

## TARIFFS

### INCUMBENTS' RETAIL TARIFFS FOR PUBLIC FIXED VOICE TELEPHONY

This section examines the charging system, the line rental charges and the main tariffs for public fixed voice telephony charged by the incumbent operators in each Member State<sup>1</sup> in August 2000. The price trend over the past three years is also analysed.

The incumbent operators still retain a large market share, but new entrants are increasingly gaining market share by offering cheaper prices for certain types of call (usually long-distance or international) or destinations. These figures do not, therefore, represent the lowest prices available.

The figures and information are taken from a study carried out for the Commission by Teligen Foundation. The data are collected from primary sources (i.e. directly from the incumbent operators). For some types of calls, a benchmark based on a comparison with US and Japan is also included.

Two different sets of charges for fixed national voice telephony services are shown in the following sections: the charges for a basket of calls (local, long-distance, international fixed calls and calls to mobile) and the price of some individual calls (3- and 10-minute local, long-distance and international calls).

The charge for a basket of national calls gives an estimate of the average monthly spending by a typical "European business/residential user". In the case of international tariffs, the basket of international calls for each country indicates the average price of a single call from the originating country to all other OECD destinations.

The tariffs for a 3- and 10-minute call at peak time are intended to show the call charges paid by the consumer for individual calls (local, long-distance and international). Thus for incumbents which apply unit-based charging (see chart 1), the price of a whole unit is calculated. The euro exchange rate expressed in terms of purchasing power parities (€PPP) has been applied, in order to compare the retail price level between Member States in real terms, rather than nominal terms (see appendix for more details on € and €PPP exchange rates). Official EURO rates are used, referring to August 2000, even for past years, in order to avoid showing changes in exchange rates. Price increases/decreases over time are in nominal rather than real terms (i.e. the effects of inflation are not excluded).

Unlike in previous years, the "EU average tariffs" shown in the charts are weighted (by population of the Member States in 1999) rather than simple averages. For this reason the figures are not comparable.

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<sup>1</sup> The incumbent operators considered are the following: Belgacom for Belgium, Tele Denmark for Denmark, Deutsche Telekom for Germany, OTE for Greece, Telefonica for Spain, France Telecom for France, Eircom for Ireland, Telecom Italia for Italy, P&T Luxembourg for Luxembourg, KPN for the Netherlands, Telekom Austria for Austria, Portugal Telecom for Portugal, Sonera for Finland, Telia for Sweden, British Telecom for the United Kingdom.

## 1. CHARGING SYSTEM

The billing system for public voice telephony services usually comprises two components: an initial charge applied at the beginning of a call and a charge for the remainder of the call (that may not depend on the type of initial charge used).

### 1. INITIAL CHARGES

The initial charge can take the following two forms.

- **Call set-up charge** which applies as soon as the call is answered. This charge may include a number of seconds of call time before normal time-based charging starts (in this case it is also called *initial charge*). In some cases the call set-up charge applies only if the time-based charge for the call is less than the call set-up charge, to ensure that operators receive a minimum revenue per call (in this case it is also called *minimum charge*).
- **Unit charge**, which has the same effect as the initial charge. A full unit is charged at the beginning of the call, and includes a number of seconds of call time until the next unit is charged. Depending on the principle used by the operator (synchronous/asynchronous), the number of seconds of call time in the first unit may be less than the specified unit duration.

### 2. CHARGING SYSTEM DURING THE CALL

Operators currently use two main ways of charging calls: real time charging or unit-based charging. Both are used in conjunction with an initial charge (call set-up or minimum charge). Most operators publish duration charges on a per-minute basis, irrespective of which system is used.

The two systems are:

- **Real time charging** (also known as per-second billing): the duration charge is directly proportionate to the exact duration of the call (normally to the nearest second). A call set-up charge may also apply.
- **Unit-based charging** uses a fixed price unit<sup>2</sup>. The duration of this unit varies according to the destination of the call and time of day. Call duration is always rounded up to a multiple of whole units, so the user will nearly always pay for more time than is used. A call set-up charge may apply, but is relatively rare.

