

# 6 Mobile services at the retail and whole-sale levels

## Contents

	<i>Page</i>
Introduction.....	80
The growth in the use of mobile phones .....	80
Subscribers.....	80
Call minutes .....	83
Text messages .....	86
Technical change .....	87
Price levels.....	88
Price changes .....	89
The relationship between wholesale prices (termination charges) and retail prices for calls to and from mobile phones .....	93
Calling party pays .....	94
Termination charges .....	95
Market definition .....	97
The framework for analysis .....	97
The geographical market.....	97
The product market.....	97
Summary of the main parties' views on the relevant product market.....	98
Substitution at the wholesale level.....	98
Substitution at the retail level.....	103
Retail market.....	108
The supply chain to customers.....	108
Direct sales channels.....	108
Indirect sales channels .....	110
Retail prices .....	110
Pricing strategies of MNOs.....	110
Price comparisons .....	111
Price trends .....	119
Fixed-to-mobile prices .....	120
Buyer power and discounts .....	120
Non-price competition .....	122
Service quality .....	122
Sales and marketing and customer care expenditure.....	122
Market shares.....	123
The number of subscribers.....	123
Shares of outgoing revenue.....	124
Share of outgoing call minutes.....	124
Share of outgoing text messages.....	125
Switching behaviour .....	125
Costs and possible barriers to customers of switching networks .....	130
Entry .....	132
Competitive pressure on call termination charges .....	132
Closed user groups.....	132
Awareness of calling a mobile phone on the same network .....	133
Knowledge of prices .....	134
Importance of incoming call prices.....	135
Behaviour of customers when calling mobile phones.....	137

## Introduction

6.1. This chapter begins by looking at the growth in the use of mobile phones since our last inquiry<sup>1</sup> and at overall prices over the last few years. Next, we discuss the relationship between wholesale prices (termination charges) and retail prices. We then assess market definition and the retail market. Finally, we look at the competitive pressure on termination charges.

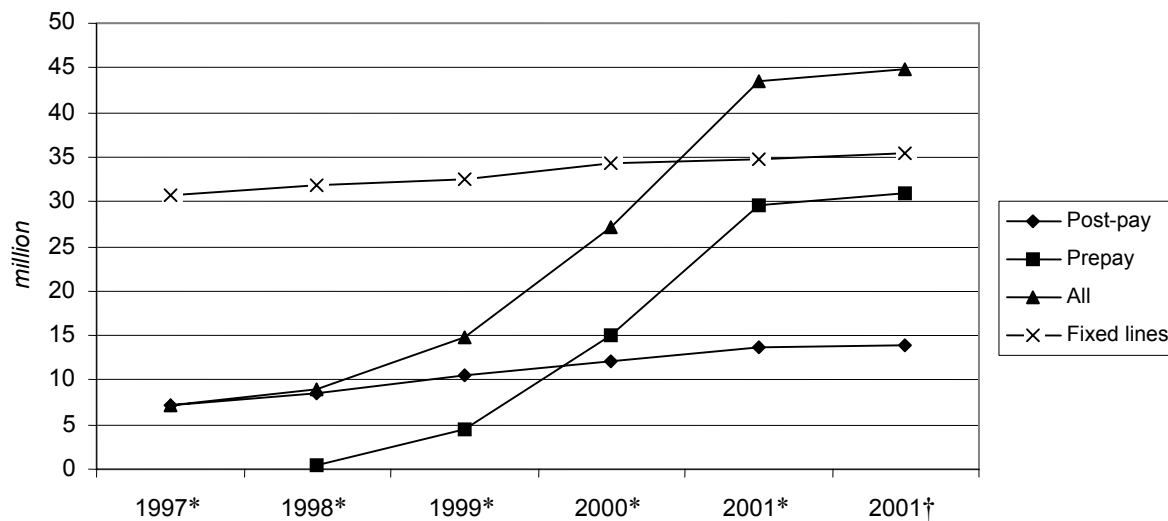
## The growth in the use of mobile phones

### Subscribers

6.2. The number of mobile subscribers has grown substantially over the last few years, from just over 7 million in March 1997 to just under 45 million in December 2001. Figure 6.1 shows the growth in the number of mobile phone subscribers and the number of fixed lines between 1997 and 2001. The growth in the number of subscribers can be broken down by types of subscriber: contract (also known as post-pay) and prepay. Contract customers sign a written contract with their MNO or service provider, pay a monthly line rental for their subscription to the mobile service and are billed for their call charges on a monthly basis. Prepay customers pay a one-off fee for the phone and buy vouchers or 'top-up' their account as and when required for making calls. They do not sign a written contract or pay a line rental. As they pay for their call charges in advance, they do not receive bills for those charges.<sup>2</sup>

FIGURE 6.1

### Growth in the number of mobile subscribers and fixed lines, 1997 to 2001



Source: Oftel.

\*Years ended March.

†Year ended December.

Note: Number of mobile subscribers for year ending December 2001 is not comparable with numbers for earlier periods due to Vodafone and O<sub>2</sub> revising the basis on which they calculate the number of their subscribers.

6.3. The growth in the number of prepay subscribers was responsible for most of the increase in the number of all subscribers. In March 1997 there were no prepay subscribers. One year later there were less than 0.5 million prepay subscribers and over 8 million post-pay subscribers. In December 2001 there were about 31 million prepay subscribers, over twice the number of post-pay subscribers. During

<sup>1</sup>MMC report, *Cellnet and Vodafone: reports on the references under section 12 of the Telecommunications Act on the charges made by Cellnet and Vodafone for terminating calls from fixed-line networks*, December 1998.

<sup>2</sup>A third category of customer is those that buy 'all-in-one' packages (also known as no line rental). These customers pay in advance for their phone and for a fixed period of line rental that may or may not include inclusive minutes. Any calls made above any monthly limit are either billed monthly or paid for by call vouchers or by 'top-up'. Survey estimates show these customers as accounting for between 5 and 8 per cent of all customers.

2000/01 the number of mobile subscribers passed the number of fixed lines for the first time. There were just under 45 million mobile subscribers in December 2001 and about 35 million fixed lines. This is not a like-for-like comparison, because fixed lines normally serve more than one user. However, Figure 6.1 gives a broad impression of the recent increase in fixed and mobile penetration. Over the period the annual average growth in the number of mobile subscribers was about 45 per cent compared with about 3 per cent for fixed lines. Figure 6.1 does not show any decrease in the number of fixed lines in response to the rapid growth in the number of mobile subscribers.

6.4. Table 6.1 shows the proportion of UK households with different types of phones and with no phone, and the main phones used by residential consumers.

TABLE 6.1 Proportion of UK homes with different types of phones and main phone used

**Part A Proportion of UK homes with different types of phones**

	<i>per cent</i>									
	<i>Aug 00</i>	<i>Nov 00</i>	<i>Feb 01</i>	<i>May 01</i>	<i>Aug 01</i>	<i>Nov 01</i>	<i>Feb 02</i>	<i>May 02*</i>	<i>Aug 02*</i>	
Fixed and mobile	49	66	70	73	74	75	76	73	73	
Fixed only	42	28	23	21	20	18	19	20	18	
Mobile only	5	5	5	6	6	6	4	5	8	
Neither fixed nor mobile	3	2	2	1	1	1	1	1	1	
Total†	100	100	100	100	100	100	100	100	100	

**Part B Proportion of customer who claim to use different kinds of phone as their main phone‡**

Mobile	15	16	17	17
Fixed—home	79	78	78	77
Fixed—work	4	4	3	4
Public payphone	1	1	1	1
Total†	100	100	100	100

Source: Various OfTel residential surveys.

\*Revised sample in May 2002. On the basis of the old sample, the proportions for May 2002 are the same as for February 2002 and for August 2002 they are as follows: 76 per cent (fixed and mobile); 17 per cent (fixed only); 6 per cent (mobile only) and 1 per cent (neither fixed nor mobile).

†Totals may not sum due to rounding.

‡Question first asked in May 2001 survey and not asked after February 2002.

6.5. This data shows no obvious relationship between changes in the level of mobile ownership and usage, and fixed-line ownership and usage.

6.6. The number of mobile subscribers has increased in all income groups since the MMC's inquiry in 1998. The increase in ownership has been greater, the lower the income group. Table 6.2 shows the ownership of mobile phones by income quintile group as recorded by the Family Expenditure Surveys for 1996/97 and 2000/01 (the latest Family Expenditure Survey available at the time of writing).

TABLE 6.2 Ownership of mobile phones by income quintile group, UK

	<i>per cent</i>	
	<i>1996/97</i>	<i>2000/01</i>
Top fifth	40	66
Next fifth	21	60
Middle fifth	12	52
Next fifth	6	34
Bottom fifth	3	23

Source: Family Expenditure Survey.

6.7. Table 6.3 shows the expenditure on mobile phones by different income groups as recorded in the Family Expenditure Survey 2000/01.

6.8. Table 6.4 shows the expenditure on mobile phones by households grouped according to the age of the head of household, as recorded in the Family Expenditure Survey 2000/01.

TABLE 6.3 Average weekly expenditure on mobile phones by gross income decile group, UK 2000/01

	£ per week										
	Lowest 10%	Second decile group	Third decile group	Fourth decile group	Fifth decile group	Sixth decile group	Seventh decile group	Eighth decile group	Ninth decile group	Highest 10%	All house- holds
Mobile phone account	5.31	4.47	4.89	5.47	6.89	5.65	6.80	7.04	6.86	10.07	7.17
Mobile phone other payments—top-up cards	6.00	7.24	5.09	6.64	8.61	7.71	6.20	8.84	7.09	8.04	7.30

Source: Family Expenditure Survey.

Notes:

1. Most Family Expenditure Survey data is based on expenditure diaries kept by households over a two-week period. If the household did not purchase a mobile phone top-up card in those two weeks, it would not be recorded. Therefore expenditure on this item may be under-recorded. Expenditure on mobile phone account is not subject to the same problem because this data is collected in an interview.
2. The expenditure figures are averages over all households, including those which do not have mobile phones.

TABLE 6.4 Average weekly expenditure on mobile phones by age of head of household, UK, 2000/01

	£ per week					
	Under 30	30 and under 50	50 and under 65	65 and under 75	75 or over	All households
Mobile phone account	8.29	6.89	8.33	2.79	3.02	7.17
Mobile phone other payments—top-up cards	7.19	7.39	7.61	5.74	5.10	7.30

Source: Family Expenditure Survey.

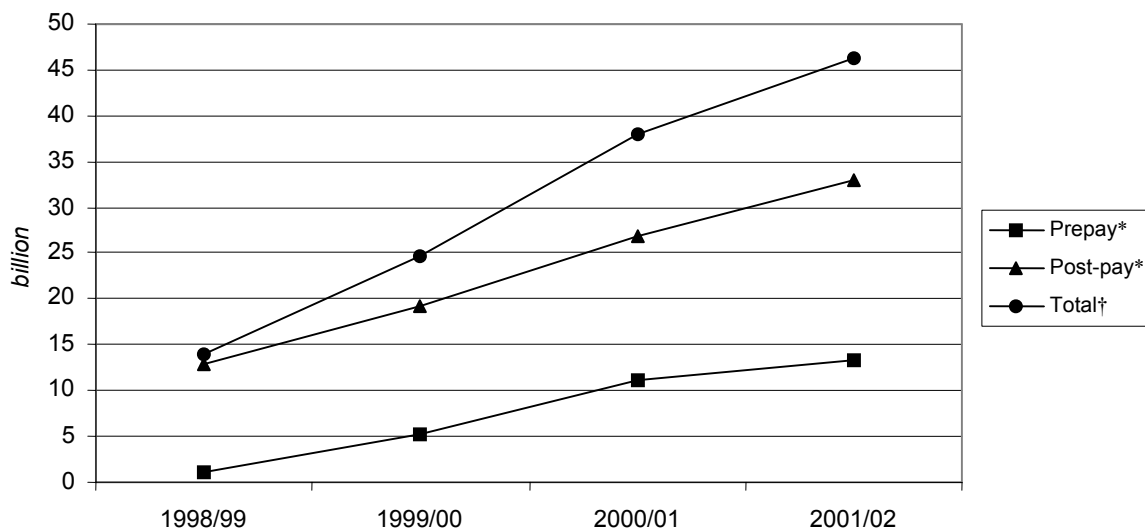
Note: See note to Table 6.3. The expenditure figures are averages over all households, including those which do not have mobile phones.

### Call minutes

6.9. Figure 6.2 shows the growth in the number of call minutes from mobile phones between 1998/99 and 2001/02. The number of outgoing mobile minutes has grown from about 14 billion in 1998/99 to over 46 billion in 2001/02. Although the number of minutes by prepay subscribers grew rapidly over this period, it was not proportionate to the overall increase in the number of prepay subscribers; prepay customers accounted for about 40 per cent of the growth in minutes during this period, compared with about 90 per cent of the growth in the number of subscribers. In 2001/02 prepay subscribers used their mobile phones for a total of 14 billion minutes compared with 33 billion minutes for post-pay subscribers.

FIGURE 6.2

### Growth in total outgoing mobile minutes, 1998/99 to 2001/02



Source: CC based on data provided by Of tel and the MNOs.

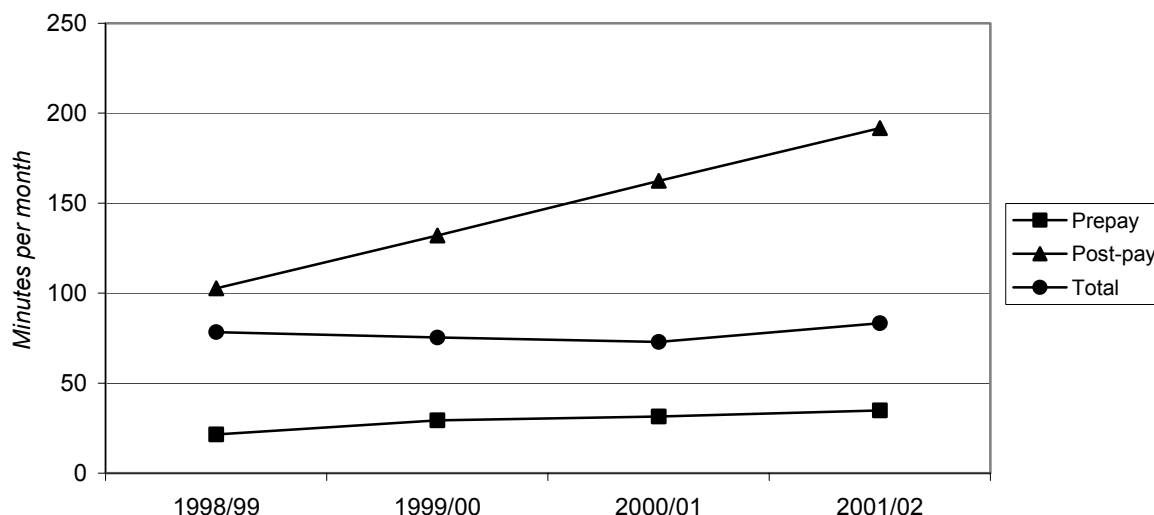
\*Of tel data.

†CC estimates based on MNO and Of tel data.

6.10. The difference in the usage of mobile phones by prepay and post-pay subscribers is shown in their average usage (see Figure 6.3).

FIGURE 6.3

**Growth in average outgoing minutes per subscriber, 1998/99 to 2001/02**



Source: CC estimates based on Ofel and MNO data. Number of subscribers are for year-end.

Note: Number of mobile subscribers for 2001/02 is not comparable with numbers for earlier periods due to Vodafone and O<sub>2</sub> revising the basis on which they calculate the number of their subscribers.

6.11. Contract customers on average use mobile phones far more than prepay customers. In 2001/02, contract customers used mobile phones on average for over 190 minutes a month, five times more than prepay customers who had an average usage of about 35 minutes a month. Average usage by both types of customers has risen over the last few years.

6.12. Prepay subscribers also made shorter calls than post-pay subscribers (for example, data provided by the MNOs showed that the average duration of a call for a post-pay subscriber was just over 3 minutes compared with just over 1 minute for prepay subscribers).

6.13. Table 6.5 shows the proportion of total outgoing minutes from mobile phones accounted for by different types of calls, for example on- and off-net calls.<sup>1</sup> The proportions for each MNO are very similar to that shown in Table 6.5. Whilst it is difficult to compare prices, the proportions of outbound traffic can be compared with call prices. Off-net calls account for the lowest proportion of traffic (15 per cent) and have the highest prices (25 ppm—see Table 6.10). In total, mobile-to-fixed calls account for the highest proportion of traffic (55 per cent) and have lower prices than off-net calls but have broadly similar prices to on-net calls (7 and 6 ppm respectively).

TABLE 6.5 **Outgoing minutes from mobile phones, 2001/02\***

	<i>Total</i>
	%
Calls to fixed lines	55.1
On-net calls	30.3
Off-net calls	<u>14.6</u>
Total	<u>100.0</u>
Total (mins, bn)	42.2

Source: CC calculations on data provided by the MNOs.

\*Year ended March 2002 for Vodafone and O<sub>2</sub>, and year ended December 2001 for T-Mobile and Orange. Excludes overseas traffic.

<sup>1</sup>On-net calls are calls within the same mobile network and off-net calls are calls between different mobile networks.

6.14. Table 6.6 shows average call duration by type of call.

TABLE 6.6 **Average call durations, 2001/02\***

	<i>Minutes</i>			
	<i>On-net</i>	<i>Off-net</i>	<i>Mobile-to-fixed</i>	<i>Fixed-to-mobile</i>
Simple average	2.09	1.16	2.23	1.64

Source: MNOs and CC calculations on data provided by MNOs.

\*Excludes international calls.

6.15. Table 6.6 shows that there is considerable difference between the average duration of different types of calls. There is less difference between the average duration of on-net, mobile-to-fixed and fixed-to-mobile calls for each MNO.

6.16. Table 6.7 shows the growth in call minutes from fixed lines and mobile phones, and the growth in data minutes from fixed lines between 1996/97 and 2001/02. Call minutes from mobile phones accounted for about 21 per cent of the total call minutes in 2001/02, compared with just under 5 per cent in 1996/97. Fixed-to-mobile call minutes accounted for about 8 per cent of call minutes from fixed lines in 2001/02, up from about 2 per cent five years earlier. Data minutes from fixed lines have shown the highest growth rate during this period, an annual average rate of over 150 per cent. Call minutes from mobile phones have the second highest growth rate during this period, an annual average rate of 47 per cent for the total number of call minutes from mobile phones and 37 per cent for fixed-to-mobile call minutes. All call minutes from fixed lines have grown by an annual average rate of about 5 per cent; excluding fixed-to-mobile calls makes very little difference to this growth rate. Table 6.7 does not show any marked decrease in the growth in the number of call minutes from fixed lines in response to the growth in the number of call minutes from mobile phones, although the number of call minutes from fixed lines did fall slightly between 2000/01 and 2001/02.

TABLE 6.7 **Call volumes, 1996/97 to 2001/02**

	<i>billion minutes</i>						<i>Annual average growth 1996/97 to 2001/02 (%)</i>
	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/00</i>	<i>2000/01</i>	<i>2001/02</i>	
<i>From fixed lines</i>							
Total call (voice)	137.2	149.0	156.8	168.3	172.7	172.0	4.6
Total data	1.3	6.9	19.9	42.6	90.5	138.6	156.4
Total	138.5	155.9	176.7	210.9	263.1	310.6	17.5
Of which:							
Calls to mobiles	2.8	3.8	5.6	9.0	12.1	13.6	37.0
<i>From mobile phones</i>							
Total	6.8	9.6	14.6	25.5	39.3	46.3	46.8
Of which:							
UK calls	6.6	9.2	14.0	24.6	38.0	44.7	46.6
All calls*	144.0	158.6	171.4	193.8	212.0	218.3	8.7
Proportions							
Calls from mobiles/all calls	4.7	6.1	8.5	13.2	18.5	21.2	
Fixed-to-mobile/fixed calls	2.1	2.6	3.6	5.4	7.0	7.9	
Fixed-to-mobile/all calls	2.0	2.4	3.3	4.7	5.7	6.2	

Source: Ofcom and CC calculations based on Ofcom data.

\*Includes call minutes from fixed line and mobile phones but excludes data minutes from fixed lines.

6.17. Table 6.8 shows the proportion of inbound minutes (known as termination minutes) accounted for by fixed-to-mobile and off-net calls. Calls from FNOs account for a much larger proportion of termination minutes than off-net calls (about 70 per cent compared with about 30 per cent).

TABLE 6.8 Termination minutes from fixed and off-net mobile calls, 2001/02\*

	<i>Total</i>
	%
Calls from fixed lines	72
Off-net calls	28
Total	100
Total mins (bn)	21.7

Source: CC calculations on data provided by the MNOs.

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\*Year ended March 2002 for Vodafone and O<sub>2</sub>, and year ended December 2001 for T-Mobile and Orange. Excludes calls from outside UK.

6.18. Table 6.9 shows the number of fixed-to-mobile call minutes for the period 1996/97 to 2001/02 in total and by the larger FNOs.

TABLE 6.9 Shares of number of fixed-to-mobile call minutes generated by the main FNOs, 1996/97 to 2001/02

	<i>per cent</i>					
	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/00</i>	<i>2000/01</i>	<i>2001/02</i>
BT	78.4	77.4	71.2	67.0	65.6	64.1
Cable & Wireless	11.2	12.8	12.0	11.4	8.5	7.1
Ntl & Telewest	6.2	5.7	6.4	9.0	14.6	14.8
Others*	4.1	4.0	10.4	12.6	11.3	14.1
Total	100	100	100	100	100	100
Total (mins, m)	2,802	3,680	5,637	9,032	12,097	13,579

Source: CC calculations on Ofel data.

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\*Includes indirect access providers.

6.19. Table 6.9 shows that BT accounts for most of the fixed-to-mobile calls, although its share has fallen from over three-quarters in 1996/97 to less than two-thirds in 2001/02.

