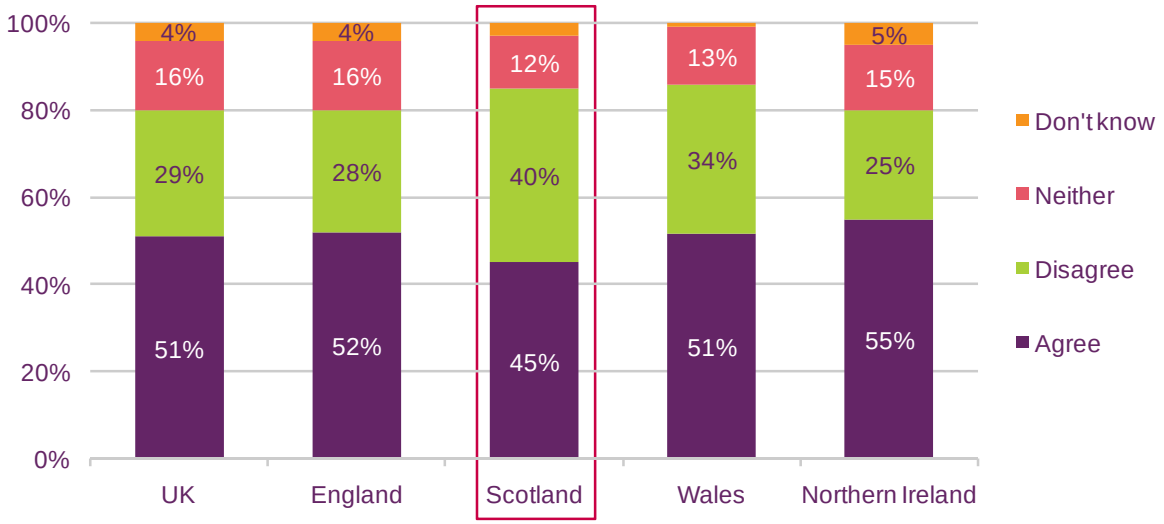
1.3.3 Bundling

Scottish consumers are reluctant to purchase bundled communications services compared to the rest of the UK

In contrast to the rest of the UK, purchasing multiple communications services from the same provider appears to have relatively lower popularity among Scottish consumers. Although just under half of all respondents in Scotland (45%) agreed they are more likely to take communications services in a bundle now compared with 12 months ago, 40% also disagreed with this statement. This was 11 percentage points more than the UK average of 29%.

Figure 1.13 Consumers' agreement / disagreement that they were more likely to take communications services in a bundle, by nation

Proportion of respondents (%)

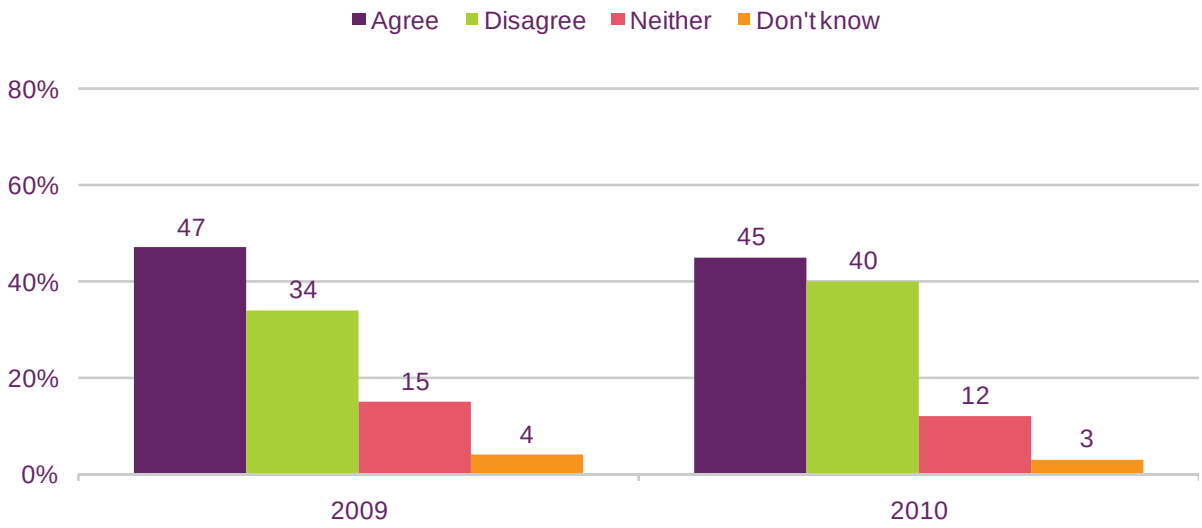


Source: Ofcom-commissioned research
Base: Total sample (n = 2444) England (n = 1727) Scotland (n =285) Wales (n = 203) Northern Ireland (n = 229)
Question: How much do you agree or disagree... I'm more likely to consider purchasing TV, broadband and phone services in a package from the same supplier as it offers better value for money

As illustrated in Figure 1.14 below, the popularity of bundling among Scottish consumers showed a slight change from our 2009 study, in which 34% of Scottish respondents disagreed that they were more likely to take a bundle. In 2010, 40% of respondents in Scotland disagreed with this statement, a decrease of six percentage points from 2009.

Figure 1.14 Consumers' agreement / disagreement that they were more likely to take communications services in a bundle

Proportion of respondents agreeing/disagreeing (%)



Source: Ofcom-commissioned research
Base: Total sample (n = 285)
Question: How much do you agree or disagree... I'm more likely to consider purchasing TV, broadband and phone services in a package from the same supplier as it offers better value for money