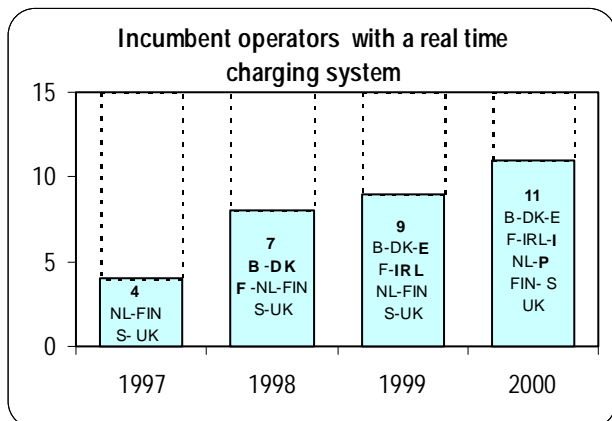
The real time charging method can be perceived as being more convenient for users, as it is the most transparent method (users only pay for what is actually used). However, there is no guarantee that this method will result in the lowest call charge: most of incumbent operators have switched from a unit-based system to real time charging, keeping the same average duration charge, but adding a (new) call set-up charge, resulting in a higher overall cost per call. This especially affects medium-length calls, depending on the price structure before and after the change. This effect was seen for the incumbent's tariffs in Netherlands a few years ago, and now in Italy.

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<sup>2</sup> A variation of this method, used in the US, is **fixed period charging**, which uses a variable price, but fixed duration unit. The call is normally charged on a per-minute or per 6-seconds basis. The price for the period will vary according to destination and time of day. The charged duration of the call is rounded up to a multiple of whole periods. A call set-up or initial charge is often applied in the form of a higher charge for the first period. This initial charge may vary according to destination and time of day.

During the last three years more and more incumbent operators have been moving from a unit-based to a real time charging system, and in August 2000 only the incumbents in Greece, Luxembourg, Austria and Germany (for local calls only<sup>3</sup>) still use a unit-based charging system<sup>4</sup>.

**Chart 1**



Call set-up charges may vary according to the type of call (local, long-distance, international, calls to mobile), and for international calls according to destination.

The following charts show the call set-up charges for long-distance calls and calls to mobile charged by the incumbent operators. The free call time (i.e. the number of seconds of call time before normal time-based charging starts) is shown in brackets. Values are expressed in €PPP, including VAT.

The incumbent operators in Belgium, Denmark, Germany, Spain, Italy, Austria and Finland<sup>5</sup> apply a lower call set-up charge for local calls (or a longer “free call time”) than for long-distance calls.