### ***Text messages***

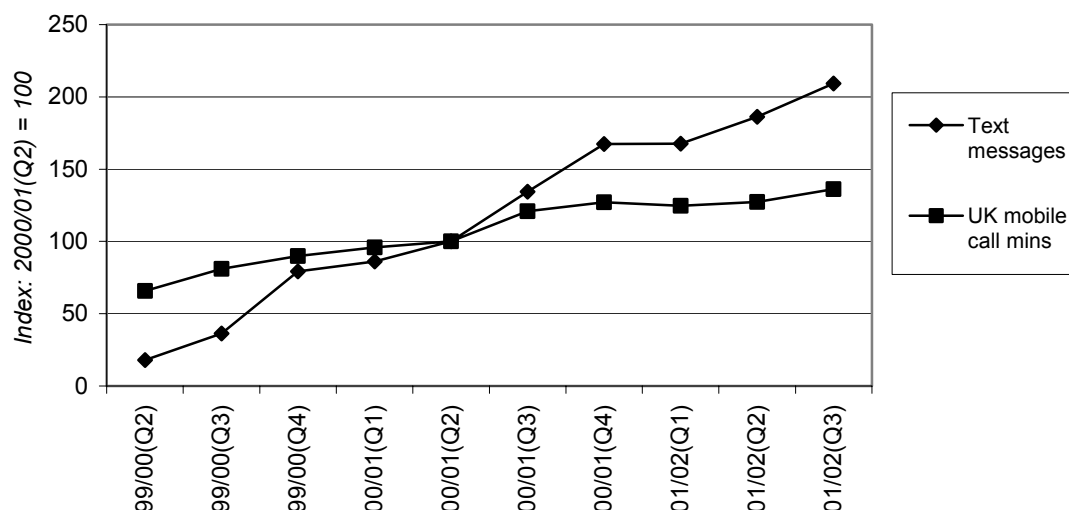
6.20. Another recent development in the use of mobile phones has been the increasing usage of text messages (SMS). In 1999/2000 (the first year Ofel collected data on the number of text messages sent) there were over 2 billion text messages sent; by 2001/02 this number had risen to over 13 billion.

6.21. Figure 6.4 looks at the relationship between the trend in the number of text messages and the trend in the number of UK call minutes from mobile phones.



FIGURE 6.4

**Trend in number of text messages and call minutes from UK mobile calls, 1999/2000(Q2) to 2001/02(Q3)**



Source: CC calculations on Ofel data.

6.22. Figure 6.4 shows that the number of text messages and UK mobile call minutes have grown during this period. The number of text messages has experienced the largest growth, increasing by a compound rate per quarter of 31 per cent. The comparative growth rate for UK mobile call minutes has been much lower, 8 per cent per quarter. Figure 6.4 does not show any marked decrease in the growth in the number of call minutes in response to the growth in the number of text messages.

**Technical change**

6.23. The technical aspects of mobile phones are covered in Chapter 3. In this paragraph we summarize the main technical changes since the MMC's last report into mobile phones.<sup>1</sup> GPRS, which is often referred to as 2.5G, was introduced between 2000 and 2002<sup>2</sup> (see paragraphs 3.46 to 3.48 for the technical details on 2.5G). In 2002 it was used by less than 5 per cent of mobile subscribers. 3G networks (see paragraphs 3.93 to 3.105 for a description of the technical details of these networks) were expected to be introduced in the UK in late 2002. Their coverage in the early days will not be nationwide but will most likely be around major conurbations and, to some extent, in those areas where a shortage of 2G capacity leads an MNO to install 3G equipment to provide extra capacity. The 3G licences awarded to the five MNOs (including Hutchison 3G) contain licence obligations requiring each licensee to rollout their 3G networks to cover 80 per cent of the UK population by 31 December 2007. Non-compliance with these obligations by a licensee would amount to a material breach of the licence terms, entitling the Secretary of State to revoke the licence. There is considerable uncertainty about the take-up of these services over the next few years. Some MNOs provided us with their projections for 3G services, these show 3G services accounting for less than one-third of subscribers and less than 10 per cent of outgoing minutes by 2005/06.

<sup>1</sup>MMC report, *Cellnet and Vodafone: reports on the references under section 12 of the Telecommunications Act on the charges made by Cellnet and Vodafone for terminating calls from fixed-line networks*, December 1998.

<sup>2</sup>Orange told us that it launched its commercial consumer GPRS service in April 2002, although GPRS was available on the Orange network from 2001. T-Mobile said that it rolled out GPRS technology in its network in mid-2001 and launched its first commercial GPRS service (picture messaging) in June 2002. O<sub>2</sub> told us that its offering was introduced to the business sector in June 2000 and to consumers in 2001. Vodafone stated that it introduced GPRS in April 2001.

## Price levels

6.24. This section and the next one on price changes look, on the whole, at retail prices by type of call and not at retail prices by MNOs. The latter is discussed at paragraphs 6.122 to 6.149. There are a number of different prices for making voice calls, for example MNOs' retail prices for on-net, off-net, mobile-to-fixed calls and FNOs' retail prices for fixed-to-mobile and fixed-to-fixed calls (see Appendix 6.1). It is difficult to compare these prices due to the number of different elements. It is clear, however, that off-net prices are in general higher than other prices (except, on the whole, for international calls which are more expensive again). This will have changed for a certain number of post-pay calls with the introduction in 2002 of inclusive minutes for off-net calls (see paragraph 6.134). Before this time, the minutes included in the MNOs' tariff bundles covered mobile-to-fixed and on-net calls only. The difference in FNOs' prices for fixed-to-mobile calls and MNOs' prices for calls from mobiles is less clear as it will depend on which tariff package is being used for the comparison. It is clear, however, that FNOs' prices for fixed-to-mobile calls are generally higher than their prices than fixed-to-fixed calls. BT's retail price for calling mobile phones is made up of the termination charge paid to MNOs, BT's costs in originating and carrying the call and VAT. BT's costs in originating and carrying the call is known as its retention rate and until 31 July 2002 was regulated under an RPI-7 price control following an investigation by our predecessors, the then MMC.<sup>1</sup> With effect from 1 August 2002, BT's licence was modified such that its retention rate is no longer subject to a separate price control but is incorporated into the BT's general retail price basket. The price control will continue for four years until July 2006. For many of the other tariff packages, the price of fixed-to-mobile calls charged by FNOs is higher than the price of on-net and mobile-to-fixed calls charged by MNOs. However, the ratio between fixed-to-mobile and mobile-to-fixed charges shows wide fluctuations by time of day and weekend.

6.25. We used average call revenue per minute for these calls in order to obtain a rough comparison of their prices (see Table 6.10).

TABLE 6.10 Average retail revenue per minute,\* 2000/01

	2000/01 ppm
Off-net	24.9
Fixed-to-mobile	14.6
Mobile-to-fixed	7.1
On-net	5.9
Fixed-to-fixed†	2.6

*Source:* Of tel and CC calculations on data provided by Of tel. These numbers differ from those used in Chapter 5 which are simple averages derived from data provided by the MNOs. The numbers in Chapter 5 are also for a slightly different time period.

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\*Call revenue excluding subscription revenue divided by call minutes.

†Local and national calls combined.

6.26. Data provided by the MNOs broadly show the same ranking as Of tel's data with the exception of [  
*Details omitted.*  
*See note on page iv.* ].

6.27. We looked at the call prices (ie those outside the inclusive bundle) for contract subscribers offered by each MNO to see whether on-net prices were higher or lower than mobile-to-fixed prices for such customers (see Table 6.11). The outcome is inconclusive—in most cases the prices for these two types of calls are the same but in a small number of cases prices for on-net calls are lower than the prices for mobile-to-fixed calls and the reverse is also true in a small number of cases. We also looked at prices for prepay subscribers. In the main, on-net and mobile-to-fixed prices are the same for these subscribers.

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<sup>1</sup>In its 1998 report, the then MMC recommended that BT's weighted average retention should not exceed 3.4 ppm in 1999/2000 and that this ceiling should be reduced by RPI-7 in each of the two following years.

TABLE 6.11 On-net and mobile-to-fixed prices for contract subscribers, May 2002

	Number of tariffs where prices for on-net are:		
	Lower than mobile-to-fixed calls	The same as mobile-to-fixed calls	Higher than mobile-to-fixed calls
<i>O<sub>2</sub></i>			
Day	4	8	0
Weekend	0	8	4
Evening	0	8	4
<i>T-Mobile</i>			
Day	0	9	2
Weekend	0	9	2
Evening	0	9	2
<i>Vodafone</i>			
Day	2	9	0
Weekend	0	9	2
Evening	0	9	2
<i>Orange</i>			
Day	4	7	0
Weekend	0	10	1
Evening	0	10	1

Source: CC calculations on data in the Carphone Warehouse brochure, May 2002.

## Price changes

6.28. Of tel produces price trends for different types of mobile customers. These trends are based on the NERA model<sup>1</sup> that calculates the optimal price available with each operator for a range of customer types. Figure 6.5 shows the trends for the overall prices for prepay and contract customers.

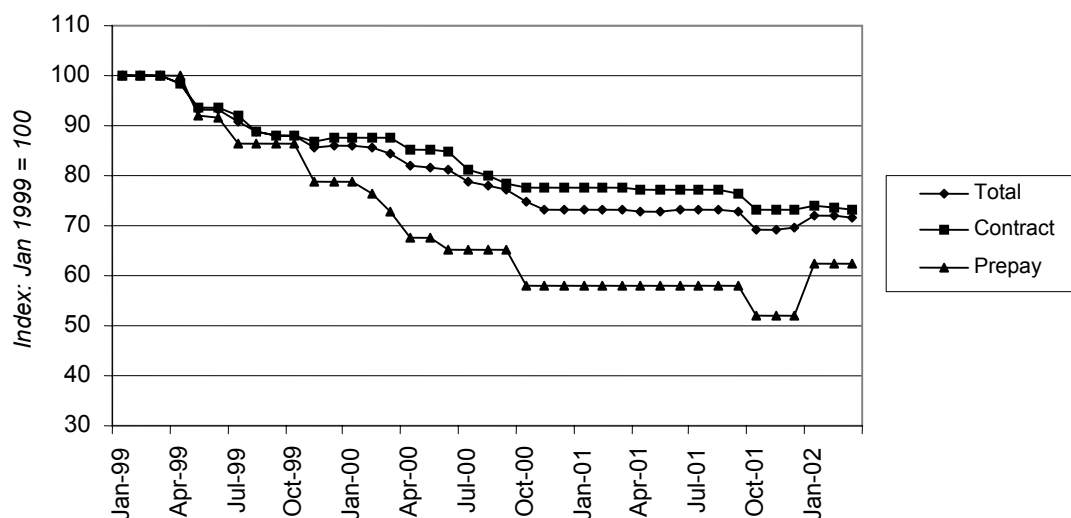
6.29. Of tel's price indices show that overall prices for mobile customers fell by 28 per cent between January 1999 (the starting date for the indices) to March 2002. For the same period, prices fell by 27 per cent for monthly contract customers and by 38 per cent for prepay customers. T-Mobile told us that the NERA index did not take into account the improvements in call quality and coverage, which had occurred over time, and so understated the effective price decreases.

6.30. Figure 6.6 shows the price trends for different call types; indices for prices of calls from fixed lines are shown for the period June 1996 to December 2001 and for prices of calls from mobile phones for the period January 1999 to December 2001. The comparisons are hindered by the different weightings used to construct the indices and by the different time periods. As a result, any observations on these data must be tentative.

<sup>1</sup>NERA is an economic consultancy which was commissioned by Of tel in 1998 to construct a suitable model to allow Of tel to track price changes for mobile customers over time. The NERA model classifies mobile customers into categories or 'profiles' according to usage patterns and then applies the operator tariffs to these profiles. User profiles of typical customers were identified from responses to a consumer survey carried out early in 1999. For each user profile the model estimates the proportion of calls made at peak, off-peak and weekend rates. The model also estimates the proportion of different call types made by each profile. Estimates are made of the proportion of calls made to fixed networks (local, national or international); calls made to mobile networks (own or other); and other calls such as voicemail, fax or text message. While customer profiles may have changed since the original survey was conducted, Of tel believed that the model provided an indicative guide to recent price trends. The model does not consider the cost of handsets but does take into account connection fees and handset subsidies as well as call charges. Full details of the model are outlined in a NERA report, *A Price Index for Mobile Telephony*, September 1999. To reduce monthly fluctuations in the latest figures, however, NERA has used a one-year moving average to estimate subscriber growth and the rate of new connections. This change means that results presented in the original NERA report for January to June 1999 have been revised slightly. In addition, NERA has made some small revisions to previously published data following clarification of the charging procedures on some packages.

FIGURE 6.5

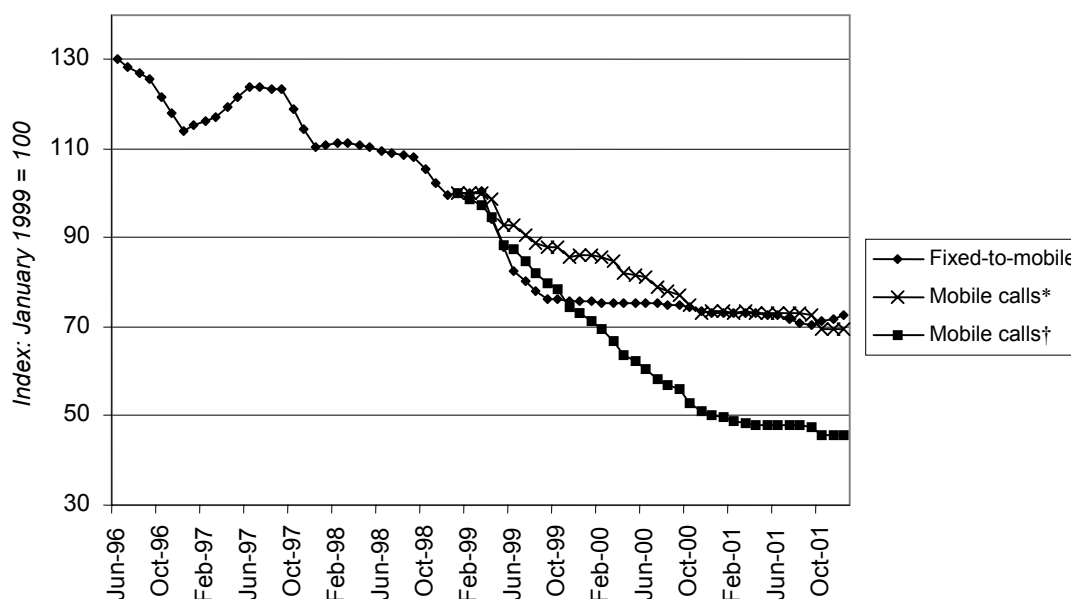
Overall prices trends for different types of customer, 1999 to 2002



Source: Oftel.

FIGURE 6.6

Overall price trends of different types of calls



Source: Oftel.

\*Weighted on constant market shares (at the start of the period) where market share is measured in terms of number of subscribers and reflects both changes in operator share and in the mix of post-pay and prepay. Indices began in January 1999.

†Weighted on changing market shares, ie changes in operator share and in the mix of post-pay and prepay. Oftel told us that it was the latter effect which drove the difference in the indices—prepay prices have fallen much faster over the period.

6.31. Figure 6.6 shows that between October 2000 and December 2001 fixed-to-mobile calls and all mobile calls (shown as Mobile calls\*) have had very similar price trends. Oftel told us that it was updating its price indices for mobile phones. Its original prices indices (one of which is shown as Mobile calls\* in Figure 6.6) were calculated by using market shares at the beginning of the period, ie constant market shares. Oftel told us that it was investigating calculating price indices by using changes in market shares (one of the indices is shown as Mobile calls† in Figure 6.6) and changes in market shares and new customer profiles (this index is not shown in Figure 6.6 as it shows a similar trend to Mobile calls†). Using either of these methods shows a much larger fall in prices for calls from mobile phones (over 50 per cent using the new method compared with less than 30 per cent using the current method).

6.32. Figure 6.7 shows the overall prices for fixed-to-mobile calls and fixed-to-fixed calls. There appears to be little relationship between the price trends of fixed-to-mobile calls and local fixed-to-fixed calls. The trends of prices for fixed-to-mobile calls and national fixed-to-fixed calls are broadly similar. O<sub>2</sub> told us that there was no reason why the price trends of fixed-to-mobile calls and local fixed-to-fixed calls should be at all similar.

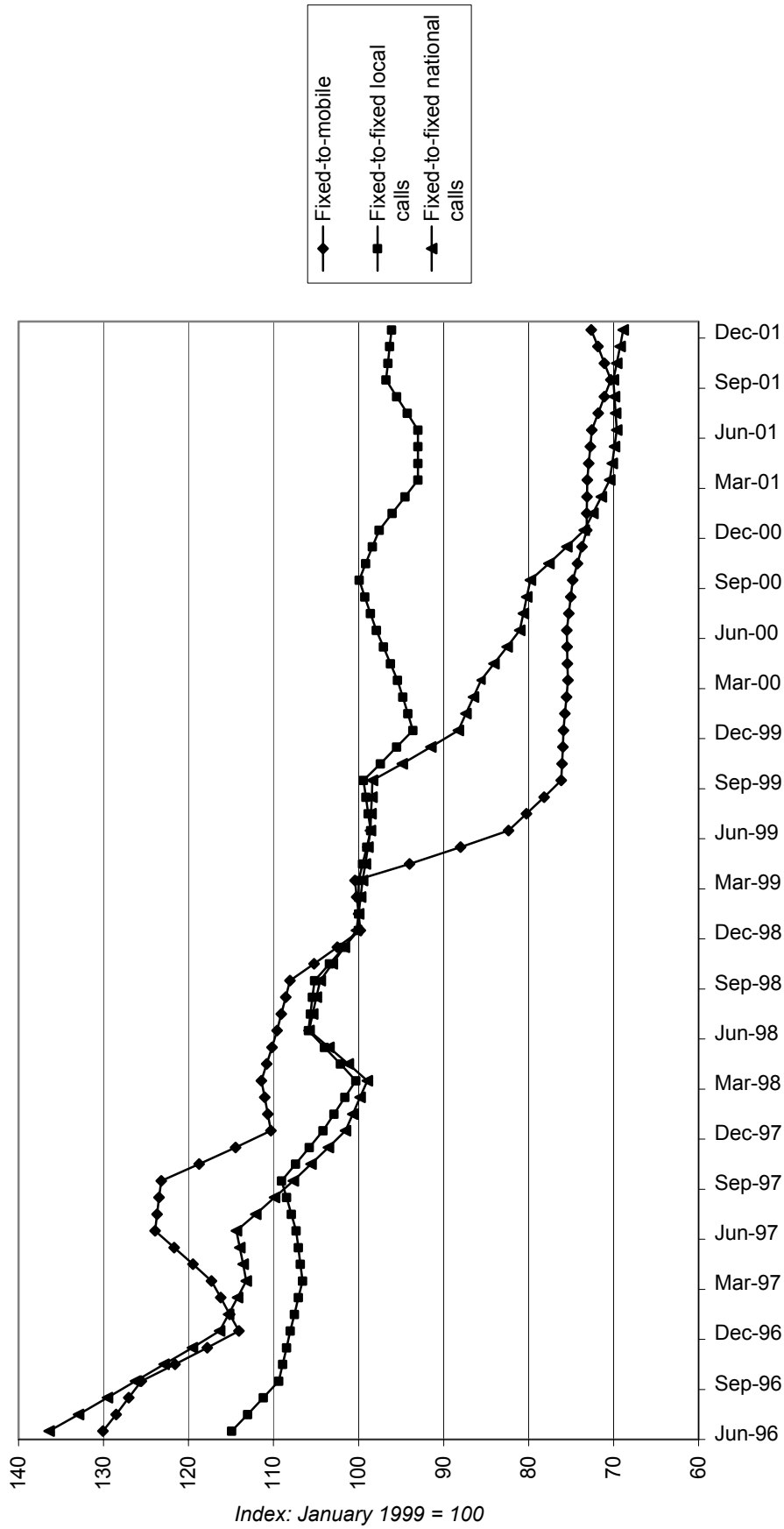
6.33. We looked at the trends in prices of on- and off-net calls. Oftel told us that the data could not be provided by the NERA model, but provided us with data based on average call expenditure per minute for on- and off-net calls for the period 1999/2000(Q1) to 2001/02(Q2) (see Figure 6.8). These data might be affected by changes in calling patterns and by changes in offerings from the MNOs, for example more on- and off-net minutes in inclusive bundles. Figure 6.8 shows that these two types of calls had different price trends up to 2000/1(Q1) (prices of on-net calls falling and prices of off-net calls rising), since when their trends have been broadly similar. T-Mobile told us that prepay packages experienced massive growth during the early years of the period shown in the figure. It said that as prices on prepay calling packages tended to be higher than contract, due to the lack of monthly access fees or commitments to purchasing fixed minimum volumes of minutes (bundled minutes), this would increase the price index as the mix of customers changed, even though call prices had not been increased. Vodafone provided us with data that showed its on-net prices had fallen slightly (in nominal terms) between November 2000 and November 2002.<sup>1</sup> For the same period, its data showed its off-net prices had fallen by about 15 per cent (in nominal terms). In contrast, the last two years of Oftel's data (1999/2000(Q2) to 2001/02(Q2)), shows Vodafone's off-net prices increasing by one-quarter (in nominal terms).

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<sup>1</sup>Vodafone told us that it had calculated its call prices by apportioning any subscription charge across all outgoing minutes made by the subscriber to which the subscription charge related.

FIGURE 6.7

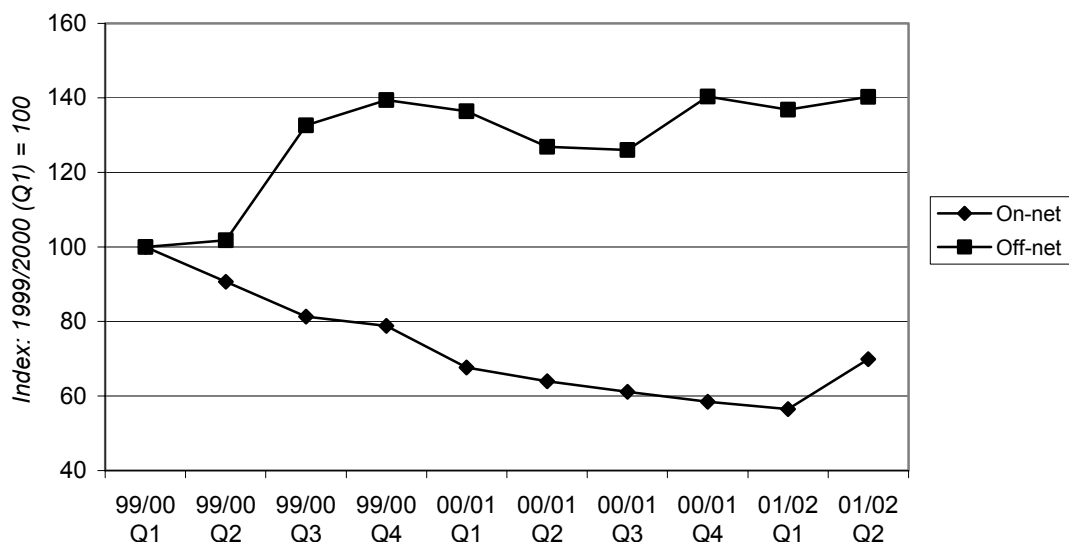
Overall price trends of different types of calls



Source: Oftel.