1.3.4 Acquisition and use of new communications equipment

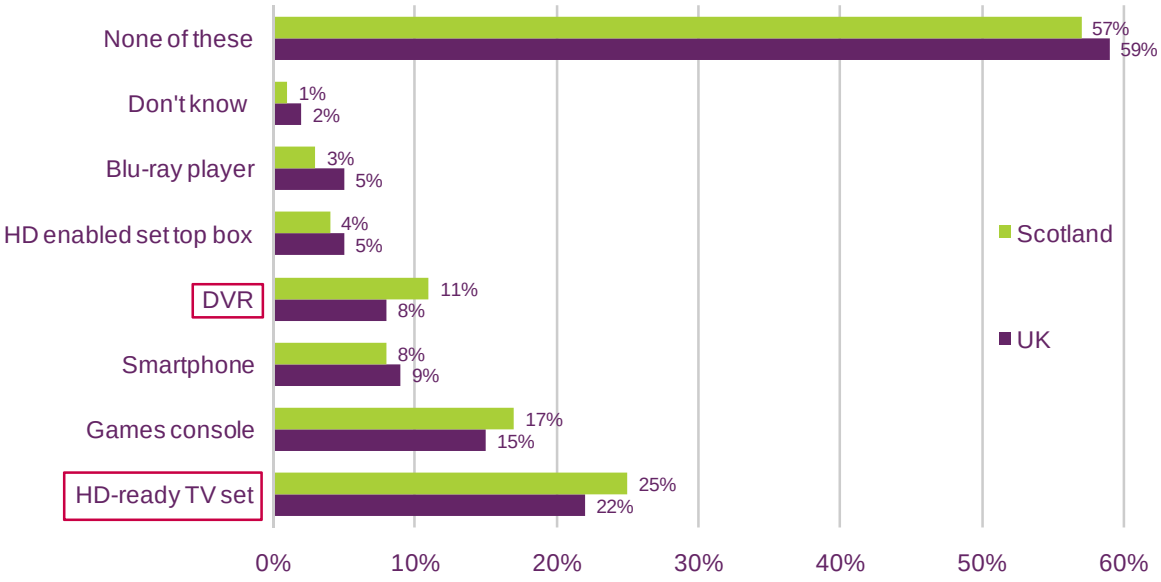
Scottish consumers embrace HDTV in spite of the economic downturn

Despite the economic downturn, Scottish consumers appear to have embraced HDTV, as a quarter of all respondents in Scotland claimed to have purchased an HD-ready TV in the past 12 months. The apparent popularity of HDTV in Scotland is consistent with its entrance into the mainstream across the UK as whole, with sales of HD-ready TV sets being boosted by the recent FIFA World Cup in particular.

Scottish consumers did not appear to deviate from the rest of the UK in take-up of other items, although 11% of respondents claimed to have bought a DVR in the last year, three percentage points more than the proportion of consumers across the UK (8%).

Figure 1.15 Selected communication devices bought in the past 12 months

Proportion of respondents (%)

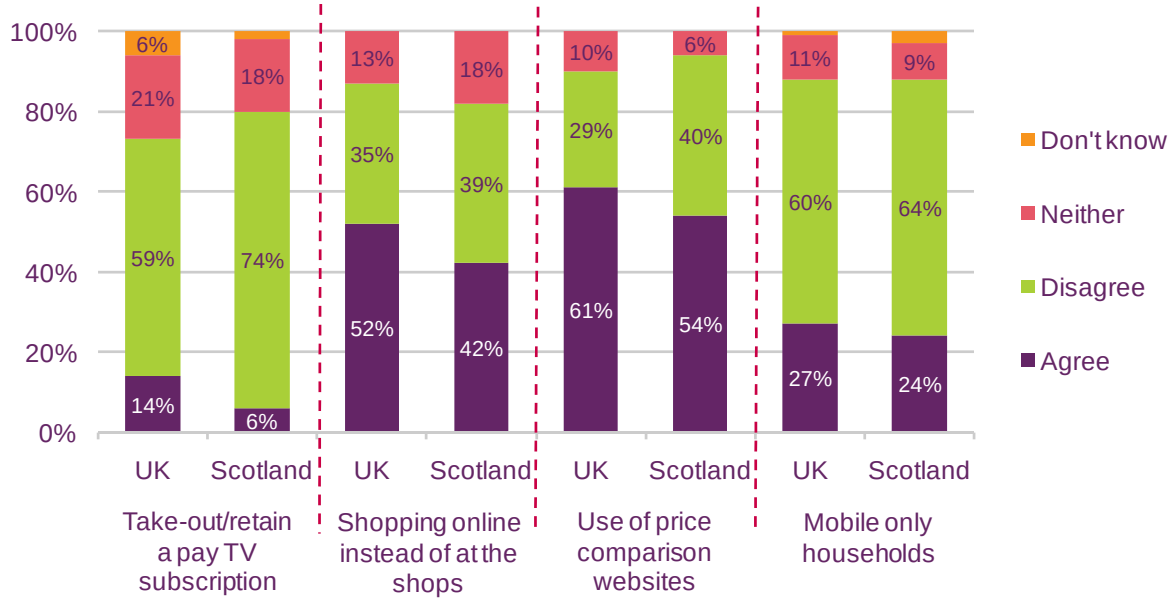


Source: Ofcom-commissioned research
Base: Total sample (UK n=2444, Scotland n=285)
Question: Which, if any, of these products or services have you or your household bought in the last 12 months?

In comparison to the UK average, respondents in Scotland were less likely to take a pay-TV subscription than this time 12 months ago, with 74% of respondents disagreeing, compared to 59% across the UK as a whole. Similarly, Figure 1.16 suggests that consumers in Scotland may be less inclined to use price comparison websites when shopping online, as four in every ten respondents (40%) disagreed with this statement, compared to the UK-wide average of just 29%.

Figure 1.16 Consumers' agreement with a range of statements exploring changes in behaviour over the last 12 months

Proportion of respondents agreeing/disagreeing (%)



Source: Ofcom-commissioned research
Base: UK n=(1300, 1554, 1554, 2099) Scotland (137, 170, 170, 240)
Question: I am now going to read out a number of statements other people have made about how the recession has changed their spending on TV, broadband, mobile and home phone services. For each statement please tell me how much you agree or disagree

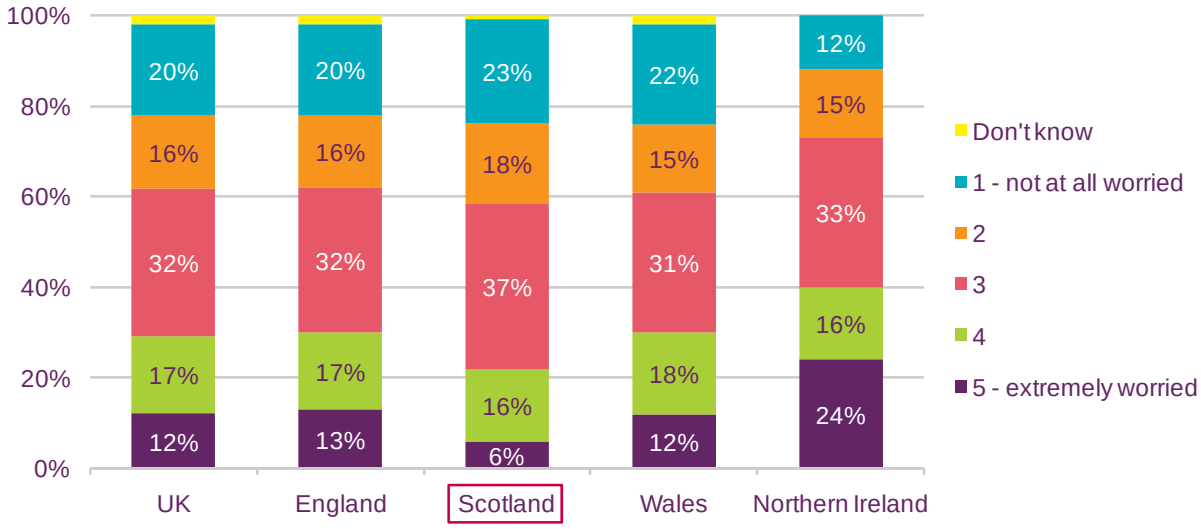
1.3.5 Attitudes of Scottish consumers towards the economy