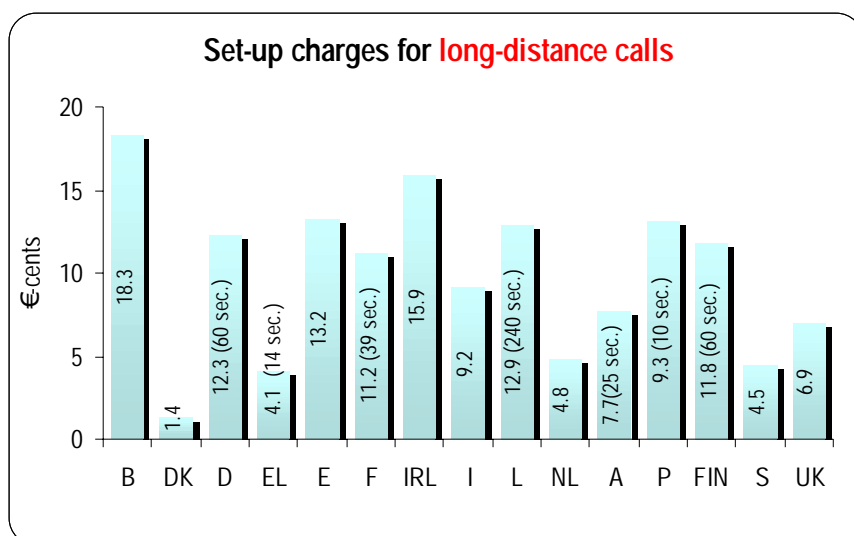
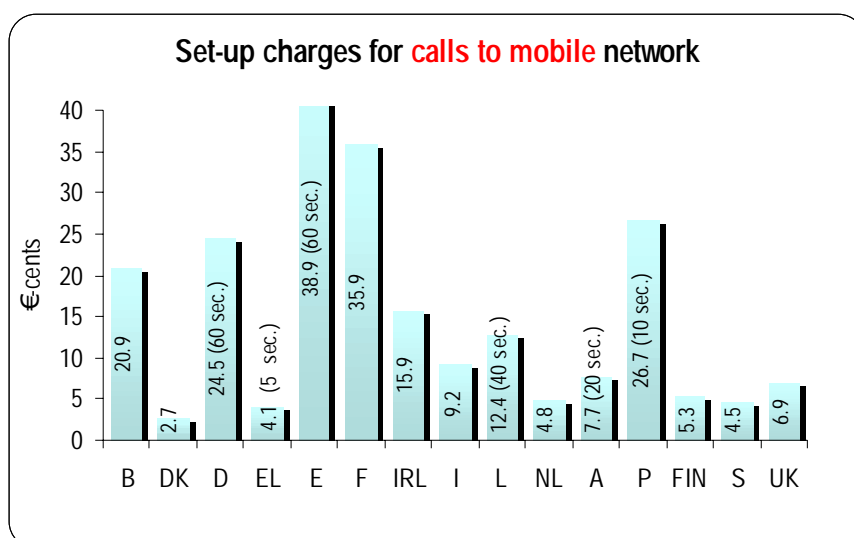
The incumbent operators in Belgium, Spain, Italy and Portugal apply higher call set-up charges for international calls than for long-distance calls: around 30% more in Spain and Portugal, almost four times as much in Italy. The incumbent operator in Belgium applies two different call set-up charges for international calls depending on the destination (28% or 70% more than for long-distance call set-up). The incumbent operators in Ireland and Greece do not apply any call set-up charge for international calls.

Six incumbents apply higher set-up charges for calls to mobile network than for calls to fixed network. In some cases the difference is substantial: the charge is double in Denmark, Germany and Portugal, and more than three times as much in France (+220%) and Spain (+269%).

<sup>3</sup> National calls and calls to mobile are charged per minute rather than the normal unit.

<sup>4</sup> The 1999 Teligen’s report did wrongly state that Denmark used a unit based system in 1998, and that Austria used per second charging. This was due to a misinterpretation of the tariff information provided by the carriers, where the charging system was not clearly defined.

<sup>5</sup> Sonera.