FIGURE 6.8

**Trend in on- and off-net prices, 1999 to 2002\***



Source: CC calculations based on data provided by Oftel.

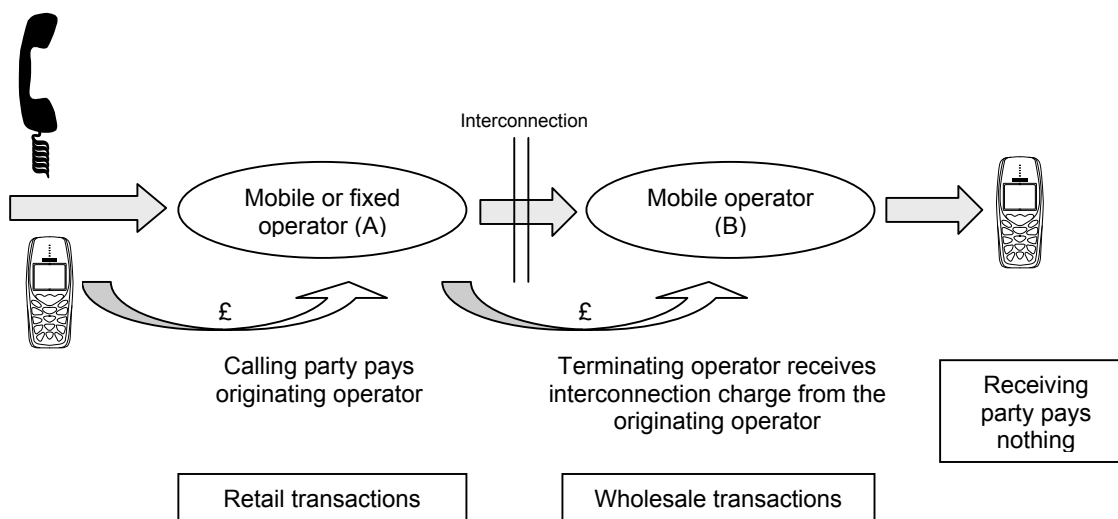
\*Call revenue from on- and off-net calls/call minutes from on- and off-net calls.

**The relationship between wholesale prices (termination charges) and retail prices for calls to and from mobile phones**

6.34. Figure 6.9 shows the relationship between wholesale and retail prices.

FIGURE 6.9

**Mobile termination and the CPP principle**



Source: CC.

6.35. Figure 6.9 shows the calling party on the left and receiving party on the right. When a fixed line customer (say using BT) telephones someone's mobile phone (say someone on the Vodafone network) the call is carried on the BT network on the first leg, then by the Vodafone network on the second leg. BT has to pay a charge to Vodafone for terminating the call on Vodafone's network so that the call can be conveyed to the called party. This is called a termination charge. Similarly, when a mobile phone

customer (say using Orange) makes an off-net call (say to someone on the T-Mobile network), Orange has to pay a termination charge to T-Mobile. The termination charge is a wholesale charge paid by operators, although the termination charge is an important component of retail prices. The termination charge is both a cost and a source of revenue to MNOs—they pay and receive the charge to and from other operators. MNOs do not charge themselves termination charges for handling on-net calls.

6.36. The economic incentives in setting termination charges are complicated but crucial to this inquiry. Suppose operator B raises its termination charges to operator A. This raises operator A's costs. In principle, operator A has a number of alternatives. First, it can pass the increased termination charge on to callers via its retail prices. Second, it could choose not to pass the increased termination charge on, thereby suffering a potential fall in profits. Third, if not regulated, operator A can raise its termination charge to operator B. Fourth, operator A can refuse to connect their customers to operator B. In practice, regulation and commercial necessity preclude the fourth option. Regulation and other agreements preclude the third option for FNOs: BT's termination charges are regulated and reciprocity has been agreed between BT and the other FNOs (ie each FNO must charge other FNOs the same termination charges as BT charges). This leaves the first and second options for FNOs and MNOs, and the third option for MNOs if their termination charges were not regulated. We asked the MNOs what they would do regarding these three options. Before reviewing their responses, it is worth noting an interesting feature of termination charges.

6.37. An increase in origination charges by operator A raises the price to operator A's customers. But an increase in termination charges by operator A raises the price to operator B. Operator A's customers never terminate their calls on their own network (unless they call another customer on the same network and in this case there is no termination charge). Thus a feature of termination charges is that they raise costs on other networks whilst increasing revenue to the network levying the charge. If, say, operator A increased its termination charges and this increase was passed on to retail prices, operator A's customers would not experience an increase in their retail prices. But customers on other networks would face a price rise when they telephoned someone on operator A's network. In order to avoid this rise in retail prices customers on other networks could switch to operator A, turning their off-net calls into on-net calls, or call recipients on operator A's network could switch to another network so that these calls become on-net or off-net but not involving operator A.

6.38. We asked the MNOs whether they would change their termination charges (ie change the charges paid by other operators) in response to an increase in the termination charges they themselves paid (ie if another MNO increased its termination charges). We also asked Oftel what it thought the MNOs would do. O<sub>2</sub> said that it might not increase its termination charges to other operators if another MNO increased its termination charges to O<sub>2</sub>. T-Mobile told us that the extent to which it would increase its termination charges in response to an increase in termination charges by another MNO would depend on market conditions. It said that its decision on termination charges would also be influenced by incoming traffic from overseas, [

*Details omitted. See note on page iv.*

]. Vodafone said that it would increase its termination charges in responses to an increase in termination charges by another MNO and use the surplus revenue to offer more competitive subscription charges. Orange stated that it would be forced to increase its termination charges in response to an increase in termination charges by another MNO. Orange added that this threat (of a reciprocal increase on charges) would almost inevitably lead the other MNO to question the profitability of its proposed price increase and probably to withdraw the proposal. Orange questioned the meaningfulness of our question as it said it was predicated on an assumption of zero regulation which ignored the dynamics of existing interconnect agreements. It told us that it would simply not be possible for any MNO to unilaterally raise its termination rates and consequently current charges must be recognized as the upper bound in our analysis. Oftel said that the most obvious response of an MNO that faced increased costs due to one of its rivals increasing its termination charges was to raise its own termination charges if these were not regulated.

### ***Calling party pays***

6.39. Oftel told us that a key factor in its analysis of the level of competition of mobile termination charges was the fact that, in the UK, and almost every other country, the person who initiates the call



pays for it as is generally the case for calls from fixed lines. This is known as the CPP principle. Oftel stated that, for the majority of mobile services, the use of the service was initiated and paid for by mobile owners, who made their choice of network and package based on their satisfaction with these services. However, call termination was different; although this service was initiated, and paid for, by the caller to the mobile phone, he had no choice in the network being called. Paragraphs 6.210 to 6.217 discuss closed user groups.

6.40. Oftel said that the overall effect of the CPP principle in the retail market was that, whereas mobile networks had an incentive to keep the price of origination services at a level to attract and retain customers, they had far less incentive to keep the price of termination services low. This was because callers calling from their own network do not pay the termination charges of their own network and are therefore unlikely to care about what termination charge their network levied. A network levying a high termination charge could therefore offer low origination charges and become attractive. Oftel said that callers could not take their business elsewhere if dissatisfied as they had to use that network to reach that particular number. As a result Oftel saw CPP as separating the actions of the caller, who paid the termination charge (reflected in the retail price), and the mobile customer who received the call and who could influence the termination charge through his choice of network.

6.41. O<sub>2</sub> said that competition in the broad mobile sector was sufficient already to constrain the level at which MNOs could set their termination charges. It told us that an MNO could not price any element of the package at a level that would reduce the attractiveness to consumers of continuing to use mobile services. In particular, it could not set termination charges without close regard to the price of outgoing calls, as the two must be in balance. It stated that an MNO would not be acting commercially rationally if the effect of its pricing of termination were not to take into account consumers using alternative means of communication instead of calling mobiles.

## **Termination charges**

6.42. The weighted average termination charges of Vodafone and O<sub>2</sub> are regulated. Following the MMC's investigation of the termination charges of Cellnet and Vodafone, these two MNOs were required to reduce their weighted average termination charge to 11.7 ppm in 1999/2000 from a level of 14.8 ppm at the end of 1998/99.<sup>1</sup> Both MNOs were required to reduce their weighted average termination charges by RPI-9 in 2000/01 and in 2001/02 when the need for a price control was to be reviewed. Any further price control, if required, should have come into force in April 2002. The DGT proposed, and Vodafone and O<sub>2</sub> agreed, to roll over the existing price control to 31 March 2003 pending the outcome of our inquiry.

6.43. Following a request from BT to Oftel in 1999 to determine the level of termination charges of Orange and One2One, the DGT indicated his preliminary views that the level of charges that should apply to these two MNOs was the then MMC's public interest benchmark level established for Cellnet and Vodafone, adjusted for cost differences arising from differences in Orange's and One2One's networks. Before the DGT made his determination, BT reached an agreement with Orange and One2One over the level of their termination charges, taking into account the DGT's view. T-Mobile told us that it and BT agreed on weighted average termination charges whilst Orange said that its annual prices reviews with BT focused on Orange's time of day rates (see Table 6.13).

6.44. Table 6.12 shows the average termination charges of the four MNOs for the current price control period.

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<sup>1</sup>Between April and July 1998, Cellnet's weighted average termination charge was 16.3 ppm compared with Vodafone's 16.12 ppm. Between August 1998 and March 1999, they had the same weighted average termination charge, 14.8 ppm.

TABLE 6.12 MNOs' average termination charges, 1999/2000 to 2002/03

	<i>ppm</i>			
	1999/00	2000/01	2001/02	2002/03
Vodafone*	11.7	10.86	10.2	9.4
O <sub>2</sub> *	11.7	10.86	10.2	9.4
T-Mobile†‡	(≈)§	(	≈	)¶
	1999	2000	2001	2002
Oranget	(	≈		)□

Source: OfTel and CC calculations on data provided by MNOs.

\*Charge under the price cap. Actual charges differed slightly due to mis-estimations but these are corrected in the subsequent year. These were as follows: 11.71 ppm for Cellnet and 11.73 ppm for Vodafone in 1999/00; 10.87 ppm for Cellnet and 10.84 ppm for Vodafone in 2000/01; and 10.18 ppm for Cellnet and 10.2 ppm for Vodafone in 2001/02.

†  
‡  
  
§  
¶  
  
□

*Details omitted.  
See note on page iv.*

6.45. The MNOs have different termination charges by time of day and day of the week. They are free to set these charges so long as the resulting weighted average charge<sup>1</sup> meets the charge control. The MNOs' charges by time of day and day of week are shown in Table 6.13.

TABLE 6.13 MNOs' termination charges, 1999 to 2002\* (ppm)

	April 1999	May 1999	Mar 2000	April 2000	Aug 2000†	Feb 2001	April 2001	Sept 2001‡	April 2002	Sept 2002‡
<b>Vodafone</b>										
Day	17.5	13.8			13.2			13.2		13.2
Evening	12.2	9.8			9.8			7.3		5.0
Weekend	5.3	4.7			4.7			4.7		1.3
<b>O<sub>2</sub></b>										
Day	17.6	13.2			12.5	12.4		12.4		12.4
Evening	12.3	13.2			12.5	12.4		10.2		7.4
Weekend	5.3	1.1			1.1	1.1		1.1		1.1
<b>Orange</b>										
Day	17.2		15.2				14.5		13.9	
Evening	12.1		11.0				10.5		10.0	
Weekend	5.1		4.5				4.3		4.1	
<b>T-Mobile</b>										
Day	17.5		16.8	16.8			15.6			
Evening	12.2		12.2	10.8			10.8			
Weekend	5.3		2.5	2.5			2.5			

Source: MNOs.

\*Termination charges are only shown for dates when they change.

†September for O<sub>2</sub>.

‡October for O<sub>2</sub>.

<sup>1</sup>On the assumption that changes in termination charges occur on the first day of a month, the average charge in each month is calculated by taking the termination charges by time of day (daytime, evening and weekend) and deriving the average using as weights the share of call minutes of each time of day period in same month of the prior financial year. Where changes in termination charges occur at other times in a month, volume weights for parts of the month would be needed, corresponding to the periods during which different termination charges were in force. The annual average is the mean of the 12 average monthly charges using as weights the share of call minutes in each month in the prior year.

6.46. Vodafone and O<sub>2</sub> have concentrated their recent reductions on evening and weekend rates whereas Orange and T-Mobile have broadly reduced their rates for all time periods.

## **Market definition**

6.47. We now turn to the question of market definition. We begin by setting out our framework for analysis; we then look at the geographical market and finally the product market.

### ***The framework for analysis***

6.48. In deciding the appropriate market for competition analysis, we have to determine the products that compete in the market and the geographical extent of the market. In order to do this we consider in particular what would be the extent of substitution away from products sold in various locations from the standpoint of consumers (demand-side substitution) and suppliers (supply-side substitution) in response to an SSNIP above the competitive level. Such a test is normally referred to as the SSNIP test or hypothetical monopolist test, and is widely used by competition authorities. The SSNIP test is an iterative procedure. We start with the narrowest definition available of the group of products that are produced by the firms under investigation. We then ask, if there was only one supplier of these products (a hypothetical monopolist), would that supplier be able, within about a year, to increase its profits by raising prices by a small amount (usually considered to be around 5 to 10 per cent). If the price rise is unprofitable, we then add the closest substitute products, and repeat the procedure until we find a collection of products for which a hypothetical monopolist could successfully sustain a 5 to 10 per cent price rise. If the price rise by the hypothetical monopolist is profitable, the collection of products that we are considering is a market. We conduct the test in a similar manner when we consider the geographic boundaries of the market.

6.49. When applying the test, consideration has to be given to whether current prices are above competitive levels—even a monopolist would find it unprofitable to raise prices further at some level. Applying the test to prices above their competitive levels would be inappropriate as it could lead to a market being too widely defined. The reason is that the monopolist sets a price as high as it can; at that price, other products are just at the margin of being substitutes for the monopolized product. Raising the price a further 5 to 10 per cent above this level will erroneously suggest that these products are—or would be were the market to be competitive—substitutes for the monopolized product. This is known as the cellophane fallacy after a US case involving cellophane products.<sup>1</sup>

6.50. We begin our analysis of market definition by looking at the geographical market. We then look at the product market.

### ***The geographical market***

6.51. We have to establish whether the market is local, regional, national or international. All of the parties that expressed a view told us that the UK was the relevant geographical market. We agree and note that this was not an issue of dispute in this inquiry. Therefore, we did not pursue this matter further.

### ***The product market***

6.52. We begin this section by summarizing the main parties' views on market definition. Next we look at substitution at the wholesale level and then at the retail level.

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<sup>1</sup>*US v EI Du Pont de Nemours & Co* (1956), 351 US 377.

### *Summary of the main parties' views on the relevant product market*

6.53. Oftel told us that it made a distinction between wholesale and retail markets. At the wholesale level it concluded that there was a separate market for call termination on the network of each MNO and that a distinct market for wholesale international roaming existed. At the retail level Oftel said that market definition should be assessed by looking at substitution between different call types; although there were some possibilities of substitution at this level, it reached the following conclusions:

- (a) there are distinct markets for fixed and mobile services;
- (b) prepay and post-pay services are part of the same market; and
- (c) text messages and voice may not be in the same market.

6.54. None of the other main parties agreed with Oftel's conclusions on market definition. Broadly, they believed that there was an overall market for mobile services. The views of the main parties and the reasons for their views are set out in Chapters 9 to 13. The FNOs agreed with Oftel's wholesale market definition. Most of the FNOs that gave us views on the retail market agreed with Oftel's definition. BT did not; it believed that mobile and fixed services were in the same retail market. The views of the third parties and the reasons for their views are set out in Chapter 15.

### *Substitution at the wholesale level*

6.55. We asked the MNOs whether there were any substitutes to terminating a call on a particular mobile network if the operator of that network hypothetically raised its termination charges by 5 to 10 per cent. All of them told us that there were no substitutes at present and that this was likely to remain the case for the next few years. This was also the view of the FNOs.

6.56. However, all the main parties, including Oftel, recognized that the demand for the wholesale termination of calls to each MNO is derived from the retail demand for calls. This is one of the reasons why some of the MNOs thought that it was more appropriate to define the market in terms of all mobile services as termination charges feed through into retail prices. Having established, as the main parties told us, that there was no immediate prospect of substitution at the wholesale level and little prospect in the next few years, we have to consider the effect on profitability of a hypothetical rise in termination charges when reflected in the possible increase in retail prices and the demand- and supply-side responses to this possible rise in retail prices. For substitution to occur at the retail level, increases in (wholesale) termination charges have to be passed on in retail prices. T-Mobile told us that an increase in termination charges would lead to lower retail prices, as competition in the mobiles market would drive overall profitability of the bundle back to original levels.

#### ● *Balance in off-net traffic*

6.57. A consideration in determining whether hypothetical increases in termination charges will be passed on in retail prices to mobile customers is the extent to which off-net traffic (ie traffic between the MNOs) is balanced between the MNOs. If traffic is balanced then increases in termination charges by one MNO, if these were not capped by regulation, might lead to increases in termination charges by other MNOs, resulting in MNOs' profits being unchanged and MNOs deciding not to raise their retail prices. In this situation—no changes in retail prices—there would be no demand- or supply-side responses at the retail level. This scenario does not apply to FNOs as BT's termination charges are regulated and reciprocity has been agreed between BT and the other FNOs. O<sub>2</sub> said that, as the retail market was broadly competitive, competition between MNOs would ensure that, if one raised its termination charges, another would almost certainly resist such increases in order to win market share. Table 6.14 shows the extent to which off-net minutes between the MNOs are balanced for 2001/02.

TABLE 6.14 Off-net minutes, 2001/02\*

	million				
	Vodafone	O <sub>2</sub>	T-Mobile	Orange	Total
Vodafone	(	)	)	)	)
Outbound					
Inbound					
Difference					
Difference (%)†					
O <sub>2</sub>					
Outbound					
Inbound					
Difference					
Difference (%)†					
T-Mobile					
Outbound					
Inbound					
Difference					
Difference (%)†					
Orange					
Outbound					
Inbound					
Difference					
Difference (%)†					

Figures omitted.  
See note on page iv.

Source: MNOs and CC calculations based on data provided by the MNOs.

\*Year ended March 2002 for Vodafone and O<sub>2</sub>, and year ended December 2001 for T-Mobile and Orange.  
†As percentage of outbound minutes.

6.58. Table 6.14 shows a variation in the proportion of off-net minutes that are not in balance by MNO. [ ] has the smallest proportion of overall off-net minutes that are not in balance (just under 3 per cent) and [ ] has the highest (over one-quarter). In terms of off-net minutes between each MNO, traffic between [ ] and [ ], and between [ ] and [ ], is more in balance (less than 4 per cent is not in balance) and traffic between [ ] and [ ] is more out of balance (about 35 per cent). If MNOs had the same termination charges, MNOs with positive differences in Table 6.14 would receive more termination revenue from other MNOs than they pay to these MNOs.

6.59. Compilation of Table 6.14 required a number of assumptions to be made. This was because the information it contains is not normally collected by the MNOs as many of the inbound calls are conveyed to the MNOs by BT so that the origin of these minutes is not obvious. It may be doubted whether the MNOs take account of imbalances if they are not normally aware of them. Furthermore, the pattern of imbalances is in any case likely to change from time to time.

6.60. We used the data in Table 6.14 and calculated changes in MNOs' net revenue (revenue received from termination charges paid by other MNOs minus cost of paying termination charges to other MNOs) by using illustrative termination charges of 10 and 5 ppm. The results, which suffer from the problems discussed in paragraph 6.59, are shown in Table 6.15. Table 6.15 does not take into account any fall in revenue to MNOs from the termination charges paid by FNOs. This and other financial implications of any changes in termination charges are covered in Chapter 9.

TABLE 6.15 Changes in net revenue\* if termination charges fell from 10 to 5 ppm

	£ million			
	Vodafone	O <sub>2</sub>	T-Mobile	Orange
Net revenue if:				
Termination charges @ 10 ppm				
Termination charges @ 5 ppm				
Difference				
Termination charges paid to other MNOs				
Difference as % of termination charges paid to other MNOs				

*Figures omitted.  
See note on page iv.*

Source: CC calculations based on data provided by OfTel and the MNOs.

\*Revenue received from termination charges paid by other MNOs minus cost of paying termination charges to other MNOs.

6.61. Table 6.15 shows that reductions in termination charges for off-net calls only make very little difference to the financial positions of the MNOs.

- *Consequences in the retail market of a rise in wholesale prices*

6.62. With regard to the SSNIP test, we asked the main parties what they thought would happen to retail prices if there was a hypothetical rise in termination charges, on the assumption that regulation would not preclude this. We deal first with FNOs and then with MNOs.

6.63. BT's retail price for calling mobile phones is made up of the termination charge paid to MNOs, BT's retention rate and VAT. BT's retention rate is part of BT's general regulated retail price basket. Telewest told us that it chose to benchmark its retail prices against BT's prices, if BT reflected a change in price, Telewest reflected a change.

6.64. All of the main parties agreed that FNOs would raise their retail prices following a hypothetical increase in termination charges by the MNOs.