A greater proportion of consumers in Scotland (relative to the UK average) are not worried about the economic downturn

Our research has revealed that consumer attitudes to the economic downturn have remained largely stable throughout the UK. However, while concern about the recession appears to persist in Northern Ireland, respondents in Scotland claimed to be relatively unconcerned about it, with 23% of respondents stating that they felt 'not at all worried'. The comparative optimism among Scottish consumers comes in the context of a number of factors, including the resilience of house prices in Scotland compared to the rest of the UK.

Figure 1.17 Consumer attitudes towards the recession, by nation

Proportion of respondents agreeing / disagreeing (%)



Source: Ofcom-commissioned research
Base: Total sample (n = 2444) England (n = 1727) Scotland (n =285) Wales (n = 203) Northern Ireland (n = 229)
Question: On a scale of 1 to 5, where 5 is extremely worried and 1 is not at all worried, how worried are you about being personally affected by the recession?

1.4 ‘Not-spots’: the Scottish consumer experience

1.4.1 Introduction and context

This year, one of Ofcom’s annual planning priorities is to make progress on broadband and mobile phone not-spots[1]. To reflect this, this section brings together in one place relevant data that have in the past featured throughout the *CMR: Scotland* report.

Section 1.4 below sets out the context for availability and take-up of broadband and mobile services in Scotland.

The overall picture is that a good proportion of the Scottish population have access to 2G mobile and fixed-broadband services at home, and a substantial proportion of the population claim to have each.

But there are limitations on the ability of broadband-enabled fixed telephone exchanges to deliver high bandwidths. These limitations include long line lengths, which can compromise the ability of fixed lines to support popular internet-based activities such as watching broadcast-quality television output.

Moreover, while 87% mobile population coverage in Scotland is high, the figure for geographic coverage is lower; the result is that a proportion of Scotland’s landmass is not covered by a mobile service from any operator.

1.4.2 Fixed broadband services

In some parts of Scotland, very slow ‘broadband’ speeds may inhibit internet use

Over 99% of local exchanges in Scotland are now DSL-enabled, meaning that most homes in Scotland now have access to a broadband service. However, because of the length and/or quality of the copper telephone wire between exchanges and consumer premises, not all consumers are able to receive downstream broadband speeds sufficient for many internet applications.

Broadband not-spots typically arise when the length or quality of copper telephone lines is not sufficient to support speeds via DSL broadband which are much higher than those available through ‘dial-up’ internet access. Generally, not-spots are most likely to arise in rural areas, where there can long distances between homes and the local exchange. This can also be the case in some urban areas; for example, when new housing developments are built on the edges of towns and are served by telephone exchanges in town centres.

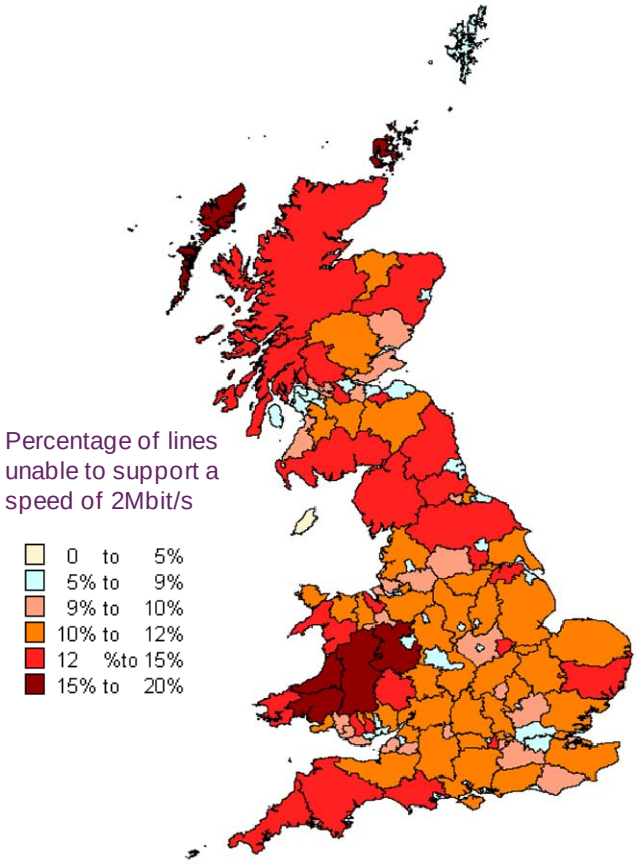
The 2009 *Digital Britain* report[2] estimated that around 11% of UK households were unable to get a broadband service with a downstream speed of 2Mbit/s or more. This is the connection speed the report believed was necessary to stream a TV programme and watch it online.[3]

Figure 1.18 indicates the proportion of ‘bad lines’ (i.e. lines incapable of delivering download speeds of 2Mbit/s) vary across Scotland and Great Britain as a whole. It shows that there is

[1] Ofcom Annual Plan 2010/11: http://www.ofcom.org.uk/about/accoun/reports_plans/annual_plan1011/annplan1011/annplan1011.pdf
[2] http://www.culture.gov.uk/images/publications/digitalbritain-finalreport-jun09.pdf
[3] Note, however, that the BBC recommends a minimum download connection speed o 0.5Mbit/s for its iPlayer service.

a low proportion of ‘bad lines’ in the built-up metropolitan areas of Glasgow and Edinburgh, and a higher proportion of ‘bad lines’ in the Highlands and Islands, and the Borders.