**Chart 2****Chart 3**

## 2. MONTHLY RENTAL CHARGED BY THE INCUMBENT OPERATORS

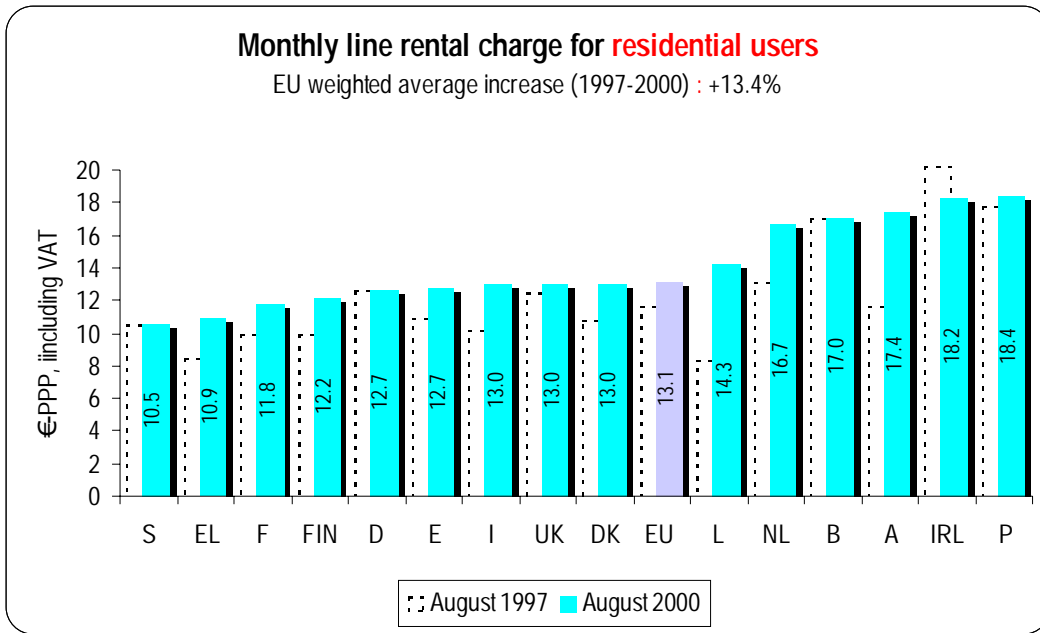
The following charts show the incumbent's monthly line rental charges for residential and business users in August 2000 and the variation in nominal terms in each country since August 1997. In order to reflect the real charges actually paid by users, values are expressed in €PPP, including VAT for residential users and excluding VAT for business users.

The percentage variations 1997-2000 are calculated as a weighted average of the variations in individual Member States, rather than the variation in EU weighted average values.

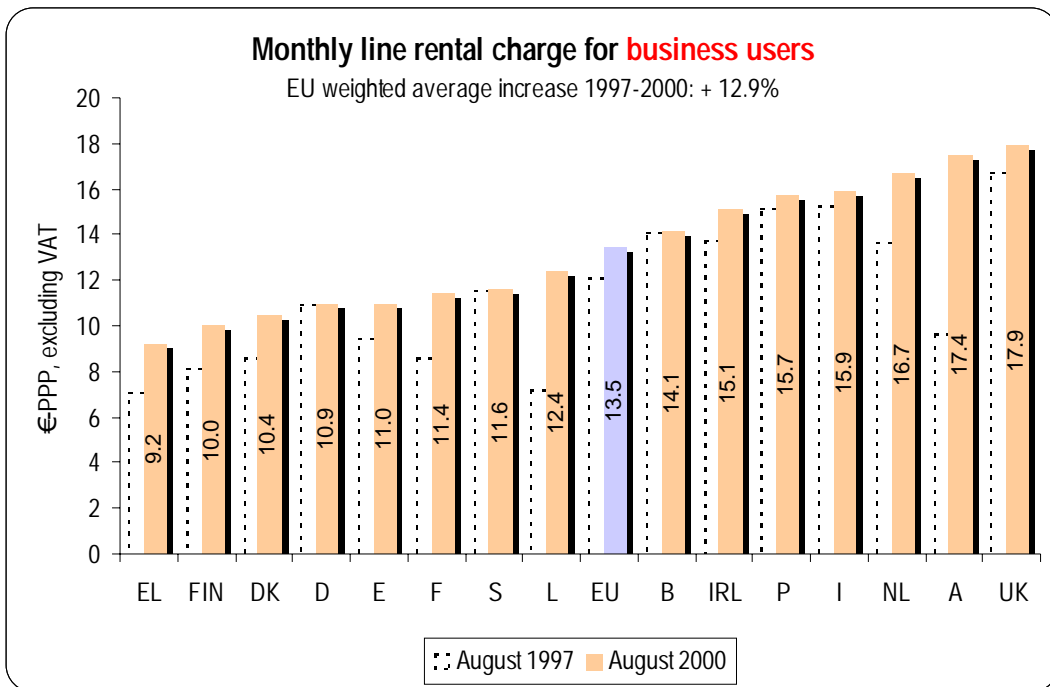
The incumbent operators in France, Italy, the Netherlands, Austria, Sweden and the United Kingdom apply different monthly line rental charges for residential and business users. In the other countries the differences between the types of users is due only to the exclusion of VAT for business users.