6.65. Unlike BT, MNOs are not regulated in relation to their retail prices. OfTel said that the level of competition in the retail mobile market would determine the extent to which increases in termination charges were passed on as increases in retail prices. If the retail market was fully competitive, increases in termination charges would be passed on in full to retail prices but this would not be the case if the retail market was not competitive—in a competitive market MNOs would have no excess profits and a general cost increase, which is what a rise in termination charges would appear as to the originating network, would lead to a rise in prices. OfTel stated that the retail market was 'prospectively competitive'. OfTel said that the current state of competition implied that some but not all of the increase in termination charges would be passed on to retail prices. OfTel stated that MNOs would still increase their retail prices even if they raised their termination charges in response to one of their rivals increasing its termination charges because the increase in termination charges they faced would raise their marginal costs of handling traffic.

6.66. O<sub>2</sub> told us that an increase in call termination rates would affect the marginal cost of additional off-net traffic, even if traffic between MNOs was initially balanced. It stated that the marginal cost of additional off-net traffic influenced its retail price, as it determined the incentives to adjust retail prices upwards or downwards. O<sub>2</sub> said that, if its costs were to rise because another MNO increased its termination charges, O<sub>2</sub> would consider passing on these costs as higher off-net prices but it might also not pass them on for a period and make an adjustment in the price of another element in the basket of services it provides. O<sub>2</sub> told us that its decision would depend upon the size of the rise in termination charges as its ability to absorb cost increases was limited. It said that it would be unlikely to change its retail prices as a result of a 5 to 10 per cent increase in termination charges by another MNO—such an increase would make its prices comparable with those of Orange and T-Mobile. However, it told us that it could not absorb increases in termination charges of 20 per cent or more. O<sub>2</sub> said that even if MNOs did not raise their retail prices there would still be price pressure on termination charges as the FNOs, who would raise their retail prices, accounted for most of the termination minutes on the networks of the MNOs (about 70 per cent of termination minutes—Table 6.8).

6.67. T-Mobile told us that the extent to which it would increase its retail prices in response to an increase in termination charges by another MNO would depend on market conditions.

6.68. Vodafone said that it would increase its off-net prices in responses to an increase in termination charges by another MNO. It stated that the extent to which changes in call termination charges would feed through into retail prices was a function of the strength of competition in the market, not the existence of traffic balances or imbalances. Hence a change in call termination charges would lead directly to a change in off-net prices.

6.69. Orange told us that it would make a commercial decision as to whether to increase its retail prices following a rise in termination charges by another MNO. One of the reasons for this was that it, like other MNOs, did not differentiate the price of its off-net calls by MNO.

6.70. Retail customers will only change their behaviour, for example switching networks, in response to hypothetical increases in termination charges if such increases lead to a rise in retail prices to them. Of the MNOs, only Vodafone was clear that such an increase in retail prices would occur. The other three MNOs told us that it was not necessarily the case that their retail prices would rise following an increase in termination charges—the outcome would depend upon their commercial strategy. Oftel said that retail prices would rise but not to the same extent as the increase in termination charges. As shown above, all of the main parties agreed that FNOs would raise their retail prices following an increase in termination charges by the MNOs. Therefore, when we assess the price sensitivity of customers, we have to bear in mind that it is not clear whether a retail price rise would occur following an increase in termination charges and if one did occur it is not clear that the size of retail price rise would be the same as that for termination charges. Even if the hypothetical increase in termination charges were fully passed on to retail prices, the percentage increase in retail prices would be less than the increase in termination charges, significantly less for off-net calls, because termination charges paid to other networks only account for a proportion of the retail prices for calling mobile networks. Using the MNOs allocation of subscription revenue to call revenue (see Chapter 5), termination charges paid to other MNOs accounted for between 33 and 55 per cent of retail charges excluding VAT of off-net calls and termination charges to FNOs accounted for between 6 and 16 per cent of retail charges excluding VAT of mobile to fixed calls. Oftel estimated that termination charges accounted for about two-thirds of an FNO's retail price of calling a mobile phone.

- *Price sensitivity*

6.71. We commissioned BMRB to carry out a survey of those who pay for the use of phones (mobile and fixed). BMRB's report (including the questionnaire) is shown in Appendix 6.2. BMRB asked respondents to think about the mobile phone customers they called most often in the UK. Respondents were asked how they would normally contact these people's mobile phone for a 2-minute call during the day between Monday and Friday. 45 per cent said that they would use their landline to contact these people's mobile phone and about the same (44 per cent) said that they would use their mobile. After answering this question where no prices were specified, respondents were asked a similar question but this time they were given some price information and asked about telephoning the same person. (They were specifically asked about telephoning this person and not this person's mobile phone, but it is possible that as respondents were used to being asked about using and calling mobile phones that they still had in mind calling the same person's mobile phone.) In order to try and take account of the cellophane fallacy (see paragraph 6.49), the sample of respondents was split into two. One group of respondents (sample A) was asked questions using current prices and the other group (sample B) was asked questions using lower prices. The results from this set of questions is shown in Table 6.16. O<sub>2</sub> and T-Mobile told us that they had serious reservations about the ability of the questions in this survey to elicit meaningful responses. We recognize that surveys are subject to margins of error and that their results must be interpreted with this in mind. However, we feel that the results from the BMRB and other surveys provided us with useful information that we should take into account. This information should be set in context. It is only part of a vast amount of information that we have used in reaching our various conclusions.

TABLE 6.16 Influence of price and price changes

**Part A****Changes in usage when having price information**

Price information	All	Sample	
		A	B
Fixed to mobile	None given	40 ppm	20 ppm
Mobile to mobile	None given	60 ppm	30 ppm
<i>Percentage of respondents making certain types of calls</i>			
Fixed to mobile	44.6	69.8	71.0
Mobile to mobile	44.3	22.4	23.0
Other/don't know	11.2	7.7	6.1
Total	100	100	100
Sample size	1299	620	675

**Part B****Changes in usage due to price changes—fixed-to-mobile customers**

Price information		
Fixed to mobile	44 ppm	22 ppm
Mobile to mobile	60 ppm	30 ppm
<i>Percentage of respondents making certain types of calls</i>		
Not change	92.4	91.6
Use mobile to mobile instead	3.9	5.2
Other/don't know	3.7	3.1
Total	100	100
Sample size	433	478

**Part C****Changes in usage due to price changes—mobile-to-mobile customers**

Price information		
Fixed to mobile	40 ppm	20 ppm
Mobile to mobile	66 ppm	33 ppm
<i>Percentage of respondents making certain types of calls</i>		
Not change	80.6	90.3
Use fixed to mobile instead	15.1	8.4
Other/don't know	4.3	1.3
Total	100	100
Sample size	139	154

Source: BMRB.

6.72. Part A of Table 6.16 shows that many respondents said they would change their method of calling one of their main contact group when they were given some price information. Proportions that would use fixed-to-mobile calls (the lower price call) rose from about 45 to about 70 per cent. Another possible reason for the change could be that when no price information was given, respondents were asked about telephoning a mobile phone whereas when they had price information they were asked about ringing this same person but this person's mobile phone was not mentioned. Parts B and C of Table 6.16 show how respondents said they would change their calling behaviour in response to a 10 per cent price change. Part B covers those respondents that before the price change said they would have made fixed-to-mobile calls whereas Part C covers those that said they would have made mobile-to-mobile calls. In three out of the four scenarios tested, over 90 per cent of respondents said that they would not change the way they contacted the person they were calling in response to a 10 per cent price rise. In the remaining scenario this proportion was over 80 per cent. These proportions might overstate the responsiveness of customers to increases in termination charges—MNOs might not increase their retail prices in response to a rise in termination charges (see paragraphs 6.65 to 6.70)—and the percentage increase in retail prices would be likely to be less than 10 per cent because termination charges only account for a proportion of the costs of retail prices (see paragraph 6.70).

6.73. NOP Business carried out a survey of residential telephone customers in February 2002 for O<sub>2</sub> as part of its work for our inquiry. NOP Business also carried out a survey of residential telephone customers for Vodafone in March and April 2001. We use NOPO<sub>2</sub> when referring to the survey NOP Business carried out for O<sub>2</sub> and NOPV for the earlier survey it carried out for Vodafone. Respondents were asked by NOPO<sub>2</sub> whether they would be likely to switch MNOs if a different mobile operator offered exactly the same package as they currently had so they would have the same handset and service and so on, but the cost to other people of calling their mobiles (either from fixed lines or other mobile phones) was reduced by 25 per cent. Over half of respondents said that they were likely to switch and 40 per cent said they were unlikely to switch.



### *Substitution at the retail level*

6.74. We turn now to the question of how far mobile telephony competes with fixed telephony. We have found it helpful to think about this question by considering whether there is an access market, ie whether customers think in terms of substituting between access to mobile phones and access to fixed lines, and whether there is a calls market, ie whether customers take the access decision as a given and think in terms of substituting between calls made on mobile phones and calls made on fixed telephones.

#### ● *Access*

6.75. Mobile and fixed telephony clearly have fundamentally different characteristics. A mobile phone is associated with a person, not a place, and allows the customer to make and receive voice calls or text message anywhere within the coverage area; but mobile phones have not been suitable until recently for sending or receiving large amounts of data or for Internet access. A fixed-line telephone, by contrast, is associated with a place rather than a person; it does not usually send or receive text messages; but it is suitable for data transmission and Internet access.

6.76. The price of access for a mobile phone service includes the price of the phone. The cheapest price for a mobile phone for prepay customers is about £70 (all prices in this paragraph include VAT).<sup>1</sup> Contract customers can obtain a mobile phone by just paying a monthly line rental. They have to agree to pay a line rental for a minimum period, usually of one year. The lowest line rental is about £13 per month, £156 a year. The line rental provides the customer with a number of inclusive minutes per month. Fixed-line telephones can be bought for about £10. In addition to the phone, the customer will have to pay a line rental. BT's annual line rental is about £120 for residential customers (the actual price depends on the payment method) and about £193 for business customers. New customers have to pay an installation fee, for their first line, BT's residential customers pay about £75 and its business customers pay about £116. BT charges lower unit amounts for extra lines.

#### ● *Calls*

6.77. In 2001, DotEcon was commissioned by BT to investigate fixed-to-mobile substitution. As part of its investigation, DotEcon commissioned a survey of telephone customers in September 2001 by FDS International. DotEcon asked respondents whether, if the cost of calls on their mobile phones fell by about one-quarter, or by about one-half, this would change how much they used their fixed lines (see Table 6.17).

TABLE 6.17 **Proportion of respondents that would change their usage of fixed lines following a fall in the price of mobile phone calls**

<i>Use of fixed lines</i>	<i>Price of mobile phone calls fall by:</i>	
	<i>One-quarter</i>	<i>One-half</i>
Same as now	64.1	48.7
A little less	16.1	15.5
Somewhat less	9.6	10.9
Much less	10.2	25.0
Total	100	100

Source: DotEcon.

6.78. Table 6.17 shows that, following a 25 per cent fall in the price of mobile phone calls, just under two-thirds of respondents said that they would use their fixed line the same as before the price fall, 16 per cent said they would use their fixed line a little less, 10 per cent said somewhat less and the same proportion said much less. Following a 50 per cent reduction in the price of mobile phone calls, the proportions of respondents saying the usage of their fixed line would change a little less and somewhat less were very similar to the proportions following a 25 per cent price fall, 16 and 11 per cent

<sup>1</sup>Taken from Carphone Warehouse brochure, May 2002. The December 2002 edition included a handset (for prepay customers) priced at £49.99 with another at £59.99 and the November 2002 edition included two handsets priced at £59.99.

respectively. There was a change in the proportions of respondents saying ‘same as now’ or ‘much less’, the former falling from 64 per cent (in response to a 25 per cent price fall) to 49 per cent (in response to a 50 per cent price fall) and the latter rising from 10 to 25 per cent.

6.79. Oftel’s various residential surveys asked respondents about the impact of mobile phones on their use of fixed lines (see Table 6.18).

TABLE 6.18 **Impact of mobile phones on the use of fixed lines**

	<i>per cent</i>				
	<i>Aug 00</i>	<i>Feb 01</i>	<i>Aug 01</i>	<i>Feb 02</i>	<i>Aug 02</i>
<i>Non-price reasons</i>					
Use mobile when fixed phone being used by someone else	22	23	22	25	21
Use mobile when fixed phone is connected to the Internet			14	15	13
Use mobile even when more expensive than fixed because convenience is more important than cost	20	24	23	20	25
Not actively choosing mobile in any of the above circumstances	31	32	34	35	37
<i>Price reasons</i>					
Use mobile instead of fixed to use up free call minutes	21	18	15	19	13
Use mobile instead of fixed to call mobile on same network because cheaper	14	15	16	15	13
Use mobile instead of fixed to call mobiles on different networks because cheaper	7	3	6	6	4
Use mobile instead of fixed at certain times of day because cheaper	13	12	13	15	10
Use mobile instead of fixed for certain numbers because cheaper	10	11	9	13	9

Source: Various Oftel residential surveys.

6.80. Table 6.18 shows that convenience (proportions ranging from 13 to 37 per cent) is a more important reason than price (proportions ranging from 4 to 13 per cent) for using mobile phones as opposed to using fixed lines price.

6.81. NOPO<sub>2</sub> asked respondents what alternatives they considered before making fixed-to-mobile and mobile-to-mobile calls. The results are shown in Table 6.19.

TABLE 6.19 **Alternatives considered before making certain types of calls**

	<i>per cent</i>	
	<i>Alternatives considered before making:</i>	
	<i>Fixed-to-mobile calls</i>	<i>Mobile-to-mobile calls</i>
Call their fixed line	62	49
Call from your fixed line instead	N/A	51
Call different times of day	34	27
Text messages	41	45
Call from mobile	39	N/A
Let it ring for call-back	31	25
Shorter calls	54	46
Email	20	17
Don't know	1	11*
Sample size	703	657

Source: NOPO<sub>2</sub>.

\*Includes respondents who gave no answer.

Note: N/A = Not applicable.

6.82. Table 6.19 shows that over 40 per cent of respondents considered using fixed lines or text messages. About half said that they considered shorter calls.

6.83. One MNO investigated the degree of substitution between fixed and mobile calls by analysing changes in calling patterns between the peak and off-peak tariff periods. It did this in two ways. First, it compared the share of on-net calls across the peak and off-peak periods as a whole. Second, it assessed the changes in calling patterns around the boundary of peak and off-peak. Whilst the MNO told us that the results needed to be interpreted with caution given that the pattern of calls by mobile user varied over the course of the day, it said that, overall the results showed no evidence of substitution between fixed and mobile calls.

6.84. Table 6.20 shows the results of the MNO's first method—for each of its charging periods, the proportion of total calls that are on-net and the ratio of the fixed-to-mobile call charge<sup>1</sup> to the on-net charge are shown. The data was taken from February 2002 with a total of 23,000 of its customers across the different tariff types.

TABLE 6.20 Changes in the share of on-net calls and changes in the ratio of fixed-to-mobile and on-net tariffs, February 2002

Tariff	On-net calls as proportion of total calls			Ratio of fixed-to-mobile/on-net tariffs		
	Off-peak %	Peak %	Weekend %	Off-peak	Peak	Weekend
Contract						
Tariff 1						
Tariff 2						
Tariff 3						
Tariff 4						
Tariff 5						
Prepay						
Tariff 1						
Tariff 2						
Tariff 3						

*Figures omitted.  
See note on page iv.*

Source: An MNO.

6.85. A higher ratio of fixed-to-mobile call tariffs to on-net call tariffs means that fixed-to-mobile calls are more expensive compared with on-net calls. As a result, if the two services are substitutes, when the ratio is higher (lower), other things being equal, we would expect the proportion of on-net calls to rise (fall). Table 6.20 does not show this relationship consistently. The MNO concluded from this evidence that consumers were shown not to regard the two kinds of calls as being substitutes. Moreover, it stated that it was not aware of any empirical evidence to the contrary (ie of material substitution from fixed-to-mobile calls to on-net calls) having been provided to the CC.

6.86. Another MNO told us that, given that the relative proportions of different types of calls made at different times depend on customer calling patterns, the failure of the table to demonstrate any clear pattern could not be taken as evidence for any particular conclusion about fixed-mobile substitution.

6.87. For its second method, the first MNO compiled data on calling behaviour for a sample of its customers. The data covered all voice calls between 4 pm and 8 pm on weekdays during June 2002.<sup>2</sup> The sample covered over 225,000 calls. The time bands were chosen to include the 6 pm point where fixed-line call charges become off-peak and 7 pm when the majority of mobile call charges (for contract customers) become off-peak. The data showed no evidence of substitution between fixed and mobile calls. In the cases where the number of mobile call minutes rose when their prices fell there was no corresponding reduction in the number of fixed call minutes.

6.88. The second MNO told us that this analysis of changing behaviour around the peak/off-peak timing boundaries failed to consider that these boundaries roughly coincided with travel to and from work, during which calling from fixed lines might be partially replaced by more mobile calls. It said that this fact alone was a sufficient explanation of the data presented; any speculation that this suggested that customers were not price aware was entirely unjustified. It stated that analysis of its customer data showed a relatively sharp drop-off in fixed-to-mobile calls as mobile-originated calls went off-peak at 7 pm. It said that there was also a clear impact of retiming (ie delaying a call for a short time in order to

<sup>1</sup>Based on BT's standard residential tariffs and ignoring call allowances, Friends and Family discounts etc.

<sup>2</sup>Excluding the public holidays on 3 and 4 June.

take advantage of lower off-peak rates) for mobile-to-mobile calls between 6 pm and 7 pm, whereas retiming was not apparent for mobile-to-fixed calls. It told us that this was consistent with the view that during this hour, where fixed charges were off-peak, reversing the call direction rather than delaying a call could be used as a strategy to minimize costs in repeat calling relationships.

6.89. The first MNO also considered calls that were made within a repeat calling relationship where this relationship was defined as more than 20 calls between a mobile number and a fixed number (in any direction) during the course of the month. The second MNO said that analysis of its customer call data found that the majority of calls took place within such repeat-calling relationships. Table 6.21 shows the results from the first MNO's analysis. Throughout the 4 hours considered, there is a consistent fall in the ratio of inbound to outbound call minutes which does not seem to be affected when fixed call charges fall at 6 pm nor when mobile charges fall at 7 pm.

TABLE 6.21 Ratio of inbound to outbound tariffs and call minutes,\* June 2002

Time band	Ratio of inbound to outbound: tariffs call minutes
16:00 to 16:29	<i>Figures omitted. See note on page iv.</i>
16:30 to 16:59	
17:00 to 17:29	
17:30 to 17:59	
18:00 to 18:29	
18:30 to 18:59	
19:00 to 19:29	
19:30 to 19:59	

Source: An MNO.

\*For Tariff 1 contract customers in repeat calling relationships.

6.90. The first MNO's findings may underestimate the degree of price sensitivity as some of the calls from mobiles would have used inclusive minutes which might be perceived as being free. The MNO disagreed. It said that subscribers were aware that they could buy bundles of differing sizes and tended to switch between different sized bundles (at different prices) as they revised their estimates of their likely usage. It stated that, on that basis, it was likely that mobile subscribers did, in fact, regard payments for a bundle of minutes as simply being a payment in advance for all the minutes they intended to use. They would regard minutes used on a particular call as being 'free' only if they expected that, apart from the call, they would not otherwise have used those minutes.

6.91. DotEcon's survey asked respondents the extent to which they used their mobile phone at home to make calls. 18 per cent said that they did so often, 24 per cent said sometimes, 32 per cent said rarely and 26 per cent said never. The main reason given by respondents that said they used their mobile phone at home often or sometimes was cheaper calls (given by 49 per cent of these respondents). As a result, 9 per cent of respondents often use their mobile phones at home because of cheaper calls and 12 per cent do so sometimes.

6.92. Respondents were asked by DotEcon whether usage of their fixed telephone at home had changed after they had acquired a mobile phone and, if so, for what reason. 69 per cent said that after acquiring their mobile phone they made about the same number of calls from their fixed line as before, 14 per cent said somewhat less than before and 13 per cent much less than before (27 per cent in all). Over 80 per cent of those that had reduced the number of calls from their fixed line said that this was because they had acquired a mobile phone and 15 per cent said it was due to other reasons. Taking into account the impact of mobiles phones on the use of fixed lines (80 per cent) and the price reason for using mobiles phones at home (49 per cent), 10 per cent of respondents made fewer calls from their fixed lines at home because of the cheaper calls of their mobile phones (27 per cent  $\times$  0.8  $\times$  0.49).

6.93. O<sub>2</sub> commissioned GfK to carry out a survey of mobile customers. GfK asked respondents how they would react if the price of making a mobile phone call went up by 10 ppm but the price someone else had to pay to call them fell by the same amount. The results are shown in Table 6.22.

TABLE 6.22 Possible reactions to price of call rising by 10 ppm and price someone else had to pay to call mobile fell by same amount

	%
This would not affect my calling behaviour	30
I would make less outgoing calls	27
I would use texting/SMS more	20
I would call more frequently from my landline	20
I would reduce the length of my outgoing calls	11
I would end my contract/not top up my credit	11
I would call people and ask them to call me back	8
I would not make any outgoing calls	5
Sample size	659

Source: GfK.

6.94. The above results need to be set in context. GfK did not specify which mobile prices it was concerned with (on- or off-net). The percentage increase implied by GfK's questions differ depending on the type of call. Table 6.10 shows average revenue for on-net calls at about 6 ppm and 25 ppm for off-net calls. A 10 ppm increase for on-net calls implies more than a doubling in the price of these calls and an increase in off-net calls of over one-third.

6.95. GfK also asked prepaid customers how they would react if the current vouchers were replaced by compulsory top-up vouchers, which expired after one month. GfK specified three prices for the vouchers: £5, £10 and £15.<sup>1</sup> The results are shown in Table 6.23.

TABLE 6.23 Reaction of prepaid customers if top-up voucher was restricted to one month

	<i>Price of top-up voucher (£ per month)</i>		
	£5	£10	£15
I would purchase the vouchers but this would be a financial concern to me	26	19	18
I would not purchase the vouchers because I cannot afford to spend this amount per month on mobile calls	35	50	60
I would wait for friends and family to buy the vouchers for me as a present	3	3	2
This would not affect my calling behaviour	36	28	21
Total*	100	100	100
Sample size	456	456	456

Source: GfK.

\*May not sum because of rounding.