Figure 1.18 Percentage of ‘bad lines’ in Great Britain



Source: Digital Britain, final report, June 2009
Note: English, Scottish, Welsh, and Isle of Man counties have been coloured according to their number of total ‘bad lines’ against the number of total premises = percentage of total bad lines (due to line length plus network effects)

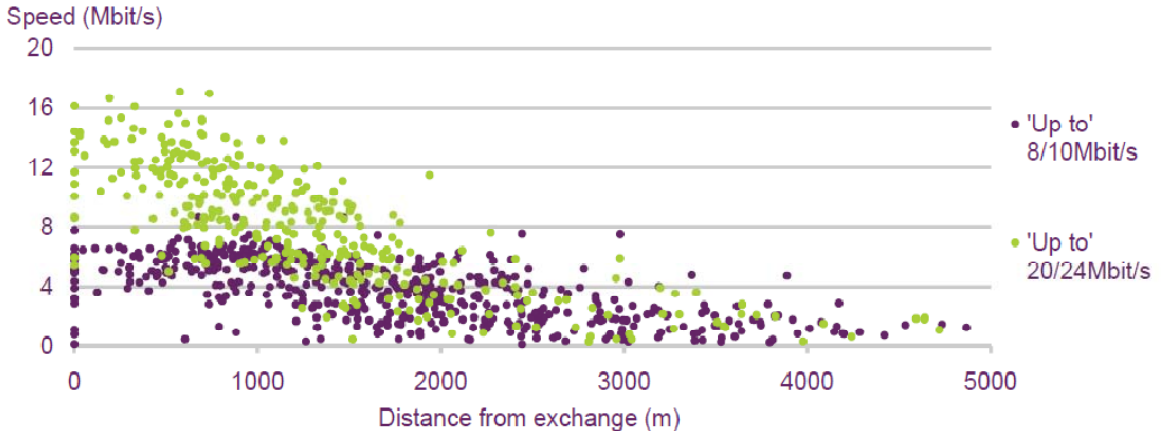
Ofcom’s research into broadband speeds (conducted in association with SamKnows) found that there was very large variation in the performance delivered to a panel of over 1,500 residential broadband users.[4] Average speeds for consumers in rural areas (2.7Mbit/s) were around half of those in urban areas (5.8Mbit/s) and while some consumers taking high speed cable services were able to receive average download speeds of over 40Mbit/s, the average speed received by those with DSL broadband was just 4Mbit/s. Around a third (34%) of those on ‘up to’ 8 or 10Mbit/s DSL packages, received average speeds of less than 2Mbit/s.

Figure 1.19 maps the average speed of all the DSL panellist in this research against the (straight line) distance between their home and the local telephone exchange. It indicates that speeds typically decreased with the distance from the exchange, indicating that those living more than 4km from the exchange are unlikely to be able to receive speeds of more than 2Mbit/s. However, a few panellists had very slow broadband speeds despite living in close proximity to the exchange; this is likely to be the result of electrical interference causing signal loss, or very poor quality in-home wiring.

[4] http://stakeholders.ofcom.org.uk/market-data-research/telecoms-research/broadband-speeds/broadband-speeds-2010/

Figure 1.19 Average line speeds versus distance of customer premises from the telephone exchange, May 2010

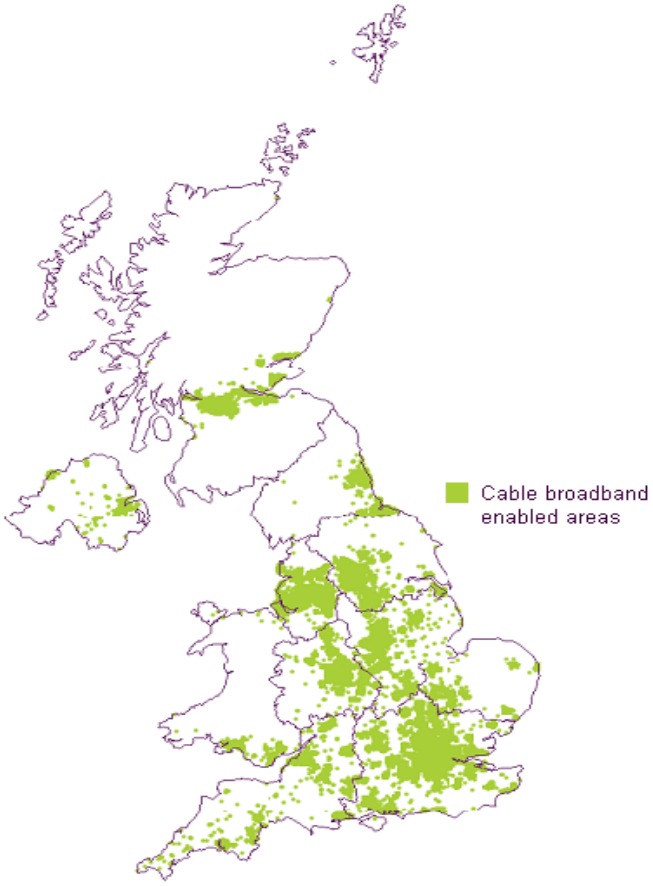
Distance from exchange and average download speeds achieved by panellists on 'up to' 8/10Mbit/s and 'up to' 20/24Mbit/s DSL packages, single thread results, May 2010



Ofcom UK Broadband Speeds Report, July 2010.
Source: SamKnows measurement data for all panellists with a DSL connection in May 2010.

The main alternative to DSL broadband in the UK is cable broadband, which is available to 37% of homes in Scotland (and to 48% of homes in the UK as a whole). However, as shown in Figure 1.20, Virgin Media's cable footprint is largely confined to built-up areas: cable is not an alternative for the large majority of people who live in a DSL broadband not-spot.

Figure 1.20 Map of the availability of Virgin Media cable broadband



Source: Ofcom / Virgin Media, September 2009 data

Lower availability and take-up of cable services, combined with longer average line lengths, means that average broadband speeds in Scotland are lower than in England, although they are slightly higher than average speeds in Wales and Northern Ireland (Figure 1.21).

Figure 1.21 Estimated average and maximum download speeds, by nation, May 2010

Ofcom UK Broadband speeds report, July 2010
Source: SamKnows measurement data for all panel members with a connection in May 2010. Panel Base: 1506.
Notes: (1) Note that these data have been estimated based on the numbers of households in Geographic Markets 1,2 and 3, and as such are not directly comparable with UK average data published in Ofcom's UK Broadband Speeds, May 2010 report; (2) As sufficient sample sizes were not available for consumers on packages of 'up to' 2Mbit/s or less, data collected for these packages in April 2009 have been factored in, in proportion to share of all connections in May 2010 and an estimated split between nations; (3) Data collected from single-thread download speed tests.