On average the EU monthly line rental charge for business users (including VAT) is 36% higher than that for residential users: the differences vary from (around) 18% (in France, Netherlands and Austria), to 38% in Sweden, 47% in Italy and 62% in the United Kingdom.

**Chart 4**

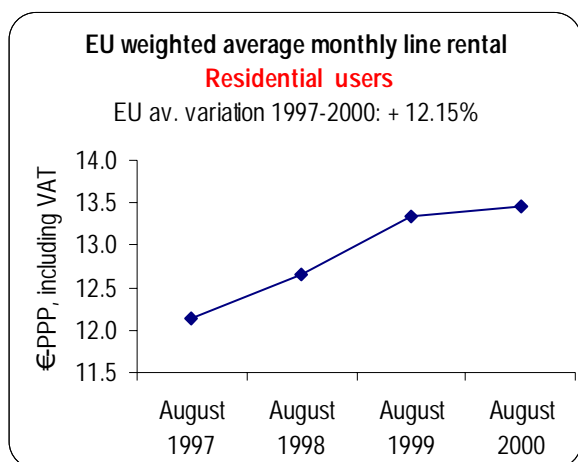


**Chart 5**

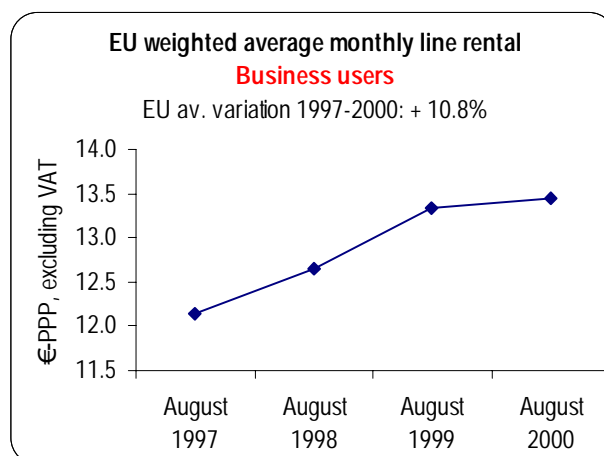


The following charts show the EU weighted average variation in nominal terms of the residential and business monthly line rental charge.

**Chart 6**



**Chart 7**



### 3. AVERAGE MONTHLY EXPENDITURE (call basket)

The figures presented in this section are intended to provide an estimate of the average monthly expenditure of a “standard” European consumer (business and residential). The Basket Methodology for Telecommunications Cost Comparison has been devised by the OECD and accepted in most countries as the most stable and neutral method of comparison<sup>6</sup>.

The user is assumed to have a contract for the provision of voice telephony services with the incumbent operator, and to use only this operator for all types of call (local, long-distance, international, calls to mobile). Since consumers are making increasing use of call-by-call carrier selection, in particular for specific highly discounted types of calls (i.e. international and long-distance), the figures given below are purely indicative, and do not necessarily reflect the cheapest solution available.

The charts below show the average monthly expenditure for standard residential and business users as of August 2000, expressed in €PPP, based on the standard tariffs charged by the incumbent operators (i.e. excluding any discount packages). This means that lower costs can be achieved if the user subscribes to one or more discounted packages.

The basket of calls used to estimate average monthly expenditure is the new “composite OECD basket”<sup>7</sup>, which includes not only fixed national calls (as did the old basket), but also fixed international calls and calls to mobile networks.

The OECD residential/business baskets are defined as follows (on an annual basis):

The fixed (i.e. non-recurring) charges include the annual line rental charge plus the charge for the installation of a new line (depreciated over 5 years). Fixed charges for residential users include VAT, while for business users VAT is excluded.

<sup>6</sup> A full description of the methodology can be found in “Performance indicators for public telecommunications operators”, ICCP Series No.2.2, OECD 1990.