6.96. DotEcon asked questions about the use of mobile phones at work. 63 per cent of respondents said that they had easy access to a fixed line at work. Of these about one-third made mobile phone calls when at work, the main reason being that they were unable to get a fixed line (44 per cent of respondents). However, 13 per cent of respondents with easy access to a fixed line that made mobile calls from work gave their reason as cheaper calls. Accepting this response<sup>2</sup> suggests that 4 per cent of respondents that have easy access to a fixed line at work use their mobile phones because of cheaper calls.

6.97. Respondents were asked by NOPV which type of telephone they generally used to make calls. 60 per cent said that they used either a mobile or a fixed line depending on the circumstances, 31 per cent said they only used a fixed line and 9 per cent said the same for mobile phones. Those that said their usage depended on circumstances were asked what was the main thing that made them decide which type of telephone they used to make a particular call. 54 per cent said that they used the phone that was most convenient and 37 per cent said that they used the telephone that was cheapest for the call.

6.98. NOPV asked respondents to think about the people who they called most often on the telephone and asked them if they generally knew their fixed-line number only, their mobile phone number

<sup>1</sup>O<sub>2</sub> told us that this question was asked to explore consumers' relations to a system that, in its view, MNOs would have to implement in an attempt to recover lost termination revenues due to regulation.

<sup>2</sup>This implies that these respondents pay for using a fixed line at work, for example the owner of a small or medium-sized business or that the employer is paying for the mobile too.

only or both their fixed-line and their mobile phone numbers. 58 per cent of respondents said that they knew both the mobile and fixed-line numbers, 36 per cent said that they only knew the fixed-line numbers and 6 per cent said the same for mobile phone numbers. Those that knew both the mobile and fixed-line telephone numbers were asked how they decided which number to use to make a particular call. About two-thirds said that they called the number where the recipient was most likely to be available and one-third said that they called the cheaper number.

6.99. Telewest provided us with data from its own survey of a sample of 785 people. This indicated that 33 per cent used a mobile either frequently or all the time to call another mobile when in the home. Telewest added that of the 33 per cent, in the region of one-third cited direct price reasons. It told us that its customers were increasingly using their mobile phones to call other mobile phones rather than using their fixed lines. It said that this had ended the growth in Telewest's traffic to mobile phones.

- *Impact of text messages*

6.100. DotEcon asked respondents what impact sending text messages had on the number of their voice calls from their mobile phones. About 18 per cent of respondents with both fixed and mobile phones said that sending text messages resulted in them making a lot fewer mobile phone calls and about one-third of mobile-only customers said the same. DotEcon did not ask about the reasons for these changes, for example what role did price or price changes play. O<sub>2</sub> stated that the DotEcon analysis for BT was conducted in 2001 and the importance of text messages as an alternative to voice calls was likely to have increased significantly since then.

6.101. NOPV asked respondents whether they sent text messages instead of making voice calls. 43 per cent of respondents said that they often did this and the same proportion said that they sometimes did this. NOPV did not ask respondents why they used text messages instead of making voice calls, for example what role did price or price changes play. NOPV gave respondents four statements about whether or not text messages were a substitute for voice calls to a mobile phone and asked which one they agreed with. 36 per cent said that text messages were a good substitute for only some voice calls to a mobile phone, 23 per cent said that they were a poor substitute, 17 per cent said that they were a good substitute for many voice calls and 13 per cent said that they were a good substitute for nearly all voice calls to a mobile phone.

6.102. Our conclusion on the relevant product market or markets with our reasons are set out in Chapter 2.

## **Retail market**

6.103. We begin this section by summarizing the supply chain to customers. Next we look at retail prices and discounts, and at non-price competition. We then analyse market shares, switching behaviour and entry.

### **The supply chain to customers**

6.104. MNOs acquire retail customers through direct and indirect sales channels. We look at each of these in turn.

#### ***Direct sales channels***

6.105. Direct sales channels include:

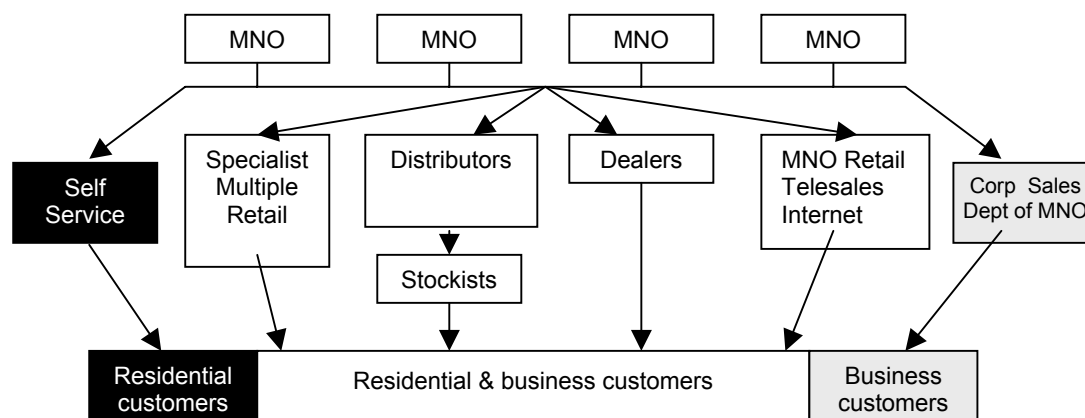
- (a) MNOs' own shops and own Internet sites;
- (b) MNOs' own direct sales forces who are employed by the operator to solicit connections to the network (for example, by telemarketing and by dealing with large corporate customers); and

- (c) third parties (for example, dealers and retail outlets and Internet sites such as specialist stores or department stores) who act as MNOs' agents to solicit end customer connections to the network but who may sell handsets on their own behalf.

6.106. Figure 6.10 shows the direct sales channels in more detail.<sup>1</sup> The outlets range from those offering little advice on mobile phones or tariff packages (self-service retail outlets) to those that offer advice and have to deal with more complex requirements (specialist retailers and the MNOs' own corporate sales teams).

FIGURE 6.10

**The direct supply chain to customers**



Source: CC.

6.107. Customers acquired through direct sales channels have a direct contractual relationship with the MNO for their airtime service, are billed by the MNO, and contact the MNO for customer service issues.

6.108. The number of retail outlets selling mobile phones increased significantly during the phase of rapid growth in mobile penetration. For example, as shown by Table 6.24, the number of outlets operated by the principal specialist retailers of telecommunications equipment more than doubled between 1997 and 2002.

TABLE 6.24 **Principal specialist retailers of telecommunications equipment in the UK, by number of outlets, 1997 to 2002**

	1997	1999	August 2000	May 2002
Shops operated by MNOs	368	670	958	885
Carphone Warehouse	123	250	375	470
Phones 4U	45	74	81	270
Other specialist chains (from 1999, just The Link)*	296	259	226	285
Total	832	1,253	1,640	1,910

Source: *Telecommunications Retailing*, Mintel Retail Intelligence, July 2002; CC calculations.

\*The Link is 60 per cent owned by Dixons Group, 40 per cent by O<sub>2</sub>.

6.109. In addition to the specialist retailers shown in Table 6.24, mobile phones are available from a wide range of other outlets, including smaller regional chains of specialist outlets, electrical/general multiples (for example, Dixons, Comet), catalogue showrooms (for example, Argos, Index), mail order, department stores, supermarkets and various sellers on the Internet. O<sub>2</sub> told us that in 1998 there were 4,000 high-street outlets selling mobiles and that this had increased to 25,000 at the start of our inquiry.

<sup>1</sup>Figure 6.10 is intended to provide a useful guide to direct sales channels and should not be interpreted rigidly. For example, business customers are free to acquire mobile handsets and services through 'self service' channels and may well do so.

## ***Indirect sales channels***

6.110. MNOs use indirect sales channels as a means of increasing the numbers of customers using their network. Indirect sales channels include service providers although not all MNOs use service providers. Service providers purchase standard tariff packages from MNOs at a discount, the discount being based on the volume of customers they acquire or on the level of churn, and sell these on either at face value or slightly repackaged in an attempt to increase their attractiveness and profit.

6.111. Service providers carry on business under their own name and act as principal, rather than as agent for the MNOs. Thus the customer has a direct contractual relationship with the service provider, who bills them for their mobile service and handles all customer service issues. Some service providers outsource their billing to MNOs. The service provider is able to create its own tariffs and brand for specific market niches. Although the end customers' mobile phones are connected to a MNO's network, they may have no retail relationship with the MNO and they may not necessarily be aware of the identity of the mobile network to which their mobile service is connected. Indirect sales channels normally also sell mobile phones and associated equipment to retail customers.

6.112. T-Mobile and Orange make very little use of traditional service providers as they have always sold direct to customers. O<sub>2</sub> and Vodafone were originally prohibited from selling airtime direct to the public because reselling via a number of competing service providers was seen by the Government as the best way of stimulating competition and growth in the market given the duopoly at the network level. This restriction was removed for Vodafone and O<sub>2</sub> in December 1993 and March 1994 respectively. O<sub>2</sub> and Vodafone are prohibited from discriminating between their own and independent service providers in respect of the provision of airtime. In September 2001, independent service providers accounted for over 3.5 million subscribers, 8 per cent of all subscribers. In March 1998 they accounted for 26 per cent of subscribers. Virgin Mobile (see paragraph 6.208), which is regarded by some as an MVNO but which Ofcom regards as a service provider, accounted for over one-third of the number of subscribers held by independent service providers in September 2001.

6.113. MVNOs come in a variety of forms. One variety would own and operate a complete mobile network excluding only the radio spectrum and base stations (see paragraphs 3.85 to 3.87). Another, more common, version of an MVNO in the UK is one who makes a wholesale bulk airtime purchase and rebrands the service, with everything from customer support to billing being provided by the donor mobile operator. Table 3.4 shows over ten MVNOs that are operating or are about to be launched in the UK. The largest of these at present is Virgin Mobile (see paragraph 6.208).

## ***Retail prices***

6.114. We begin this section by discussing the pricing strategies of the MNOs including whether the MNOs believe their retail prices are consistent with Ramsey pricing. We then look at individual pricing components before comparing overall prices and assessing trends in overall prices. Finally, we examine discounts. The relationship between prices and costs is covered in Chapter 5.

### ***Pricing strategies of MNOs***

6.115. The MNOs told us that they see themselves as making an initial investment in customers, for example via a handset that might be priced below cost in order to generate a future revenue stream. In order to generate this revenue they offer different types of tariff packages that are aimed at different types of customers. Prices include fixed components (monthly subscriptions which normally have associated inclusive minutes) and variable components (call charges). There are two broad types of tariff packages—contract and prepaid. Within each of these there are a number of different tariff plans and within each plan there are many different components, for example price by time of day and by day of the week, prices for on-net, off-net and mobile-to-fixed calls. All the MNOs told us that their two general categories of retail prices, subscription and overall call prices, were broadly consistent with Ramsey pricing but that some of the more detailed prices might not be.



- *Ramsey pricing*

6.116. Chapter 8 discusses Ramsey pricing. In this section we look at whether the MNOs believe their retail prices are consistent with Ramsey pricing.

6.117. Vodafone told us that it believed that the broad structure of charges, as regards the balance between call charges and fixed charges, reflected Ramsey principles. It said that the differential between on- and off-net prices did not reflect Ramsey principles. It told us that on-net pricing had developed for a number of reasons. Most importantly, as the mobile market started to expand dramatically, MNOs started to focus attention on ways they could offer packages that would be attractive to new subscribers and which would distinguish themselves from other networks. Vodafone stated that on-net calls became one particular focus of competition because:

- (a) MNOs' perceived that there was substantial marketing value in creating a category of relatively lower call charges that could break the widely held perception that all mobile calls were expensive.
- (b) The larger MNOs considered that such a proposition would make joining their network particularly attractive because of the large numbers they had that new subscribers could contact at cheap on-net rates.

6.118. Vodafone gave two reasons for the upward pressure on off-net charges:

- (a) Off-net calls have higher costs than on-net calls, both in the sense that the LRIC (see Chapter 7) of off-net termination is higher than the LRIC of on-net termination and because the originating network experiences the mobile-to-mobile call termination charge as its LRIC of off-net termination.
- (b) Downward pressure on on-net charges has led MNOs to recover more fixed and common costs from other categories of calls, namely off-net and hence has led to an upward rebalancing of off-net charges. This is because any other adjustment to charges would move further away from the optimal pricing structure, and thereby place the MNO at a competitive disadvantage.

6.119. Vodafone noted that recent evidence indicated that MNOs had been closing the gap between on- and off-net charges, whilst still reducing call charges in general. It said that this was entirely consistent with its explanation of the price differential between on- and off-net calls. First, the original marketing impetus (that larger networks perceived they could differentiate themselves through low on-net charges) had largely disappeared now that the UK had four networks of roughly equal size. Second, off-net rates had fallen as mobile-to-mobile termination charges had declined under Oftel's charge cap.

6.120. Orange told us that it did not have any direct evidence on the relative magnitudes of demand elasticities between on- and off-net calls on which to base an assessment of whether on-net prices were consistent with Ramsey pricing principles. Nor did it specifically set its on-net prices using Ramsey principles. Orange said that its pricing approach was a market entry strategy designed to encourage the formation of user groups on its network. It stated that the idea behind its on-net pricing was that its existing customers would encourage their friends and regular contacts to join the Orange network and form an informal user group. Orange told us that this strategy assisted its entry into the market at a time when it was at a significant disadvantage to the two incumbents due to its small subscriber base and as such was pro-competitive.

6.121. Another mobile price that does not seem to be related to Ramsey principles is that for text messages. Prices for text messages do not vary by time of day or day of week, or by whether these are sent to the same or a different network. T-Mobile questioned the idea that the price of text messages was not related to Ramsey principles. It said that, as text messages were primarily used by young residential customers, it was not clear that the demand for text messages should change significantly across the time of day or day of the week.

### *Price comparisons*

6.122. We now compare the prices offered by the MNOs. We begin by looking at the various components of prices—handsets, monthly subscriptions and their associated inclusive minutes and call prices—before comparing overall prices.

- *Handset prices*

6.123. We used data from the Carphone Warehouse brochure (May 2002) to compare the retail prices (including VAT) of mobile handsets for each of the four MNOs (see Appendix 6.3). We look first at the prices for contract customers, then at those for prepay customers, and finally we compare the prices for these two groups of customers.

- *Contract customers*

6.124. Table 6.25 shows the number of types of handsets offered by Carphone Warehouse for each of the MNOs for contract customers in May 2002. It also shows the number of common handsets offered for connection to the networks of the four MNOs and the number of common handsets offered at the cheapest price.

TABLE 6.25 Handset types offered to contract customers, May 2002

	Orange	T-Mobile	Vodafone	O <sub>2</sub>
Number of types of handsets	18	15	46	47
Number of common types of handsets	10	10	10	10
Offered cheapest type	1	1	0	0
Offered cheapest type with other MNO	6	7	7	6
Number of common handsets priced at:				
Zero	2	3	3	3
£1 to <£30	1	2	1	1
£30 to <£50	5	3	4	4
£99.99 to <£130	2	2	1	1
£149.99 to <£180	0	0	1	1

Source: CC calculations on data in Carphone Warehouse brochure, May 2002.

6.125. Carphone Warehouse offered far more types of handsets for connection to O<sub>2</sub> and Vodafone than to Orange and T-Mobile. There were ten common types of handset. Of these, most were sold at £50 or less, three were free (to customers agreeing to take out a 12-month contract) with each of three of the MNOs.

6.126. Table 6.26 shows the prices of five of the highest selling handsets (the Nokia 3310 being the highest-selling handset).

TABLE 6.26 Prices of five of the highest-selling handsets, May 2002

	£			
	Orange	T-Mobile	Vodafone	O <sub>2</sub>
Nokia 3310	0	0	0	0
Nokia 3330	0	0	0	0
Nokia 8210	49.99	49.99	49.99	49.99
Samsung A300	49.99	29.99	49.99	49.99
Sagem MV3020	N/A	N/A	0	0

Source: Carphone Warehouse brochure, May 2002.

Note: N/A = Not applicable.

6.127. Most of these types of handsets were sold by the Carphone Warehouse at the same price irrespective of the MNO.

- *Prepay customers*

6.128. Table 6.27 shows the number of types of handsets offered by Carphone Warehouse for each of the MNOs for prepay customers in May 2002. It also shows the number of common handsets offered for connection to the networks of the four MNOs and the number of common handsets offered at the cheapest price.

TABLE 6.27 Handset types offered to prepay customers, May 2002\*

	Orange	T-Mobile	Vodafone	O <sub>2</sub>
Number of types of handsets	12	10	11	11
Number of common types of handsets	7	7	7	7
Offered cheapest type	0	4	0	0
Offered cheapest type with other MNO	0†	3	3	3
Number of common handsets priced at:				
<£100	3	5	3	3
£100 to <£150	3	1	3	3
£150 to <£200	1	1	1	1

Source: CC calculations on data in Carphone Warehouse brochure, May 2002.

\*Prices are based on handsets minus value of free calls.

†Priced higher than other MNOs because its handsets include £1 of calls whereas the other three MNOs offered £5 worth of calls, for example the Samsung A300 is priced at £199.99 for all MNOs but excluding the value of the calls included, the price falls to £198.99 for connection to Orange and £194.99 for connection to the other three MNOs.

6.129. The four MNOs broadly offered the same number of types of handsets. There were seven common types of handset. Of these, most were sold at £150 or less. T-Mobile's handsets were cheaper than those for the other MNOs.

6.130. Table 6.28 shows the prices of five of the highest-selling handsets.

TABLE 6.28 Prices of five of the highest-selling handsets, May 2002\*

	£			
	Orange	T-Mobile	Vodafone	O <sub>2</sub>
Nokia 3310	128.99	94.99	124.99	124.99
Nokia 3330	148.99	114.99	124.99	134.99
Nokia 8210	N/A	124.99	194.99	194.99
Samsung A300	198.99	194.99	194.99	194.99
Sagem MV3020	N/A	74.99	94.99	N/A

Source: Carphone Warehouse brochure, May 2002.

\*Prices are based on handsets minus value of free calls.

Note: N/A = Not applicable.

- *Comparison of prices of handsets for contract and prepay customers*

6.131. We compared the prices of handsets for contract and prepay customers. There were less than ten common types of handsets for both these groups of customers. In carrying out comparisons of the price of handsets, account has to be taken of the monthly subscription prices paid by contract customers. This provides contract customers with inclusive minutes and with cheaper non-inclusive calls than prepay customers pay for their calls. In order to compare handset prices for these two groups of customers, we used the cheapest subscription charges offered by the MNOs, about £13 a month for Orange, T-Mobile and Vodafone and £15 a month for O<sub>2</sub>. The first three all give contract customers 20 inclusive minutes a month (on-net calls and calls to fixed lines at any time) whilst O<sub>2</sub> gives 30 inclusive minutes a

month (to any network at any time). On average, prepay customers use mobile phones for about 35 minutes a month (see paragraph 6.11). We deducted the costs of these minutes to prepay from the costs of the subscription to contract customers.<sup>1</sup> We added this amount, which we refer to as the net subscription price, to the cost of handsets for contract customers. This methodology provides a like-with-like comparison of the costs of handsets for average prepay customers using prepay or contract tariffs but only for the first year of usage. For each subsequent year, the net subscription price has to be added as an on-going cost of a handset for an average prepay customer on a contract tariff.

6.132. At the end of the first year, we found that, on average, a prepay customer would have paid less for his handset if he had become a contract customer. However, by the end of the second year, the average prepay customer would have paid more for the handset if he had become a contract customer. The price differential widens with further years and continues until a new handset is purchased. This suggests that the average prepay customer who intends to keep their mobile phone for longer than a year is better off being a prepay customer than being a contract customer. Table 6.29 shows the results of this comparison for four of the highest selling handsets (the Sagem MV3020 was not included because only Vodafone offered it to both contract and prepay customers).

TABLE 6.29 Price difference between handsets for contract and prepay customers, May 2002\*

End of year 1	£			
	Orange	T-Mobile	Vodafone	O <sub>2</sub>
Nokia 3310	60.11	4.99	56.11	43.99
Nokia 3330	80.11	24.99	56.11	53.99
Nokia 8210	N/A	-15	76.12	64
Samsung A300	80.12	75	76.12	64
<i>End of year 2</i>				
Nokia 3310	-8.77	-85.01	-12.77	-37.01
Nokia 3330	11.23	-65.01	-12.77	-27.01
Nokia 8210	N/A	-105	7.24	-17
Samsung A300	11.24	-15	7.24	-17

Source: CC calculations on data in Carphone Warehouse brochure, May 2002 and data provided by the MNOs.

\*Price of handset for prepay customers—(price of handset for contract customers + net subscription price). Net subscription price is subscription price—cost of calls to prepay customers. Cost of calls to prepay customers is 20 minutes x 25 ppm (Orange, O<sub>2</sub> and Vodafone) and 20 ppm (T-Mobile) + 15 minutes x Net price of calls. Net price of calls is 15 ppm (Orange, O<sub>2</sub> and Vodafone) (25 ppm—price of contract minutes (10 ppm) and 20 ppm (T-Mobile) (20 ppm—10 ppm).

Note: N/A = Not applicable.

- *Monthly subscriptions and inclusive minutes*

6.133. Appendix 6.4 shows the monthly subscription and inclusive minutes for contract customers offered by the MNOs as set out in the Carphone Warehouse brochure in May 2002. Each MNO offered 11 packages.<sup>2</sup> There is a wide variety of monthly subscriptions ranging from monthly payments of between £10 and £15 to £75 and over. Orange had a package with a monthly subscription of just under £1,000 but as with most packages a higher monthly subscription charge is associated with more inclusive call minutes and lower call prices on calls outside the bundle.

6.134. A recent development has been the move for MNOs to offer inclusive minutes for calling any network at any time of the day. O<sub>2</sub> offers most packages of this nature (nine), followed by T-Mobile (six), Orange (four) and Vodafone (two).<sup>3</sup> This development is a continuation of the move to widen the

<sup>1</sup>The costs of the first 20 minutes to prepay customers were based on 25 ppm for Orange, O<sub>2</sub> and Vodafone and 20 ppm for T-Mobile. The costs of the remaining 15 minutes for prepay customers were based on 15 ppm for Orange, O<sub>2</sub> and Vodafone and 10 ppm for T-Mobile (the price to prepay customers minus the price to contract customers, assumed to be 10 ppm).