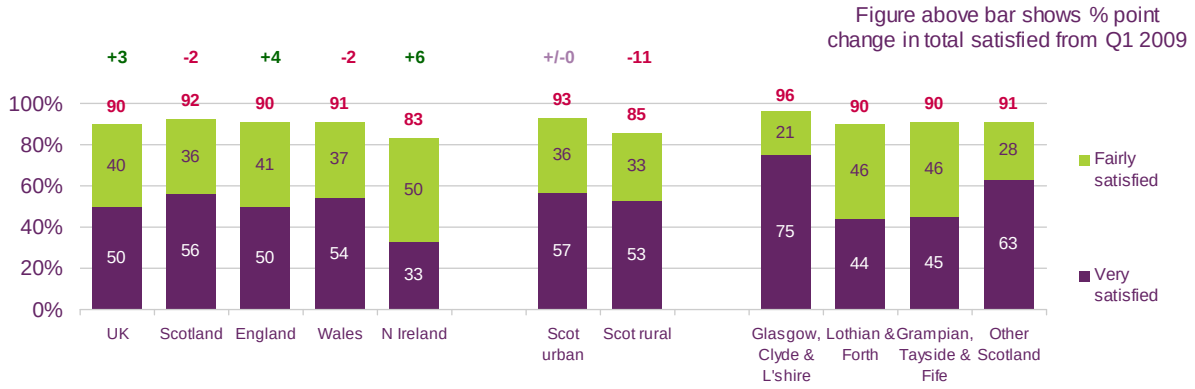
Consumers in Scotland are more satisfied than the UK average with their broadband service, although less so than in 2008, particularly in rural areas

As shown in Figure 1.22, 92% of consumers in Scotland are satisfied, or very satisfied, with their fixed broadband service. This is above the UK average of 90%, and the highest among all of the UK nations.

However, overall satisfaction with fixed broadband services has fallen slightly in Scotland since Q1 2009, driven by a large drop in satisfaction in rural areas. This is likely to be related to the fall in satisfaction with speeds (see Figure 5.22 in the Telecoms and networks section below).

Satisfaction with broadband services in urban areas remains high in Scotland, with the highest levels in Glasgow, Clyde and Lanarkshire, where satisfaction is almost universal at 96% and three-quarters of people with a fixed broadband connection reported that they were very satisfied.

Figure 1.22 Overall satisfaction with fixed broadband service



Source: Ofcom research, Q1 2010
Base: Adults aged 15+ with a fixed broadband connection at home (n= 5410 UK, 778 Scotland, 3559 England, 604 Wales, 469 Northern Ireland, 612 Scotland urban, 166 Scotland rural, 154 Glasgow, Clyde & Lanarkshire, 233 Lothian & Forth Valley, 216 Grampian Tayside & Fife, 175 other Scotland) QE8a. Thinking about your fixed broadband internet service, how satisfied are you with (main supplier) for the overall service provided by (main supplier)?

1.4.3 Mobile services

87% of people in Scotland are able to receive 2G mobile phone coverage, compared to the UK average figure of 97%

The phenomenon of mobile voice not-spots, or areas where poor reception make reliable mobile calls difficult, is a familiar experience for some people living in Scotland's more rural and remote locations. In these areas, which are characterised by lower population densities and/or challenging terrain, there are physical and economic challenges that may deter operators from putting up and maintaining mobile phone masts.

How we measure the availability of mobile telephony in this report

To evaluate the availability of mobile telephony services across the UK we examine the number of mobile networks with second-generation (2G) and third-generation (3G) coverage in each postcode district. For an operator to be counted as having coverage, its network footprint has to cover at least 90% of the postcode district, and by using these data in conjunction with population figures we are able to calculate the proportion of people living in postcodes that fall within this coverage threshold.

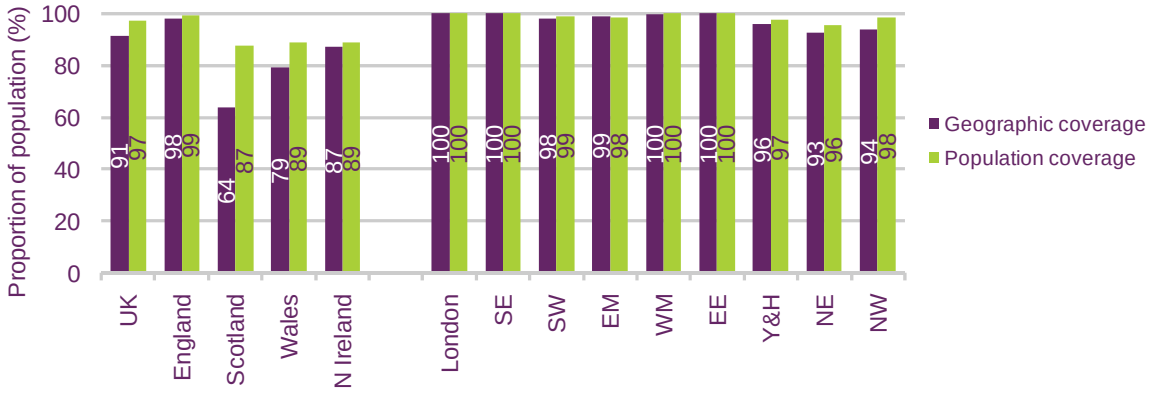
It is important to note that even though a postcode district does not meet or exceed the 90% threshold, it does not mean that mobile services are not available there; rather, that none of the mobile operators meet the 90% threshold that we have set in this analysis.

Our data show that across Scotland, 87% of the population lived in a postcode district with at least 90% 2G area coverage from one or more operators in Q2 2010. This is lower than the UK overall (97%) and lower than England (99%) and Northern Ireland and Wales (both 89%). *Note that postcode districts in the remaining 13% of Scotland may well receive some 2G mobile phone coverage – but the proportion of the postcode with a 2G signal falls below the 90% threshold.*

The figure below also illustrates geographic 2G coverage (using the same 90% coverage threshold). Nearly two-thirds of postcode districts in Scotland (64%) had 2G area coverage from one or more mobile networks in Q2 2010; lower than population coverage (87%). The gap between population and geographic coverage is likely to be wider in those nations with

large areas of low population density or where hilly or mountainous terrain limits the range of cellular masts.

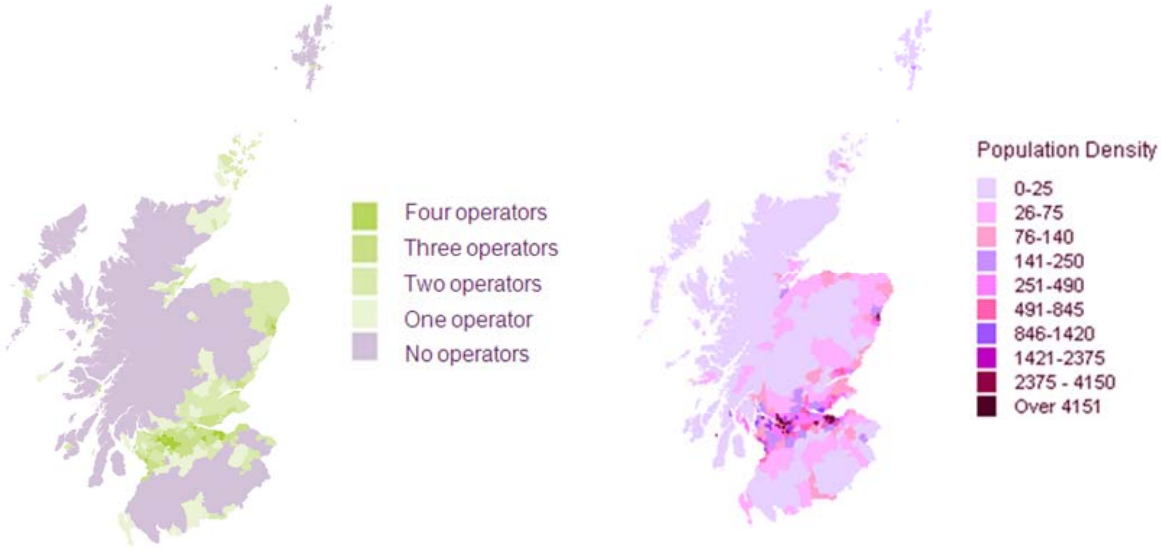
Figure 1.23 2G mobile phone geographic and population coverage



Source: Ofcom/ GSM Association / Europa Technologies; Q2 2010
Note: Figures show the percentage of postcode districts and percentage of population within postcode districts where at least one operator had at least 90% 2G area coverage; data not directly comparable to those published in the 2009 report.

The first map below shows where 2G services were available from one or more operators in Scotland and where coverage was less than 90%; the second details the population density of each of the postcode districts covered in this analysis. In Scotland, coverage is primarily concentrated around the major urban areas including Edinburgh, Glasgow and Aberdeen, while there are still sizeable areas, particularly in the Highlands and Islands, where coverage is less than 90%. This is a result of the networks concentrating build in areas of high population density, whereas mobile coverage is lower in those areas with low population density.

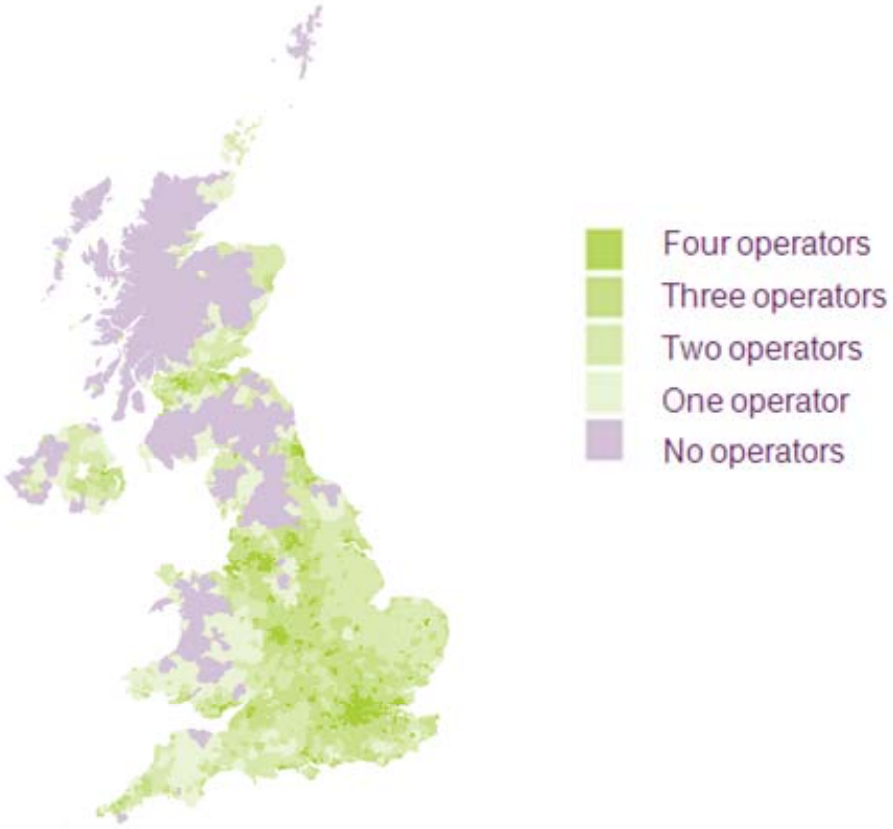
Figure 1.24 2G mobile coverage map and population density, by postcode district



Source: Ofcom / GSM Association / Europa Technologies; Q2 2010, and National Statistics website: www.statistics.gov.uk 2001 Census data. Crown copyright material is reproduced with the permission of the Controller Office of Public Sector Information (OPSI).
Note: Map shows the number of 2G operators with at least 90% area coverage; not directly comparable to data published in the 2009 report. Population density shows number of people divided by area (km2) of postcode district.

The map of 2G coverage across the UK shows a similar trend, with coverage concentrated in and around major conurbations, whereas areas of low population density, such as parts of Mid and North Wales, the Border areas and national parks in England have lower coverage.

Figure 1.25 UK 2G mobile coverage map

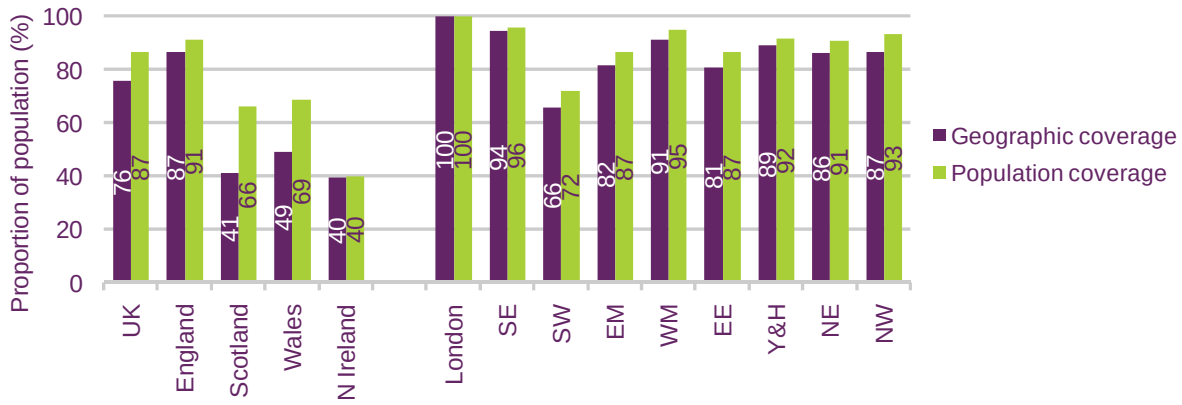


Source: Ofcom / GSM Association / Europa Technologies; Q2 2010
Note: Map shows the number of 2G operators with at least 90% area coverage; not directly comparable to data published in the 2009 report.