<sup>2</sup>Vodafone told us that 11 of its tariffs were shown in the Carphone Warehouse brochure purely as a matter of presentation. It said that it had 12 or 19 tariffs, depending on whether any network versions were included as separate tariffs or not.

<sup>3</sup>Vodafone told us that it had seven any network tariffs in May 2002.

coverage of inclusive minutes, for example to include peak calls. Very few packages now restrict inclusive minutes to off-peak usage although some restrict them to on-net calls and calls to fixed lines.

6.135. We asked the MNOs what proportions of their inclusive call minutes were unused. O<sub>2</sub> told us that [ 30 ] per cent of its inclusive minutes were unused. T-Mobile gave us a figure of just under [ 30 ]. Orange said that, excluding one of its tariffs (Everyday 50), less than [ 30 ] per cent of inclusive minutes on its network were unused. For Everyday 50 (which offers inclusive minutes on a daily basis) the figure was between [ 30 ] and [ 30 ] per cent. Vodafone provided us with data by type of tariff. These showed that unused inclusive minutes ranged from just over [ 30 ] to [ 30 ] for individual tariffs with a weighted average of [ 30 ] per cent for 2000/01. Excluding business tariffs reduces the upper end of range to about [ 30 ] per cent with an average of about [ 30 ]. In general (Orange seems to be the exception), the proportion of inclusive call minutes that are unused is substantial. Orange told us that it might be an exception because it offered its customers 'rollover' minutes, ie any inclusive minutes not used in one month are carried over to the next month.

6.136. In order to compare monthly subscriptions and their associated inclusive minutes, Table 6.30 shows the packages that offered the lowest and the highest subscription rates, and packages where each MNO charged the same monthly subscription rate (common subscription price). Out of the total of 44 packages on offer (11 for each of the MNOs), only six had the same monthly subscription price, £25, although the prices of some of the other packages were very similar.

TABLE 6.30 **Monthly subscription charges\* and inclusive minutes for contract subscribers for each MNO, May 2002**

	<i>Lowest price</i>		<i>Common price</i>		<i>Highest price</i>
	<i>O<sub>2</sub> Leisure time</i>	<i>O<sub>2</sub> 30</i>	<i>O<sub>2</sub> Flat rate</i>	<i>O<sub>2</sub> 100</i>	<i>O<sub>2</sub> Max</i>
<i>O<sub>2</sub></i>					
Monthly line rental (£)	15	15	25	25	75
<i>Inclusive minutes/text</i>					
Anytime any network		30	150	100	1,000
Off-peak on-net and fixed	500				
Off-peak off-net	25				
Text messages				100	50
<i>T-Mobile</i>			<i>Anytime 200</i>	<i>Everyone 100</i>	<i>Everyone 1000</i>
Monthly line rental (£)	13		25	25	105
<i>Inclusive minutes</i>					
Anytime any network				100	1,000
Anytime on-net and fixed	20		200		
<i>Vodafone</i>	<i>Vodafone 20</i>		<i>Vodafone 200</i>		<i>Vodafone 1100</i>
Monthly line rental (£)	12.99		25		95†
<i>Inclusive minutes</i>					
Anytime on-net and fixed	20		200		1,100
<i>Orange</i>	<i>Everytime 20</i>		<i>Talk 200</i>		<i>Talk 10000‡</i>
Monthly line rental (£)	12.99		25		940
<i>Inclusive minutes</i>					
Anytime on-net and fixed	20		200		10,000

Source: Carphone Warehouse brochure, May 2002.

\*Includes VAT.

†Vodafone told us that its highest tariff (which was excluded from the Carphone Warehouse brochure) was Vodafone 10,600, which, with the any network option, was priced at £1,180 per month or, without the any network option, was priced at £900 per month.

‡1 to 100 handsets.

6.137. T-Mobile, Vodafone and Orange have the same prices and number of inclusive minutes (about £13 and 20 inclusive minutes (anytime, on-net and fixed) per month) for their lowest priced

offerings as they do for their common priced offering (£25 and 200 inclusive minutes (anytime, on-net and fixed) per month).

- *Call charges*

6.138. There are three main types of call charges: on-net charges, off-net charges and mobile-to-fixed charges:

- (a) Charges for off-net calls are higher than the charges for the two other types of call.
- (b) The comparison between charges for on-net and mobile-to-fixed calls is less clear. Mobile-to-fixed calls are a little more expensive than on-net calls using average revenue data from Oftel. Data provided by the MNOs broadly shows the same ranking as Oftel's data with the exception of [ *Details omitted. See note on page iv.* ]. The tariff plans of the MNOs show a mixed picture—in most cases the prices for these two types of calls are the same but in a small number of cases prices for on-net calls are lower than the prices for mobile-to-fixed calls and the reverse is also true in a small number of cases (see Table 6.11).
- (c) Prices can also differ by time of day and day of the week. Prices during the working day (peak prices) can be higher than those in the evening and weekends (off-peak prices). Prices for calls in the evening are generally the same as for calls at the weekend. For example, one of T-Mobile's packages for its contract customers has a peak daytime call to fixed line of 40 ppm compared with 5 ppm in the evening and at weekends.<sup>1</sup>

6.139. Oftel noted in its *Effective competition review: mobile*<sup>2</sup> that it was rational for the networks with most subscribers to maintain high off-net prices and low on-net prices. In this way, networks might be able to attract groups of customers who made most of their calls to each other. Oftel stated that the ability of a smaller operator to compete with a larger operator might be limited by the larger operator's pricing strategy. In order to make it worthwhile for a customer to switch networks, the smaller network would have to reduce both on- and off-net mobile prices enough to compensate the customer for having to make relatively more off-net and fewer on-net calls. Oftel noted that there was a potentially anti-competitive discrimination effect. However, it considered that it was likely that the networks were now sufficiently similar in size for this not to be a problem in practice, although this might become a concern following the entry of Hutchison 3G.

- *Call prices for contract customers*

6.140. Table 6.31 shows the call prices for non-inclusive minutes for the packages with the lowest, highest and common priced subscription rates as shown in the Carphone Warehouse brochure for May 2002.

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<sup>1</sup>T-Mobile's Freetime 750 which in May 2002 had a monthly subscription charge of £13.99, and 750 off-peak minutes to fixed lines and 50 text messages to any mobile network a month.

<sup>2</sup>*Effective competition review: mobile, A statement issued by the Director General of Telecommunications, 26 September 2001.*

TABLE 6.31 Monthly subscription charges call prices\* for non-inclusive minutes for contract subscribers for each MNO, May 2002

	Lowest-priced subscription rates		Common-priced subscription rates		Highest-priced subscription rates
	O <sub>2</sub> Leisure time	O <sub>2</sub> 30	O <sub>2</sub> Flat rate	O <sub>2</sub> 100	O <sub>2</sub> Max
O <sub>2</sub>					
Monthly Line Rental (£)	15	15	25	25	75
Daytime (ppm)					
Fixed	35	15	25	10	4
On-net	35	15	25	10	3
Off-net	45	45	25	40	30
Weekend/Evenings (ppm)					
Fixed	2	5	25	10	2
On-net	2	5	25	10	3
Off-net	35	30	25	40	30
Text message (p per message)	12	12	12	12	12
<i>T-Mobile</i>	<i>Anytime 20</i>		<i>Anytime 200</i>	<i>Everyone 100</i>	<i>Everyone 1000</i>
Monthly line rental (£)	13		25	25	105
Daytime/weekend/evening (ppm)					
Fixed	10		5	10	10
On-net	10		10	10	10
Off-net	25		20	20	20
Text message (p per message)	10		10	10	10
<i>Vodafone</i>	<i>Vodafone 20</i>		<i>Vodafone 200</i>		<i>Vodafone 1100</i>
Monthly line rental (£)	12.99		25		95
Daytime (ppm)					
Fixed	15		10		10
On-net	10		10		10
Off-net	50		50		35
Daytime/weekend/evening (ppm)					
Fixed	5		5		5
On-net	5		5		5
Off-net	30		30		25
Text message (p per message)	12		12		12
<i>Orange</i>	<i>Everytime 20</i>		<i>Talk 200</i>		<i>Talk 10000</i>
Monthly line rental (£)	12.99		25		940
Daytime (ppm)					
Fixed	10		15		10
On-net	10		10		8
Off-net	35		30		30
Weekend/evenings (ppm)					
Fixed	10		5		5
On-net	10		5		5
Off-net	35		12		12
Text message (p per message)	10		10		4

Source: Carphone Warehouse brochure, May 2002.

\*Includes VAT.

6.141. There is little similarity in call prices. It should also be noted that Table 6.31 does not show all of the prices for these packages nor all of the packages. The comparison is much more complicated for the full range of packages and prices. Orange told us that most customers would not want or need to consider the full range of tariffs on offer from all MNOs (for example, a person not intending to use their mobile for many calls would not generally consider any but the lowest usage package). It said that simply counting the number of different mobile packages and using this as an example of customer confusion was both simplistic and misleading.

6.142. In September 2002, Orange introduced a new range of tariff packages for contract customers, which it said were introduced to eliminate growing customer confusion. However, this new offering from Orange, known as 'Your Plan', includes eight options for monthly line rental (ranging from £15 to £210 a month) and associated inclusive minutes (ranging from 30 to 2,000 minutes, any outbound minutes at any time). One option offers two additional bundles of call minutes and all options offer three additional bundles of text messages. The options offer one price for non-inclusive on-net and mobile-to-fixed calls

(10 ppm) and one price for non-inclusive off-net calls (35 ppm). Orange said that its new package was introduced after extensive research and evaluation. It told us that the purpose of the package was to offer its customers a series of easy-to-understand options which they could choose from in order to create a 'taylor-made' package, suiting their individual needs. Orange stated that it was necessary to offer some degree of choice in order to try and meet each customer's individual requirements.

● *Call prices for prepay customers*

6.143. The MNOs offer fewer prepay tariff packages than contract packages, eight<sup>1</sup> compared with 44.

6.144. Table 6.32 shows a summary of the prices for calls and text messages for prepay customers as shown in the Carphone Warehouse brochure for May 2002. Appendix 6.1 shows all of the prices. There is a broad similarity between the call prices of O<sub>2</sub>'s 'Talkalot' and 'Pay & Go Wild', Vodafone's 'Smartstep' and Orange's offering. These packages charge 25 ppm for the first 3 minutes for on-net and mobile-to-fixed calls and 5 ppm thereafter,<sup>2</sup> and 40 ppm for off-net calls. O<sub>2</sub>'s 'Pay & Go Wild' and Vodafone's 'Nextstep' have inclusive minutes.

TABLE 6.32 **Call prices\* for prepay customers for each MNO, May 2002**

	<i>Original</i>	<i>Talkalot</i>		<i>Pay &amp; Go Wild†</i>	
		<i>First 3 mins</i>	<i>Over 3 mins</i>	<i>First 3 mins</i>	<i>Over 3 mins</i>
<i>O<sub>2</sub></i>					
<i>Fixed</i>					
Daytime	35	25	5	25	5
Evening	10	25	5	25	5
Weekend	2	25	2	25	2
<i>On-net</i>					
Daytime and evening	10	25	5	25	5
Weekend	2	25	2	25	2
<i>Off-net</i>					
Daytime	50	40	40	40	40
Evening and weekend	30	40	40	40	40
SMS	10	10	10	10	10
<i>T-Mobile</i>					
<i>Call spend per month</i>	<i>Up to £10</i>	<i>Over £10 to £20</i>	<i>Over £20</i>		
All calls all times	30	20	10		
SMS per message	10	10	10		
<i>Vodafone‡</i>					
	<i>Firststep</i>	<i>Smartstep</i>		<i>Nextstep</i>	
		<i>First 3 mins</i>	<i>Over 3 mins</i>		
<i>Fixed</i>					
Daytime	40	25	5	10	
Weekend and evening	10	25	5	10	
<i>On-net</i>					
Daytime	40	25	5	10	
Weekend and evening	5	25	5	10	
<i>Off-net</i>					
Daytime	50	40	40	40	
Weekend and evening	30	40	40	40	
SMS per message	12	12	9	10	
Daily charge (pence)	0	0	0	50	
Inclusive calls daily	0	0	0	50p of calls	
<i>Orange</i>					
	<i>First 3 mins</i>	<i>Over 3 mins</i>			
Fixed and on-net any time	25	5			
Off-net any time	40	40			
SMS	10	10			

Source: Carphone Warehouse brochure, May 2002.

\*Includes VAT.

†Offers 50 outbound minutes at any time and 50 text messages a month for £10 direct debit.

‡Vodafone told us that it also offered another prepay tariff, called Original. Its tariffs in order of the table are: 35p, 2p, 35p, 5p, 50p, 30p and 12p. There is also a £5 per month service charge.

<sup>1</sup>Vodafone told us that it had another prepay tariff, called Original. Including this tariff increases the total number of prepay tariffs to nine.

<sup>2</sup>O<sub>2</sub> charges 2 ppm for weekend calls.



● Overall prices

6.145. We used data from the NERA price index model (see paragraph 6.28) to compare the overall prices of the MNOs (see Table 6.33). The model does not consider the cost of handsets but does take into account connection fees and handset subsidies as well as subscription rates and call charges. Our comparisons are based on each MNO having the same mix of customers.

TABLE 6.33 Price indices\* showing the relative prices of the MNOs, 1999/2000 to 2001/02

	1999/00	2000/01†	2001/02
T-Mobile	<div style="display: flex; align-items: center; justify-content: center;"> <span style="font-size: 3em; margin-right: 10px;">{</span> <div style="text-align: center;"> <p><i>Figures omitted.</i></p> <p><i>See note on page iv.</i></p> </div> <span style="font-size: 3em; margin-left: 10px;">}</span> </div>		
Orange			
O <sub>2</sub>			
Vodafone			

Source: CC calculations on data provided by Ofel. Ofel told us that the methodology used to produce these estimates was under review.

\*Uses same customer mix for each MNO.

†Used by Ofel in its assessment of competition between MNOs (see paragraphs A6.28 to A6.38, *Effective competition review: mobiles*). Ofel also used market information data, which it said was found to be consistent with the results on MNO comparisons from the NERA model.

Note: T-Mobile's prices are used as the base (100) in each year. These indices do not show, nor should they be read as showing, that all of T-Mobile's individual tariffs are cheaper than those of the other MNOs for all types of customer.

6.146. [

*Details omitted. See note on page iv.*

]

6.147. We asked the MNOs how they compared their prices with those of other MNOs. They told us that they calculated monthly costs to the subscriber for sufficiently comparable products by using customer usage profiles from their own schemes. From examining its results, O<sub>2</sub> said that no MNO was systematically cheaper or more expensive than any other. Vodafone disputed NERA's calculations of the price index. Vodafone estimated price indices using the techniques deployed by NERA and concluded that it did not price higher than the other MNOs. Orange told us that, whilst the NERA indices provided a reasonable reflection of overall price movements, a much more detailed model would be needed for the purpose of inter-operator comparison. It said that the NERA indices did not provide a fair comparison of the value for money between networks as not all relevant considerations (for example, free handsets insurance provided by some MNOs on contract packages) were analysed. T-Mobile believed that the NERA model excluded certain important variables, for example special price offers or promotions, price of international calls, and that the user profiles were no longer representative.

*Price trends*

6.148. Table 6.34 shows the average price changes by the four MNOs using data from the NERA model assuming that the MNOs have the same customer mix.

TABLE 6.34 Price indices\* showing the trends in the average prices of the MNOs, 1999/2000 to 2001/02

	1999/00	2000/01	2001/02
Vodafone	<div style="display: flex; align-items: center; justify-content: center;"> <span style="font-size: 3em; margin-right: 10px;">{</span> <div style="text-align: center;"> <p><i>Figures omitted.</i></p> <p><i>See note on page iv.</i></p> </div> <span style="font-size: 3em; margin-left: 10px;">}</span> </div>		
O <sub>2</sub>			
Orange			
T-Mobile			

Source: CC calculations on data provided by Ofel. Ofel told us that the methodology used to produce these estimates was under review.

\*Uses same customer mix for each MNO.

6.149. [ *Details omitted.*  
*See note on page iv.* ]

### *Fixed-to-mobile prices*

6.150. Table 6.35 shows BT's standard prices for calling mobile phones as shown in the Carphone Warehouse brochure for May 2002.

TABLE 6.35 **BT's standard prices for calling mobile phones, May 2002**

	<i>ppm</i>			
	<i>O<sub>2</sub></i>	<i>T-Mobile</i>	<i>Vodafone</i>	<i>Orange</i>
Day	18.8	23.1	19.8	21.7
Weekend	2.3	4.3	7.7	6.9
Evening	16.1	16.5	12.8	16.1

*Source:* Carphone Warehouse brochure, May 2002.

6.151. BT told us that its retail prices reflected the termination charges it had to pay to the MNOs.

### *Buyer power and discounts*

6.152. The published retail tariffs are available to all customers. However, some customers, primarily large corporate customers, receive discounts and make use of technology to reduce their tariffs.

6.153. Vodafone told us that bespoke tariffs were typically constructed for a corporate customer who had specific requirements, or where there was a competitive tender, or where there was a willingness to sign up for an extended contractual period (two or more years). It said that the proportion of customers on promotional tariffs changed from time to time. Vodafone provided us with data for February 2002—the latest data it had available (see Appendix 6.5). Appendix 6.5 shows that over [ ] handsets were managed within Vodafone's Corporate Division and virtually all received some form of discount (on airtime and access charges). The average discount overall off Vodafone list prices was [ ] per cent. Smaller accounts received a lower discount than large accounts. The discounts ranged from less than [ ] per cent, received by over [ ] organizations, to between [ ] and [ ] per cent, received by [ ] organizations. The organizations receiving discounts account for less than [ ] per cent of Vodafone's total number of handsets.

6.154. Vodafone said that it offered a range of types of discounts to residential customers. These were:

- (a) Promotional tariffs—to acquire customers [ *Details omitted. See note on page iv.* ].
- (b) '[ ]'—offered where a customer says that they are leaving Vodafone to go to a competitor, or to extend customer lifetime [ *Details omitted. See note on page iv.* ].
- (c) Ad-hoc discounts during the lifetime of a customer—negotiated direct with a customer service representative (typically either as a loyalty tool or as compensation for a poor customer service experience).

6.155. Vodafone did not know how many residential subscribers received discounts but it stated that in March 2002 discounts on calls and access charges versus its list prices totalled a small percentage.<sup>1</sup>

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<sup>1</sup>Vodafone told us that the base for this calculation was not strictly residential: it was segmented into approximately [ ] consumer and [ ] business customers.

6.156. O<sub>2</sub> provided us with data on the discounts it offered to some of its business customers<sup>1</sup> (see Table 6.36). The number of its customers receiving these discounts accounted for less than [§] per cent of its total number of subscribers. The proportion rises to less than [§] per cent if the independent service providers give discounts to their business customers on O<sub>2</sub>'s network. Discounts ranged from [§] to over [§] per cent with an average of [§] per cent.

TABLE 6.36 Discounts awarded to business customers by O<sub>2</sub>, June 2001

Range	Type of customer	Distribution
( <i>Figures omitted.</i> <i>See note on</i> <i>page iv.</i> )	SME only	( ) [§]
	SME only	
Total	SME and small corporate	( ) [§]
	Mainly corporate	
	Mainly corporate	
Average discount	Corporate only	

Source: O<sub>2</sub>.

6.157. O<sub>2</sub> said that under its First Loyalty scheme (which began in 1998) eligible post-pay subscribers who had been connected for 12 months could choose one of the following three benefits: [§] per cent off their monthly subscription charges, or [§] per cent discount on standard calls,<sup>2</sup> or [§] per cent off international or roaming calls. It stated that customers might also get up to [§] per cent off accessories and that there was a graduated handset upgrade discount scheme based on timing between upgrades—£[§] after year 1, £[§] after year 2 and £[§] after year 3.<sup>3</sup> O<sub>2</sub> told us that [§] per cent of its customers were eligible for its First Loyalty scheme. Nearly [§] customers received discounts of up to [§] per cent and about the same number received discounts of between [§] and [§] per cent with an average discount of just over [§] per cent.

6.158. Orange told us that it gave small discounts to residential and small business customers on an ad hoc basis. It said that limited numbers of small retail discounts to subscriptions were given in exceptional circumstances to particular business customers with no retail discounts given on airtime charges.

6.159. T-Mobile stated that it offered discounts to corporate customers which were dependent on the tariff plan selected by the customer, the number of handsets connected and the contract length. It told us that the discount structure was only applicable to corporate customers, which comprised about [§] per cent of its contract subscribers for 2001. T-Mobile said that the maximum discount was [§] per cent.

6.160. Some business customers install technologies or buy a service from an MNO (for example, MVPNs—see Chapter 3) that, in effect, change the type of calls they make and receive, for example that change a fixed-to-mobile call to an on-net call. By doing this, the customer is charged less for calls than it would otherwise pay without this equipment but it has to offset these cost savings against the capital and operating costs it incurs from using the equipment. The MNOs told us that only a small number of customers used these types of products.

6.161. In August 2002, Orange announced the launch of Orange Business Together, an MVPN solution that allows between 10 and 250 mobile and specified fixed-line numbers to be part of a private number plan, which it said could reduce the cost of calling company mobiles from an office by over 70 per cent.<sup>4</sup> Vodafone told us that it offered an equivalent MVPN product that showed similar savings on the cost of calling company mobile phones.

<sup>1</sup> (
   
<sup>2</sup>
  
<sup>3</sup>
  
*Details omitted. See note on page iv.*
  
 )

<sup>4</sup>Based on BT daytime rate for calling Orange of 18.43 ppm plus VAT compared with an MVPN on Orange of 4.75 ppm.

## *Non-price competition*

6.162. In this section we look at service quality, sales and marketing expenditure and customer service.

### *Service quality*

6.163. MNOs cover virtually all of the UK population. Coverage area is a question not only of where people live and work, but also of where they travel, ie coverage of motorways, main roads and railway lines is important. Also in-building coverage is crucial. This is generally regarded as more difficult for 1800 MHz MNOs (see paragraph 3.33). [

*Details omitted. See note on page iv.*

]

6.164. The MNOs participate in a survey agreed by OfTel but conducted by the MNOs that tests two aspects of their service quality—successful connections and successfully held calls. Other aspects might be speech quality, time for operators to answer, average time between handset faults and time to repair. The survey was first carried out in 1999. In the 2002<sup>1</sup> survey each of the MNOs carried out at least 20,000 2-minute calls. The survey results are shown in Table 6.37. The table shows that virtually all calls were successfully connected and completed but that T-Mobile had a slightly lower success rate (96 per cent) than the other MNOs (over 97 per cent).

TABLE 6.37 **Service quality of MNOs, 2002\***

	<i>per cent</i>		
	<i>Successfully connected</i>	<i>Successfully completed</i>	<i>Successfully connected and completed</i>
Vodafone	98.9	99.4	98.3
Orange	98.8	99.0	97.8
O <sub>2</sub>	98.7	98.9	97.6
T-Mobile	97.6	98.4	96.0

*Source:* OfTel.

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\*Survey of calls made between April 2002 and September 2002. At least 20,000 2-minute calls are made by each MNO.

6.165. We were unable to look at trends in the above data because OfTel told us that previous data were not comparable.

### *Sales and marketing and customer care expenditure*

6.166. Other aspects of non-price competition that are used by the MNOs to win and retain customers include sales and marketing, and customer care. Paragraphs 7.140 to 7.163 discuss these and other non-network costs and Table 7.10 shows the expenditure of the MNOs on these components of non-network costs in 2001. Average sales and marketing expenditure in 2001 was £185 million per MNO, ranging from £94 million to £258 million. Average expenditure on customer care (per MNO) was £154 million in 2001 ranging from £146 million to £167 million. In order to compare average expenditure on these two categories, we have used the total expenditure on sales and marketing and total expenditure on customer care together with the number of subscribers to produce average costs per subscriber (see Table 6.38).<sup>2</sup>

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<sup>1</sup>April 2002 to September 2002.

<sup>2</sup>Chapter 7 calculates average customer acquisition and retention costs (which include sales and marketing costs but not customer care costs) on the basis of the number of new subscribers.

TABLE 6.38 Unit costs for sales and marketing, and customer care, 2001

Unit costs for	£ per subscriber			
	Vodafone	Orange	O <sub>2</sub>	T-Mobile
Sales and marketing	[ Figures omitted. See note on page iv. ]			
Customer care				

Source: CC calculations on data provided by the MNOs. The comparability of the MNOs' expenditure categories is discussed in paragraphs 7.140 to 7.163.

6.167. [ ☒ ] has a much lower average sales and marketing expenditure than the other MNOs. Whilst it also has a lower average customer care expenditure than the other MNOs, the differences between it and the other MNOs are not as great as that for average sales and marketing expenditure.

### Market shares

6.168. We have calculated market shares using four different types of data: number of subscribers, outgoing revenue, number of outgoing call minutes and number of text messages sent. We deal with each of these in turn.

#### The number of subscribers

6.169. Table 6.39 shows the shares of the number of subscribers, in total and by categories of customer, held by MNOs between 1997 and 2001.

TABLE 6.39 Share of the number of subscribers held by MNOs, 1997 to 2001

	March end for:					Year ended
	1997	1998	1999	2000	2001	Dec 2001*
<i>All</i>						
Vodafone	40.3	38.0	37.5	32.3	28.3	24.6
O <sub>2</sub>	38.4	34.1	30.4	27.2	25.7	24.7
T-Mobile	8.7	13.3	15.1	18.5	20.7	23.2
Orange	12.6	14.6	17.0	22.0	25.4	27.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of subscribers (million)	7.1	9.0	14.9	27.2	43.5	44.9
<i>Post pay</i>						
Vodafone	40.3	37.8	35.7	30.5	31.2	34.5
O <sub>2</sub>	38.4	36	34.6	31.3	25.1	25.0
T-Mobile	8.7	11.9	12.4	17.2	19.8	13.3
Orange	12.6	14.3	17.3	20.9	23.9	27.1
Total	100	100	100	100	100	100
Number of subscribers (million)	7.1	8.6	10.4	12.2	13.7	13.9
<i>Prepay</i>						
Vodafone		42.4	41.6	33.8	26.9	20.1
O <sub>2</sub>		0	20.5	23.9	25.9	24.5
T-Mobile		37.9	21.4	19.5	21.1	27.6
Orange		19.7	16.5	22.8	26.1	27.8
Total		100	100	100	100	100
Number of subscribers (million)		0.5	4.4	15	29.7	31.0

Source: OfTel and CC calculations on data provided by OfTel.

\*Data for Vodafone and O<sub>2</sub> are not comparable with data for earlier periods. Data for T-Mobile include that for Virgin Mobile.

6.170. The upper part of Table 6.39 shows that each MNO broadly had the same proportion of the number of subscribers in 2001 which was not the case in 1997. Vodafone and O<sub>2</sub> have seen their pro-

portions fall since 1997 whilst T-Mobile and Orange have seen theirs grow. The lower parts of Table 6.39 shows that Vodafone has a much higher share of post-pay customers than it does of prepay customers, whilst the opposite is true for T-Mobile. O<sub>2</sub> and Orange have the same share of post-pay customers as they do of prepay customers.

6.171. We compared the shares in the UK with other European countries with four or more GSM MNOs (see Table 6.40). The table shows that shares in the UK are more evenly spread than in the other European countries.

TABLE 6.40 **Market shares by subscriber numbers in European markets with four or more GSM operators, 2001**

	<i>per cent</i>				
	<i>Austria</i>	<i>Denmark</i>	<i>Germany</i>	<i>Netherlands</i>	<i>UK</i>
MNO1	45	50	40	45	29
MNO2	34	26	40	30	26
MNO3	19	15	14	9	25
MNO4	2	9	6	8	21
MNO5				8	
Number of subscribers (m)	6.2	3.4	47.9	10.7	40.1

Source: Public Network Europe Mobile Yearbook 2002.

### *Shares of outgoing revenue*

6.172. Table 6.41 shows the shares of revenue from calls, fixed charges and connections held by each MNO between 1996/97 and 2001/02.

TABLE 6.41 **Shares of outgoing revenue from calls, fixed charges and connections held by each MNO, 1996/97 to 2001/02**

	<i>per cent</i>					
	<i>1996/97</i>	<i>1997/98</i>	<i>1998/99</i>	<i>1999/00</i>	<i>2000/01</i>	<i>2001/02</i>
Vodafone	46.2	44.2	41.5	39.9	36.3	34.8
O <sub>2</sub>	37.2	33.5	31.2	27.4	24.1	22.4
T-Mobile	6.3	9.8	12.8	14.5	16.7	16.6
Orange	10.3	12.5	14.5	18.3	22.9	26.2
Total	100	100	100	100	100	100
Total revenue (£bn)	2.7	3.2	3.9	5.1	6.3	7.1

Source: CC calculations on Ofel data.

6.173. Table 6.41 shows that Vodafone had the largest share of revenue in 2001/02 but its share has fallen since 1996/97. O<sub>2</sub>'s share has also fallen and it is now lower than the share held by Orange. The shares of Orange and T-Mobile have risen over the period.

### *Share of outgoing call minutes*

6.174. Table 6.42 shows the shares of outgoing call minutes in the UK held by each MNO between 1996/97 and 2001/02.

TABLE 6.42 Shares of outgoing call minutes in the UK held by each MNO, 1996/97 to 2001/02

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
Vodafone	33.0	33.0	33.7	32.4	29.3	30.8
O <sub>2</sub>	24.8	24.0	22.0	22.9	23.6	20.7
T-Mobile	31.2	30.5	29.8	24.8	21.0	19.7
Orange	10.9	12.5	14.5	19.9	26.2	28.7
Total	100	100	100	100	100	100
Total minutes (bn)	6.8	9.6	14.6	25.5	39.3	46.3

Source: CC calculations on OfTel data.

6.175. Table 6.42 shows that Vodafone had the largest share of call minutes in 2001/02, closely followed by Orange. There was then a gap to O<sub>2</sub> and T-Mobile.

### *Share of outgoing text messages*

6.176. Table 6.43 shows the shares of the number of text messages sent by each MNO between 1999/2000 and 2001/02. Data was not collected on text messages before 1999/2000.

TABLE 6.43 Shares of number of text messages sent by each MNO, 1999/2000 to 2001/02

	1999/00	2000/01	2001/02
Vodafone	31.7	26.8	25.9
O <sub>2</sub>	21.5	19.6	26.9
T-Mobile	14.0	16.7	16.3
Orange	32.8	36.8	30.9
Total	100	100	100
Total number of text messages (bn)	2.4	8.0	13.2

Source: CC calculations on OfTel data.

6.177. Table 6.43 shows that Orange had the largest share of the number of text messages sent in 2001/02. O<sub>2</sub>'s and Vodafone's shares were broadly similar and T-Mobile had the smallest share. Orange's and T-Mobile's shares were broadly constant between 1999/2000 and 2001/02 but Vodafone's share fell while O<sub>2</sub>'s rose.

### *Switching behaviour*

6.178. OfTel's February 2002 survey found that 21 per cent of respondents claimed to have changed their mobile network or service provider (9 per cent within the last 12 months and 13 per cent over a year ago).

6.179. GfK asked respondents whether they had ever changed network provider. 29 per cent said that they had changed. Respondents were asked why they had switched. The results are given in Table 6.44.

TABLE 6.44 Reasons for changing network provider

	%
Better priced package	39
Better network coverage	17
Better quality service	12
To get a new handset	14
Was a gift/done for me	1
Had no choice	*
Friends and family were on another network	*
Others	*
No answer	17
Sample size	190

Source: GfK.

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\*Less than 0.5 per cent.

6.180. Table 6.44 shows that price was given by the largest proportion of respondents. Very few respondents mentioned changing so as to be on the same network as friends and family.

6.181. Ofcom commissioned TNS to carry out a postal survey of mobile phone customers in November 2001. Over 3,000 mobile phone customers responded to the survey. TNS asked respondents whether they had ever changed: service providers or mobile networks; or mobile packages (ie payment plan, for example contract to prepay); or mobile tariffs. 23 per cent said that they had changed service providers or mobile networks; 19 per cent said the same for mobile packages and 17 per cent for mobile tariffs.

6.182. TNS asked those that had changed, their reasons for changing by giving them a list of possible reasons. Respondents were allowed to indicate more than one of the given reasons and were allowed to give other reasons. The results are shown in Table 6.45.

TABLE 6.45 Reasons for changing service providers or networks, mobile packages or mobile tariff

	%
Cost of calls	53
Cost of rental	41
Better reception/coverage	19
Wanted a particular handset	17
Wanted same network as friends and family	15
Better line/sound quality	6
Other	14
No answer	1
Sample size	1,283

Source: TNS.

---

6.183. Table 6.45 shows that price (of calls and rental) was given by the largest proportion of respondents and was much bigger than those giving 'wanting to be on the same network as family and friends'.

6.184. TNS asked those that had not changed, their reasons for not changing by giving them a list of possible reasons. Respondents were allowed to indicate more than one of the given reasons and were allowed to give other reasons. The results are shown in Table 6.46.



TABLE 6.46 **Reasons for not changing service providers or networks, mobile packages or mobile tariff**

	%
The current one is best suited to my needs	51
I am satisfied with the current network/supplier	42
I am on the same network as friends/family	19
The current one is the cheapest	9
The current one has best the best coverage/ reception	8
The current one has the best line/sound quality	3
Other	8
Don't know	4
No answer	6
Sample size	1,840

Source: TNS.

6.185. Table 6.46 shows that ‘best package’ and ‘satisfaction’ was given by the largest proportion of respondents and was much bigger than those giving ‘I am on the same network as family and friends’. Unlike Table 6.45, price was not given by many respondents although price could have been taken into account by respondents who gave their reasons as ‘best package’ or ‘satisfaction’.

6.186. TNS asked all respondents what savings (in percentage terms) might encourage them to change service provider, mobile package or tariff (see Table 6.47).

TABLE 6.47 **Size of percentage savings that might encourage changing of service provider, mobile package or tariff**

	%
Up to 10%	4
11 to 20%	12
21 to 40%	17
41 to 50%	11
More than 50%	17
Wouldn't change for any saving	15
Don't know	21
No answer	2
Mean (percentage saving)*	34
Sample size	3,123

Source: TNS.

\*Calculated by using the mid-points of the ranges and the lower end of the range (50) for more than 50 per cent. Only includes those respondents in the ranges.

6.187. Table 6.47 shows only 4 per cent of respondents would switch for a price change of up to 10 per cent and the average price saving that might encourage switching is 34 per cent.

6.188. TNS asked respondents to what extent they agreed or disagreed with a number of statements (see Table 6.48).

TABLE 6.48 **Customers' views on comparing prices and satisfaction with their current package**

	<i>Degree of agreement:</i>		<i>Total</i>
	<i>Strongly</i>	<i>A little</i>	
I am getting the best all-round deal for my needs	28	29	57
I am getting the best quality (network) coverage for my needs	26	30	56
I have compared prices/packages since obtaining my mobile	14	26	40
I believe I am getting the cheapest deal available	15	19	34
I have looked for better deals (such as better package on offer)	12	18	30
I have looked for cheaper deals since obtaining my mobile	11	18	29

Source: TNS.

6.189. Table 6.48 shows that over half of respondents feel they are receiving the best all-round deal or best quality.

6.190. TNS asked respondents how interested they were in changing to better or cheaper deals for their mobile phone. 40 per cent said that they were interested (18 per cent very interested and 22 per cent quite interested) and 40 per cent said that they were not interested (18 per cent not very interested and 22 per cent not at all interested).

6.191. Respondents who were not interested in changing were asked why this was the case (see Table 6.49).

TABLE 6.49 Reasons for not being interested in changing to better or cheaper deals for mobile phone

I am happy with the current deal	65
I hardly ever use the phone	50
It's impossible to make sense of all the different deals	11
I have only just changed	6
I don't have the time	5
I have a long-term contract	4
I just use the mobile, someone else would make the decision	3
Other	4
Don't know/no answer	1
Sample size	1,253

Source: TNS.

6.192. MNOs closely monitor 'churn', the proportion of customers that leave their network. It is normally measured as the number of customers that disconnect from their network or from a particular tariff in a given period as a proportion of the average number of customers in that period. There is no industry standard for calculating churn and the comparisons between MNOs should be viewed with this in mind. Vodafone provided us with data that showed that its churn over the 11-month period ending February 2002 was [§§] per cent, [§§] per cent for contract customers and [§§] per cent for prepay customers. T-Mobile told us that its churn for 2001 was [§§] per cent. Orange gave us a figure of [§§] per cent for the year ending December 2001 and O<sub>2</sub> provided us with data that showed its churn as [§§] per cent for 2001/02. However, the churn figures may be higher than they would otherwise have been as a result of retailers receiving higher rewards from the MNOs for signing up new customers than from upgrading the handsets of existing customers. The true rate of churn between networks appears to be less than 20 per cent.

6.193. O<sub>2</sub> told us that churn figures included customers that disconnected and then reconnected to the same network. This action is sometimes known as 'spinning'. It provided us with survey data from September/October 2001 that showed the breakdown of churn (see Table 6.50).

TABLE 6.50 Breakdown of churn, 2001

	<i>Types of customers (per cent)</i>			
	<i>Prepay</i>		<i>Contract</i>	
	<i>Dates of surveys</i>			
	<i>Sept/Oct 2001</i>	<i>Jan 2001</i>	<i>Feb/Mar 2000</i>	<i>Sept/Oct 2001</i>
Spinning (intra-network churn)	<i>Figures omitted. See note on page iv.</i>			
Churn (inter-network churn)				
Stopped (leavers)				
Users (still on network but not using phone)				
Total*		100	100	100

Source: O<sub>2</sub>.

\*May not sum because of rounding.

6.194. The September/October 2001 survey found that inter-network churn was [§] per cent of reported churn figures for prepay customers and [§] per cent for contract customers. These proportions imply that between [§] and [§] per cent of O<sub>2</sub>'s customers left to join another MNO ([§] × [§] per cent and [§] × [§] per cent). [

*Details omitted. See note on page iv.*

]

6.195. Table 6.51 shows the results of Vodafone's November 2001 market research analysis of churning customers.

TABLE 6.51 **Breakdown of churn, 2001**

	<i>per cent</i>	
	<i>Prepay</i>	<i>Contract</i>
Ceases to own mobile	<div style="display: inline-block; border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; padding: 0 10px;"> <span style="font-size: 2em; vertical-align: middle;">§</span> </div>	
Churns to Vodafone contract		
Churns to Vodafone prepay		
Churns to another network		
Total*		100

*Source: Vodafone.*

\*May not sum because of rounding.

6.196. Table 6.51 shows that Vodafone's inter-network churn is [§] per cent of reported churn figures for prepay customers and [§] per cent of reported churn figures for contract customers, which implies that Vodafone's inter-network churn is [§] per cent for contract customers ([§] per cent × [§]) and [§] per cent for prepay customers ([§] per cent × [§]). Intra-network churn is [§] per cent of reported churn figures for prepay customers and [§] per cent of reported churn figures for contract customers, which implies intra-network churn of [§] to [§] per cent.

6.197. T-Mobile provided us with survey data that showed inter-network churn was [§] per cent of its reported churn figures in late 2001. The figures for intra-network churn was [§] per cent and [§] per cent leavers.

6.198. Table 6.52 shows new subscribers as a proportion of total subscribers. It shows that, for example, of the total number of subscribers in March 2002, 10 per cent were new subscribers during 2001/02. The proportion of new subscribers rose to March 2000 but has fallen sharply to March 2002.

TABLE 6.52 **Proportion of subscribers that are new**

<i>Year ended</i>	<i>Total m</i>	<i>Change m</i>	<i>Change %</i>
Mar 1996	5.7		
Mar 1997	7.1	1.4	19.3
Mar 1998	9.0	1.9	21.2
Mar 1999	14.9	5.9	39.3
Mar 2000	27.2	12.3	45.3
Mar 2001	43.5	16.3	37.4
Mar 2002	48.3	4.9	10.1

*Source: CC calculations on data provided by OfTel and the MNOs.*

6.199. Table 6.52 is based on the number of handsets and not the number of actual customers. These will differ because the former will include: handsets used by those below 15 years of age, customers that own and use more than one handset and some handsets that are owned by businesses. To calculate the number of new customers we used an estimate of the proportion of the population aged 15 years and over that had a mobile phone<sup>1</sup> from OfTel's surveys of residential customers together with population data

<sup>1</sup>This was 67.5 per cent at August 2002. T-Mobile told us that there were 39 million individuals (of all ages) owning a mobile phone. It said that this was based on market research it used that showed that mobile penetration had reached over 70 per cent at October 2002.

from the Office for National Statistics (ONS). The results are shown in Table 6.53. This shows broadly the same proportion as Table 6.52 (a change of 9 per cent in February 2002 compared with a change of 10 per cent in March 2002). However, the latest data (for August 2002) shows a year-on-year increase of 1.5 million new mobile customers, about 5 per cent of all mobile customers. Orange told us that the fall between May and August 2002 was more likely to represent short-run factors such as the slowdown in the economy and could not be seen as evidence of saturation.

TABLE 6.53 Proportion of customers\* that are new

Year ended	Total customers m	Change m†	Change %†
Feb 2001	28.1		
May 2001	29.6		
Aug 2001	30.7		
Feb 2002	30.9	2.9	9.3
May 2002	32.4	2.8	8.6
Aug 2002	32.2	1.5	4.6

Source: CC calculations on Ofcom and ONS (population) data.

\*Aged 15 years and over.

†Compared with one year earlier.

### ***Costs and possible barriers to customers of switching networks***

6.200. For prepay residential customers and for customers with a small number of handsets (for example, some small businesses) switching mobile networks is cheap and easy. The Large User Group told us that switching networks was not easy for large customers. It said that there were many logistical problems in getting new handsets or SIM cards to its employees.

6.201. The only tangible costs to prepay customers of switching are the costs of unlocking SIM cards<sup>1</sup> (if this applies) and the cost of buying a new SIM card. Customers can switch by buying a new mobile phone but they do not need to do this. Vodafone and O<sub>2</sub> told us that they locked SIM cards for prepay customers that had been on their networks for less than 12 months. O<sub>2</sub> told us that it charged £15 (all prices in this paragraph include VAT) to unlock handsets that used its network. Vodafone said that as of 1 April 2002 it charged £19.99 to unlock handsets that used its network. Prior to this date it charged £35. T-Mobile and Orange also lock phones for prepay customers. Their prices for unlocking phones are discussed in paragraph 6.202 where we discuss their prices for unlocking phones to contract customers. The MNOs told us that they locked handsets in order to be able to recover the handset subsidy through call revenue and (where applicable) rentals. SIM cards can be bought from retailers for less than £30.

6.202. Contract customers that wish to switch or leave a network before their contract expires will normally have to pay the outstanding portion of their monthly subscription charge, for example a customer with five months remaining on a 12-month contract with a monthly charge of £15 would have to pay £75. Orange told us that it gave a 5 per cent rebate on such charges that reflected the value of obtaining the lump sum in advance. T-Mobile said that it gave a 4 per cent discount. O<sub>2</sub> stated that it allowed subscribers to terminate their contract before the end of the term but subscribers were required to pay the outstanding balance of the monthly subscription charges. Vodafone said that customers that wished to terminate their contract before its expiry date could move to a tariff with the lowest monthly charge. Customers that switched networks outside their initial contract period would not face this type of charge. But after 11 of the initial 12 months, subscribers have to give one month's notice and pay the subscription charge during the notice period. T-Mobile said that its customers were charged £15 a month regardless of the actual level of monthly subscription charge applicable to their price plan, for example a customer on its Free Time Extra plan with a monthly subscription charge of £25 would be required to pay a cancellation charge of £15 per remaining month in order to switch to another network. Orange and

<sup>1</sup>Whilst this is called SIM unlocking, it actually means unlocking the phone so that it can operate on another network.

T-Mobile told us that they locked phones for contract customers (as well as for prepay customers) on their networks. Orange charged £20 (plus VAT) for phones on its network to be unlocked. T-Mobile's customers had to pay £35.25 (including VAT) to have their phones unlocked.<sup>1</sup> T-Mobile's customers that wanted to switch to Virgin Mobile did not need to have their phones unlocked. As noted in paragraph 6.201, SIM cards can be bought from retailers for less than £30.