Across the UK, 3G coverage, supporting multimedia applications such as video and internet access alongside conventional voice services, was generally lower than 2G coverage.

Scotland's 3G population coverage (using the 90% postcode district threshold) is lower than 2G, at 66%. This is lower than the UK-wide average (87%), and lower than Wales (69%) but higher than Northern Ireland (40%). In line with 2G, geographic 3G coverage is lower than population coverage. Under half (41%) of postcode districts have area coverage from at least one mobile operator. This is significantly lower than the UK as a whole (76%), England (87%) and Wales (49%) but higher than Northern Ireland (40%).

Figure 1.26 3G mobile phone geographic and population coverage, by number of operators



Source: Ofcom/ GSM Association / Europa Technologies; Q2 2010
Note: Figures show the percentage of postcode districts and percentage of population within postcode districts where at least one operator had at least 90% 3G area coverage; data not directly comparable to that published in the 2009 report.

Figure 1.27 shows that within Scotland the postcode districts with 90% 3G area coverage are largely concentrated around the central lowlands between Edinburgh and Glasgow where population density is greatest (and where the geographic terrain is least challenging). In contrast there are large areas with lower population density, particularly in the Highlands and Islands, where 3G coverage falls below the threshold used in this analysis.

Figure 1.27 3G coverage map

Source: Ofcom / GSM Association / Europa Technologies; Q2 2010
Note: Map shows the number of 3G operators with at least 90% area coverage; not directly comparable to data published in the 2009 report.

Over 40% of mobile phone users in Scotland claim to regularly experience mobile not-spots

Mobile phones are ubiquitous in Scotland, with take-up levels at 85%, lower than the UK average of 89%. However, the importance of mobile coverage to consumers in Scotland is

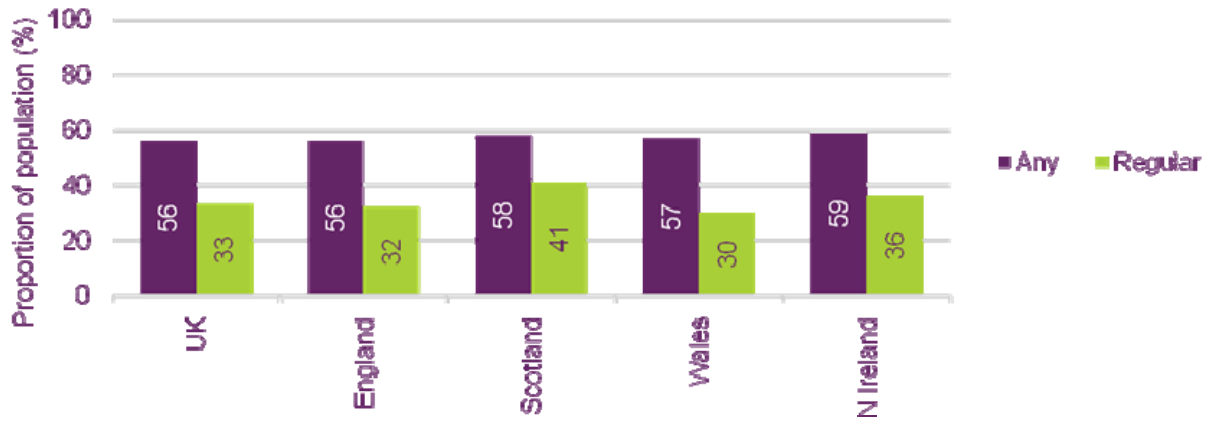
reflected in the fact that despite having lower mobile phone take-up, there are actually more mobile-only households in Scotland (19%) than the UK average (14%) as shown in Figure 5.15.

Consumers in Scotland are less likely to claim that they use a mobile broadband service, at 12% of households, compared to the UK average of 15%. However, for these consumers, the reliability/widespread availability of the mobile signal is particularly relevant.

In October 2009, the Communications Consumer Panel published a review of mobile coverage[5]. Its research (Figure 1.28) found that 58% of people with a mobile phone in Scotland had experienced problems with mobile coverage.

Of these, 41% had experienced problems regularly. This was significantly higher than the UK average of 33% and higher than any other nation in the UK.

Figure 1.28 Proportion of UK adults with a mobile phone experiencing problems with coverage



Source: Mostly Mobile, Communications Consumer Panel report
Question: Which of the following problems, if any, have you had in the past in terms of your mobile reception…? Which of them, if any, do you experience regularly?
Base: All those who use a mobile for personal use (UK n = 1716, England n = 1439, Scotland n = 144, Wales n = 84, Northern Ireland n = 50.

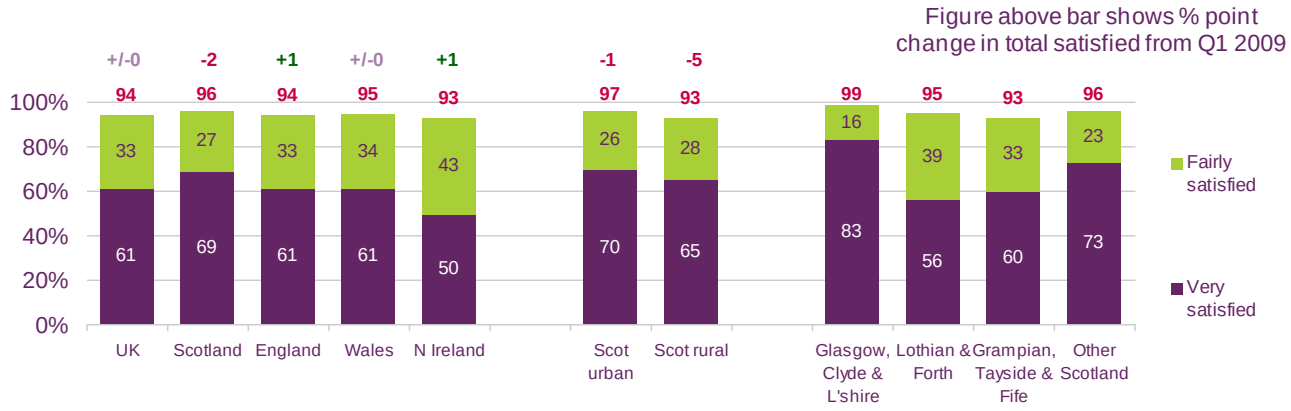
Despite 41% of people regularly experiencing mobile not-spots, most are satisfied with the service they receive

Despite many mobile phone users claiming they regularly experience not-spots, more people in Scotland claim to be satisfied with their mobile phone service (96%) than the UK average.