6.203. Oftel's November 2001 survey found that 63 per cent of mobile customers were aware that it was possible to use different SIM cards in their mobile phone handset to enable them to use another network. 6 per cent of mobile customers who were aware of these options (4 per cent of all mobile customers) claimed to use more than one network by using more than one SIM card in their mobile handset. 11 per cent of mobile customers that were aware of SIM card use (7 per cent of all mobile customers) had switched networks but kept the same mobile handset, using an alternative SIM card in their phone. One in five mobile customers not using multiple SIM cards thought they might be interested in using them in the future—14 per cent fairly interested and 5 per cent very interested. 19 per cent of mobile customers that had been unaware of the ability to switch networks and retain their mobile handset were interested in this option—4 per cent very and 15 per cent fairly.

6.204. A possible barrier to switching mobile phone networks could be a lack of awareness by customers that they can transfer their existing mobile phone number to a new network (known as porting). Paragraphs 3.69 to 3.73 discuss mobile number portability. Oftel's August 2002 survey of residential mobile phone customers found that 18 per cent of respondents that had ever changed networks or service providers ported their number. About 82 per cent of respondents that changed networks or service providers changed their mobile phone number and only 7 per cent did so because they wanted a new number for privacy. Table 6.54 shows the reasons given by respondents for not porting.

TABLE 6.54 **Reasons for not porting**

	%
Automatically given new number	39
Unaware could keep number	24
Wasn't told/given option to keep number	13
New company said must have new number	10
Wanted new number—privacy	7
Too much hassle	4
Too expensive	3
Old company said must have new number	3
Number locked	2
Other	4
Don't know	9
Sample size	269

*Source:* Oftel (August 2002 Residential survey).

6.205. The porting process (which can take about one week) may mean that some customers are unable to receive calls to their old number until the process is complete. These customers may prefer to opt for a new number rather than miss calls. Oftel told us that the porting process should be five working days. It said that it had no evidence to confirm or deny that there was a gap in service. Orange stated that for personal customers, the porting process should take seven calendar days to complete and that it had been designed to ensure that the customer should not be without a mobile service during the entire period. T-Mobile told us that it provided a temporary mobile phone number to customers seeking to port their mobile service and phone number to T-Mobile. It said that it did this to ensure that the porting process did not disrupt the customer's continuity of service. T-Mobile stated that no customer would be without a mobile phone during the porting process, for the vast majority of customers the porting process was entirely seamless and transparent but some customers occasionally experienced a service outage on the day on which their number was transferred, however this usually lasted for no more than an hour or two at the most. O<sub>2</sub> stated that the porting process gave rise to minimum disruption. It said that, at most, a customer could be without a phone for about 4 hours on the day of handover. Vodafone told us that there should be no time, during the porting process, when the customer did not have a handset or when he was unable to make or receive calls. It said that the subscriber retained the functionality of his original

<sup>1</sup>Towards the end of our inquiry, T-Mobile told us that it had announced that it would be reducing its charge for unlocking SIM cards to £15 (including VAT) early in 2003.

handset and SIM card right up to the porting date. Another possible reason for not switching is the incentives that customers are offered when they tell their MNO that they are going to switch to another network (see paragraph 6.154). [

*Details omitted. See note on page iv.*

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## ***Entry***

6.206. Hutchison 3G is the only new MNO expected to operate in the UK in the foreseeable future in accordance with UK Government policy to permit five 3G MNOs to operate in the UK. Having acquired one of the licences to provide 3G mobile phone services (see paragraph 3.95) Hutchison 3G told us that it would become the fifth MNO in the UK when it began offering services in 2002. Hutchison 3G will provide its customers with a 2G service, using O<sub>2</sub>'s 2G network, in geographical areas not covered by its own network. Of tel told us that mass market take-up of 3G services was not expected before 2004 at the earliest. In its LRIC model Of tel assumes that Hutchison 3G will have a 13 per cent share of subscribers by January 2006.

6.207. In 1999, Dolphin launched a mobile service based on the TETRA technology (see paragraph 3.8). Of tel told us that Dolphin's services had not had a significant impact on other mobile operators. Dolphin was placed in protective administration whilst discussions took place with prospective purchasers. It emerged from administration when it was purchased by Inquam in June 2002.

6.208. There have been other entrants in the form of independent services providers offering mobile phone services under their own brand name. The largest of these is Virgin Mobile. It uses T-Mobile's network and began offering services in late 1999. By 2002 Virgin Mobile had over 1.5 million subscribers and accounted for about [§§] per cent of the outbound minutes carried by T-Mobile. Carphone Warehouse also uses T-Mobile's network for its mobile phone offering, which is sold under the brand name 'Fresh'. In October 2002, BT announced its return to mobile phone services. Its new service, Mobile Sense, is only available over the Internet. BT stated that Mobile Sense was not a mass-market offering and it expected to generate the majority of the targeted £44 million of consumer and other new mobile revenue by 2004/05.

## **Competitive pressure on call termination charges**

6.209. This section begins by looking at closed user groups. It then in turn looks at: awareness of calling mobile phones on the same network, knowledge of prices, importance of incoming call prices and finally the behaviour of customers when calling mobile phones.

### ***Closed user groups***

6.210. Of tel defined two types of closed user group:

- (a) narrow—where the mobile owner is also the person who pays for the calls to his mobile from other members of the closed user group and so has a direct interest in the cost of his being called; and
- (b) wide—where groups of friends and family have an interest in keeping call costs down in general.

6.211. Closed user groups are therefore potentially important because they are concerned about the pricing of incoming phone calls, either because they pay for them (narrow closed user groups) or because they have an interest in the people that pay for them (wide closed user groups). Narrow closed user groups are mainly confined to (a) families with members financially dependent on the breadwinner; and (b) commercial groups. Wide closed user groups are much more disparate with no easily defined boundary. Individuals may be members of more than one wide closed user group.

6.212. O<sub>2</sub> did not think that it was appropriate to consider calling relationships in terms of closed user groups and preferred 'Repeat Calling Relationships'. It said that the majority of calls took place between calling pairs who called each other regularly, whether or not they fell into the closed user group classification. O<sub>2</sub> told us that there was a continuum of closedness ranging from closed user groups in the

narrow sense to calls to random callers. It said that within such repeat calling relationships calling pairs had an interest in reducing their mutual calling charges. O<sub>2</sub> believed that this had a constraining effect on call termination charges. It presented data which it said supported the importance of these relationships (see Chapter 8). Orange believed that closed user groups were widespread and that the existence of such groups meant that call recipients were likely to be concerned about the cost of calls made to them. Vodafone told us that closed user groups did not effectively constrain call termination charges to efficient levels. T-Mobile said that the vast majority of mobile subscribers was part of at least one closed user group.

6.213. 79 per cent of respondents who paid for mobile phones told BMRB that the group of people they called most often from their mobile phone to the other person's mobile phone was friends, family or partner. 10 per cent gave work-related contacts. BMRB asked what proportion of their mobile-to-mobile calls was made to the group of people they called most often. By using the mid-points of the ranges<sup>1</sup> we calculated that these calls accounted for over 60 per cent of all of the respondents' mobile-to-mobile calls.<sup>2</sup> However, taking account of all of their calls from their mobile, ie including calls to fixed lines, this proportion falls to about one-quarter.<sup>3</sup> BMRB asked the respondents how many of their mobile-to-mobile calls to this group were on-net calls. Again, using the mid-points of the ranges, we calculated that these on-net calls accounted for about 35 per cent of calls of their mobile-to-mobile calls. Taking into account all of their calls from their mobile (ie including off-net calls and calls to fixed lines), this proportion falls to about 9 per cent.<sup>4</sup>

6.214. 39 per cent of respondents told NOPV that all the mobile phones that they or the other members of their family paid for were on the same mobile network. 56 per cent of respondents said that this was not the case. About half of those that were on the same network said that this was because of reduced cost of calling each other, 22 per cent said it was coincidence.

6.215. NOPO<sub>2</sub> asked respondents that owned mobile phones whether the network used by people that they were likely to be communicating with was an important factor when they decided which mobile network they joined. About one-third of respondents said that it was important and over half said that it was unimportant. 69 per cent of these respondents (ie of the one-third and over half) did not know why this was or was not important to them.

6.216. NOPV asked respondents whether they considered the mobile networks that their friends, family and other people they called regularly were on when they chose their current mobile network. 58 per cent of respondents said they did not consider any of these groups, 29 per cent said they considered their friends and the same proportion said that they considered their family.

6.217. 81 per cent of respondents who paid for mobile phones told BMRB that they had never chosen, or changed to, a network so as to be on the same network as someone they spoke to often. 15 per cent had chosen a network and 4 per cent had changed their network for this purpose. Of those that had chosen or changed networks, 88 per cent said that they had done this to save money on call charges.

### ***Awareness of calling a mobile phone on the same network***

6.218. 28 per cent of respondents that paid for the use of a mobile phone told BMRB that they were likely to know whether they were calling a mobile phone on the same network as them (10 per cent said that they always knew and 18 per cent said that they were likely to know).

6.219. NOPO<sub>2</sub> asked fixed-line respondents if they knew which network they were calling when they rang a mobile phone. There was a marked difference in the responses from those that had a mobile phone and those that did not have one (see Table 6.55).

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<sup>1</sup>BMRB used the following ranges: less than one-quarter, between one-quarter and a half, between a half and three-quarters and over three-quarters. We used the following mid-points for each of these ranges: 12.5, 37.5, 62.5 and 87.5. We excluded 'Don't knows' from our calculations. Including 'Don't knows' makes very little difference to our calculations.

<sup>2</sup>O<sub>2</sub> believed that this data supported the existence of repeat calling relationships.

<sup>3</sup>Including 'Don't knows' makes very little difference to these calculations.

<sup>4</sup>For these two calculations including 'Don't knows' increases the proportions from 35 to 46 per cent (of mobile-to-mobile calls) and from 9 to 12 per cent (of all calls from their mobile phone).

TABLE 6.55 Phone customers that know which mobile network they are calling

	<i>per cent</i>		
	<i>All</i>	<i>Mobile owners</i>	<i>Fixed-line owners only</i>
Yes, always know	32	36	21
Yes, sometimes	18	21	9
Yes, rarely	4	4	4
Never aware	43	37	61
Don't know/not answer	3	2	5
Total	100	100	100
Sample size	703	517	185

Source: NOPO<sub>2</sub>.

6.220. Table 6.55 shows that 57 per cent of mobile owners claimed to be aware of the mobile network they were calling when using their fixed line compared with 30 per cent of respondents that did not have a mobile phone. NOPO<sub>2</sub> asked the same question of mobile owners and their answers were very similar to the mobile owners shown in Table 6.55.

### **Knowledge of prices**

6.221. BMRB asked respondents how much they thought it would cost someone to phone their mobile phone for a 2-minute call during the daytime on a weekday from a landline in the UK. BMRB used this type of call instead of an outgoing mobile call on our advice because the prices for outgoing mobile calls vary depending on the customers' tariff packages. BMRB asked respondents to choose a price from a list of options. The actual cost at full tariff varies between 38p and 47p for a BT customer depending on the network called. This could be lower if the customer uses one of BT's discount schemes or uses another FNO. This implies that answers outside BMRB's range of 30 to less than 50p are probably incorrect. 61 per cent of respondent were outside this range (18 per cent gave prices that were too low and 43 per cent that were too high), 21 per cent were inside this range, 16 per cent said that they did not know the cost and 2 per cent said it would depend. This shows that three-quarters of customers do not know how much it cost someone to phone their mobile phone.

6.222. NOPO<sub>2</sub> asked respondents about their knowledge of relative prices rather than actual amounts (see Table 6.56).

TABLE 6.56 Knowledge of relative prices

	<i>per cent</i>		
	<i>Relative price of calling:</i>		
	<i>Fixed to mobile*</i>	<i>On-net calls*</i>	<i>Off-net calls*</i>
A lot more	48	8	36
A little more	21	10	22
Same	3	14	5
A little less	2	17	2
A lot less	2	16	1
Don't know/not answer	22	34	33
Other	‡	1	1
Total†	100	100	100
Sample size	952	952	952

Source: NOPO<sub>2</sub>.

\*Compared with calling fixed to fixed.

†Totals may not sum due to rounding.

‡Less than 1 per cent.

6.223. Table 6.56 shows that about half of respondents said that fixed-to-mobile calls were a lot more expensive than fixed-to-fixed calls which is consistent with the actual prices. 36 per cent of



respondents said that off-net calls were a lot more expensive than fixed-to-fixed calls, which is also consistent with the actual prices. The actual difference in price between fixed-to-fixed calls and fixed-to-mobile calls is smaller than the difference in price between fixed-to-fixed calls and off-net calls. This being the case, it is surprising that fewer respondents said that off-net calls were a lot more expensive than fixed-to-fixed calls (36 per cent) than when comparing the prices of fixed-to-fixed and fixed-to-mobile calls (48 per cent). Only 8 per cent of respondents said that on-net calls were 'a lot more expensive' than fixed-to-fixed calls, this proportion increasing to 18 per cent if 'a little more expensive' is included. The reason for this finding, which is inconsistent with the actual price differences, could be the effects of inclusive minutes. However, there is very little difference in the answers given by respondents with contract tariffs and those with prepay tariffs.

6.224. NOPO<sub>2</sub> asked mobile customers about the relative prices of on-net and off-net calls. About half of respondents correctly said that on-net prices were lower than off-net prices. About 50 per cent of respondents correctly told NOPO<sub>2</sub> that the price of fixed-to-mobile calls varied by time of day and 60 per cent said the same for mobile-to-mobile calls. 44 per cent of respondents correctly told NOPO<sub>2</sub> that the price of calling mobile phones from a fixed line varied by the network being called.

6.225. Oftel's February 2002 survey found that 18 per cent of fixed-line customers said that they knew roughly how much it costs to call a mobile phone from their fixed line.

6.226. NOPV asked respondents how the cost of making a fixed-to-mobile call compared with the cost of making a fixed-to-fixed call. 57 per cent of respondents correctly said that the costs were a lot more expensive and 24 per cent said a bit more expensive.<sup>1</sup> It asked respondents the same question about the relative prices of off-net and on-net calls. 43 per cent correctly said that the price of off-net calls were a lot more expensive than the price of on-net calls and 22 per cent said they were a bit more expensive.<sup>2</sup>

### ***Importance of incoming call prices***

6.227. BMRB asked respondents how concerned they were about the costs to one of their main contact group of calling their mobile phone. Over two-thirds said that they were not concerned (49 per cent were not concerned and 21 per cent were slightly concerned) and under one-third were concerned (20 per cent were concerned and 10 per cent were very concerned). BMRB asked respondents to think about all the calls they received on their mobile phone and to say for how many of them they were concerned about the cost to the caller. Using the mid-points of the ranges used by BMRB (see paragraph 6.213), we calculated that respondents were concerned about the costs of one-third of their incoming calls. Respondents were asked whether they were more concerned with the costs to them of phoning one of their main contact group's mobile phones or more concerned with the cost to the main contact group of calling their mobile phone. 61 per cent of respondents said that they were more concerned with their own cost, 9 per cent said that they were more concerned with the costs to their main contact group and 28 per cent said that they were equally concerned with their own costs and the costs to their main contact group.

6.228. BMRB gave respondents who paid for the use of a mobile phone a list of 14 factors and asked them to say how important each of these factors would be to them when choosing a mobile phone (see Table 6.57).

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<sup>1</sup>Of the remaining 19 per cent, 11 per cent did not know, 4 per cent thought they were about the same, 2 per cent thought they were a bit cheaper and the final 2 per cent thought they were a lot cheaper.

<sup>2</sup>Of the remaining 35 per cent, 21 per cent did not know, 9 per cent thought they were about the same, 3 per cent thought they were a little cheaper and 3 per cent thought they were a lot cheaper.

TABLE 6.57 Importance of certain factors when choosing a mobile phone  
per cent

	Factors rated as:		Total
	Very Important	Fairly important	
The price you pay to call others	58	25	83
Quality of network service	55	29	84
Ease of understanding of prices	42	34	76
Geographic network coverage	36	25	61
Handset prices	32	31	63
Number of inclusive minutes	28	26	54
The price of text messages	27	25	52
The existing network of your family, friends or partner	23	27	50
Monthly line rental charge	34	16	50
The price others pay to call you	22	27	49
The price of voicemail retrieval	22	23	45
Choice of handset	21	32	53
Brand name	8	19	27
Salesman's recommendation	5	18	23
Sample size	1,283	1,283	1,283

Source: BMRB.

6.229. Table 6.57 shows that the price others pay to call you (which can be seen as a proxy for termination charges) was regarded as being much less important than many other factors. It was regarded as being important by far fewer respondents than prices they paid and service quality. In all it was ranked tenth in the options put to the respondents. O<sub>2</sub> did not consider that overall rankings were meaningful where the relevant criteria were ranked at a very similar level.

6.230. NOPV gave respondents a number of possible reasons for choosing their current mobile package and asked them to say whether these were or were not relevant to their decision. Table 6.58 shows the results.

TABLE 6.58 Important factors when choosing current mobile phone package

	Proportion of respondents saying highly relevant
Value for money of the overall package	65
Price of making calls	59
Payment method	57
Network coverage	55
Handset	40
People I call most are on this network	35
Customer service	28
Network brand	18
Price that people pay to call me	13

Source: NOPV.

6.231. The results in Table 6.58 are broadly similar with BMRB's findings—the price to respondents of making calls (and value for money of the overall package in NOPV's survey) is a much more important reason for their decision than the price that other people pay to call them.

6.232. TNS asked respondents to say how important certain factors were to them when choosing the mobile phone. Table 6.59 shows the results.

TABLE 6.59 Importance of certain factors when choosing a mobile phone

	Degree of importance:		
	Very	Quite	Total*
The overall price	51	27	78
The cost of the calls	48	29	77
Coverage/reception	41	33	74
The price of the phone itself	36	34	70
Line/sound quality	30	35	65
Customer service	21	33	53
The network provider	20	30	50
The cost of the rental	31	16	47
The look/feel of the handset	17	29	46
Being on the same network as friends and family	20	20	40

Source: TNS.

\*May not sum because of rounding.

6.233. TNS did not ask about the importance of the price others had to pay to call mobile phones but it did include the importance of being on the same network as friends and family. The rankings found by TNS are similar to those found by BMRB and NOPV—being on the same network as friends and family is much less important to respondents than factors such as price, coverage and quality.

6.234. NOPO<sub>2</sub> asked respondents whether the cost to other people of calling them was important when they decided which mobile network to join. Nearly three-quarters of respondents said that it was unimportant and under one-fifth said it was important. 85 per cent of these respondents (ie the nearly three-quarters who said unimportant and the under one-fifth who said important) did not know why they said this.

### ***Behaviour of customers when calling mobile phones***

6.235. NOPV gave respondents a number of statements and asked which represented their usual behaviour when making fixed-to-mobile calls (see Table 6.60).

TABLE 6.60 Usual behaviour when making fixed-to-mobile calls

	Usual behaviour:			per cent
	Yes	No	Depends	Sample size
You try and keep conversation to a minimum	78	14	8	1,511*
Ask the person you are calling to call you back	23	59	19	1,511*
Ask person you are calling if you can call their fixed line	39	49	12	1,511*
Suggest sending a text message	32	57	10	1,023†
Suggest sending an email from your mobile	9	85	5	1,023†
Suggest sending an email	29	60	11	766‡
Suggest sending a text message from your PC	19	73	8	766‡

Source: NOPV.

\*All making fixed-to-mobile calls.

†All with a mobile phone who make fixed-to-mobile calls.

‡All with access to the Internet who make fixed-to-mobile calls.

6.236. Over three-quarters of respondents agreed that they tried to keep the length of their fixed-to-mobile calls to a minimum. 39 per cent asked about calling the recipient's fixed line, about 30 per cent suggested sending a text message from their mobile phone and the same proportion suggested sending an email. Just under one-quarter of respondents suggested the recipient called them back.

6.237. NOPO<sub>2</sub> found that over one-quarter of respondents said that they considered ringing the mobile phone to let the recipient know they wanted to talk and the recipient would then ring back. NOPO<sub>2</sub> asked mobile customers whether they had ever offered or been asked to call someone back in order to save money. 38 per cent of respondents said that they had and 62 per cent said that they had not.

6.238. NOPO<sub>2</sub> asked respondents how they would change their pattern of calling mobile phones if the cost of calling mobile phones fell by 25 per cent. The results are shown in Table 6.61.

TABLE 6.61 **Change in calling patterns\* if the price of calling mobile phones fell by 25 per cent**

	<i>per cent</i>		
	<i>Increase number of calls to mobiles</i>	<i>More calls to mobiles at peak times</i>	<i>Stay longer on mobile</i>
Very likely	19	16	19
Somewhat likely	16	15	16
Neither likely nor unlikely	5	6	6
Somewhat unlikely	14	15	13
Very unlikely	44	47	45
Don't know	2	1	1
Total	100	100	100
Sample size	1,000	1,000	1,000

Source: NOPO<sub>2</sub>.

\*From any type of phone, not just from fixed line.

6.239. Table 6.61 broadly shows that about one-third of respondents would change their behaviour in response to a 25 per cent price fall and about two-thirds would not change their behaviour. There was a marked difference in the response of mobile and non-mobile owners. The proportion saying they were unlikely to change their behaviour was over half for mobile owners and over two-thirds for non-mobile owners.

6.240. NOPO<sub>2</sub> asked respondents why they called mobile phones. Table 6.62 shows the results.

TABLE 6.62 **Reasons why people call mobile phones**

	<i>Why call mobile from:</i>	
	<i>Fixed line</i>	<i>Mobile phone</i>
Only number I have	15	12
Want to contact them straight away	41	62
They are mobile so only contactable on mobile	35	0
Don't think about whether mobile number	2	3
Programmed into memory	0	2
Same network—cheaper	0	8
Free minutes	0	2
Other	13	21
Don't know	5	3
Sample size	703	534

Source: NOPO<sub>2</sub>.

6.241. Table 6.62 shows that many respondents call mobile phones because they feel they have little alternative—they want to contact them straightaway. It is noticeable that price does not feature very highly—8 per cent gave a reason of being on the same network and 2 per cent gave free minutes.