Satisfaction is particularly high in Glasgow, Clyde and Lanarkshire, where 99% of mobile phone users say they are satisfied with their overall service, including 83% who say they are very satisfied. Satisfaction is lower in Scotland's rural areas (93%) than in urban areas (97%). This is likely to be related to lower levels of service coverage.

[5] *Mostly Mobile*, Communications Consumer Panel, October 2009: http://www.communicationsconsumerpanel.org.uk/Mobile_coverage_consumer_perspective.pdf

Figure 1.29 Overall satisfaction with mobile phone service



Source: Ofcom research, Q1 2010
Base: Adults aged 15+ who personally use a mobile phone (n = 7826 UK, 1237 Scotland, 5008 England, 923 Wales, 658 Northern Ireland, 1001 Scotland urban, 236 Scotland rural, 308 Glasgow, Clyde & Lanarkshire, 313 Lothian & Forth Valley, 316 Grampian Tayside & Fife, 300 other Scotland)
QD21a. Thinking about your mobile phone service only, how satisfied are you with (main supplier) for the overall service provided by (main supplier)?

1.4.4 The consumer's experience of mobile not-spots in Scotland

To better understand the consumer experience of not-spots in the nations and regions of the UK, we commissioned some qualitative research using a mixture of telephone and face-to-face interviews, and diary exercises, to explore the effect on the small numbers of people who cannot get a mobile signal.

In Scotland, our research focused on the following areas:

- rural locations: Elphin in Sutherland; Lochmaddy on the Isle of North Uist and Ettrick Valley near Selkirk;
- urban residential locations: Argyll, East Perthshire and the Inverness vicinity; and
- major rail links in Scotland, as well as points along the A9, A82 and A819.

In the research, consumers in Scotland highlighted the importance they placed on services such as mobile access and fixed broadband. For example, consumers in rural Scotland said that:

"We had to get broadband to keep the business going, keep connected, get our internet shopping done."

"The internet provides MSN for our son but I do worry about when he gets older because all kids communicate with text messages these days."

This research is part of our UK-wide work on better understanding the issue of mobile not-spots (again reflecting our Annual Plan priority). The full results of this will be published later in the year as part of our overall consideration of the issues relating to mobile not-spots.

In addition to this, as part of our research we conducted a small number of in-depth interviews with people who are affected by not-spots. As an example, the case study below examines the experience of someone living without mobile phone coverage in the Highlands of Scotland.

Case study: Living without coverage in the Highlands

Claire works on one of the large estates in the Highlands. She lives there with her husband and two children.

Claire has a pay-as-you-go mobile phone, but there is no coverage in a 10-mile radius of where she lives and works. She has not complained, as she believes the community is too small for a large network operator to take notice of; nor has she switched network, because she does not believe that other networks offer anything better.

Although Claire accepts the situation, she is frustrated about the lack of mobile coverage: *"we get post three times a week...I would expect telecommunications to be of a greater standard."*

Broadband is crucial to the everyday lives of Claire and her family, especially for shopping online and for her children's homework. Claire picks up her text messages when she travels to the nearby town, an hour and a half round-trip.

Satellite and two-way radios have been tried on the estate with little success. *"We really struggle with safety compliance and our public liability insurances are massive, so it would be a great benefit to get better coverage"*

The lack of coverage has potentially serious consequences for the people living in Claire's village, particularly those with health conditions. It can also create problems for gamekeepers on the estate who cannot be contacted when they are walking in the glens: *"I have had to call the helicopter out twice when people haven't returned, when a direct call to their mobile would have done it."*

Claire thinks that improving coverage in her local area would make a "dramatic difference daily" by enabling more flexible working practices, improving health and safety, and improving social connectivity. It would even enable her son to text his friends, rather than relying on MSM as he currently does.

Note: The case study above is taken from one of the in-depth interviews conducted by the research agency as part of the not-spots qualitative research. The respondent's name has been changed to ensure anonymity.

1.4.5 Current progress and future work on not-spots

Emergency mobile roaming

A joint effort between Ofcom, mobile network operators, the emergency services authorities and the fixed operators who act as call handling agents has resulted in the development of new emergency roaming procedures. These were introduced in 2009 and allow mobile phone users to call the emergency services using another mobile network operator if their own service provider does not offer coverage.

This means that in an emergency, people can call 999 or 112 from their mobile phone even if their own network has no coverage. In this case, the phone automatically switches over to whichever network operator has the best signal in that area.

For people living, working and travelling through areas where there are mobile not-spots, this reassures them that – should they need to make an emergency call – the call can still be made, provided that at least one mobile network operator has coverage in that area.

Mobile not-spots

Ofcom is undertaking further research to better understand the causes of, and solutions for, mobile not-spots.

As outlined above, it is one of Ofcom's priorities for 2010/11 to make progress on broadband and mobile phone not-spots. We are undertaking a programme of further research to improve our understanding of the causes of, and solutions for, mobile not-spots. Ofcom intends to publish further thinking on the causes of not-spots; where they are; and what impact they have for citizens and consumer across the UK, later this year. We plan to use this evidence base to consider whether there are any appropriate solutions, within the scope of our duties and powers, for improving coverage.

Fixed broadband not-spots

The UK coalition Government has announced a plan – subject to European state aid rules - to roll out 2Mb/s broadband across the UK by 2015. Ofcom will provide technical advice to assist with this process.

As well as municipal schemes, an alternative way of targeting fixed broadband not spots may be through the use of local schemes. For example, people experiencing fixed broadband not spots might be able to gain broadband access through point-to-point wireless networks, or satellite broadband provision. The emergence of increasingly fast and affordable mobile broadband - which is now used by 12% of people in Scotland – may also provide an important alternative to people who are unable to receive a fixed broadband service – though there may also be areas where the not spots are concurrent.

Following broadband projects by the former Scottish Executive, and the successful completion of the Scottish Government's Broadband Reach Project, basic broadband coverage (defined as offering a download speed of at least 512kbit/s) is now generally available throughout Scotland.

The Broadband Reach Project provides a basic, affordable, broadband service to all Scottish households and businesses which notified the Scottish Government that they needed broadband, and could not get a conventional broadband service due to their distance from the exchange.

This project was delivered by Avanti Communications, using satellite and wireless technology, under a contract with the Scottish Government worth £3.3m. The first phase of the project was completed in May 2009, and the final phase, during which late registrants to the project received broadband service, was completed at the end of March 2010. A total of over 2,400 premises, many located in rural areas, have benefited from this project.