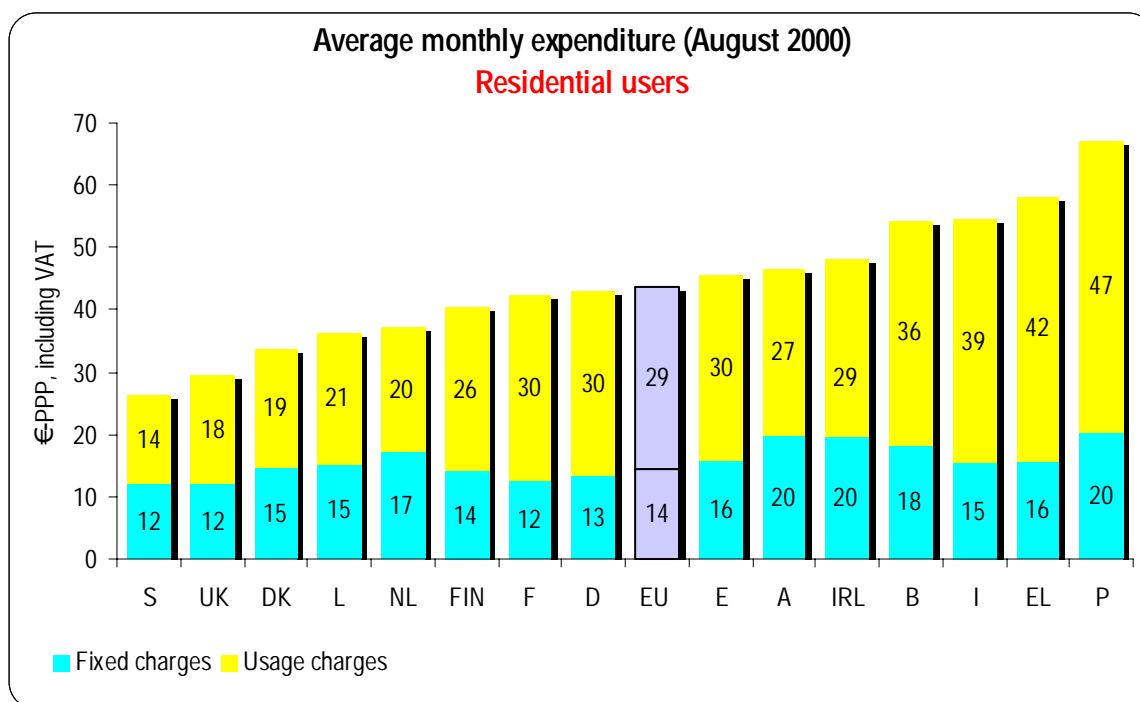
<sup>7</sup> The revised OECD baskets were adopted in May 2000.

The usage charge for residential users refers to a basket of 1 200 national calls to fixed lines, plus 120 calls (with an average duration of 2 minutes) to mobile networks<sup>8</sup>, plus 72 international calls<sup>9</sup>. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 during the week and 2 at the weekend). The call duration varies from 2.5 to 7 minutes, depending on time and distance. The usage for residential users is weighted towards off-peak hours, and with typically long calls. Only 36% of the calls are within normal business hours; 64% are for distances below 10 km; 9% are for distances above 100 km.

The usage charge for business users refers to a basket of 3 600 national calls to fixed lines plus 360 calls (with an average call duration of 2 minutes) to mobile networks<sup>8</sup>, plus 216 international calls<sup>9</sup>. The usage charges for national calls to fixed lines are calculated with a weighted distribution over 14 distances from 3 to 490 km, at representative times of day (4 during the week and 2 at the weekend), and with a call duration of 3.5 minutes regardless of time of day and distance. The usage for business users is weighted towards business hours, and with typically short calls. Over 85% of the calls are within normal business hours; 64% are for distances below 10km; 12.5% are for distances above 100 km.

In the case of Luxembourg, local calls cover the entire country.

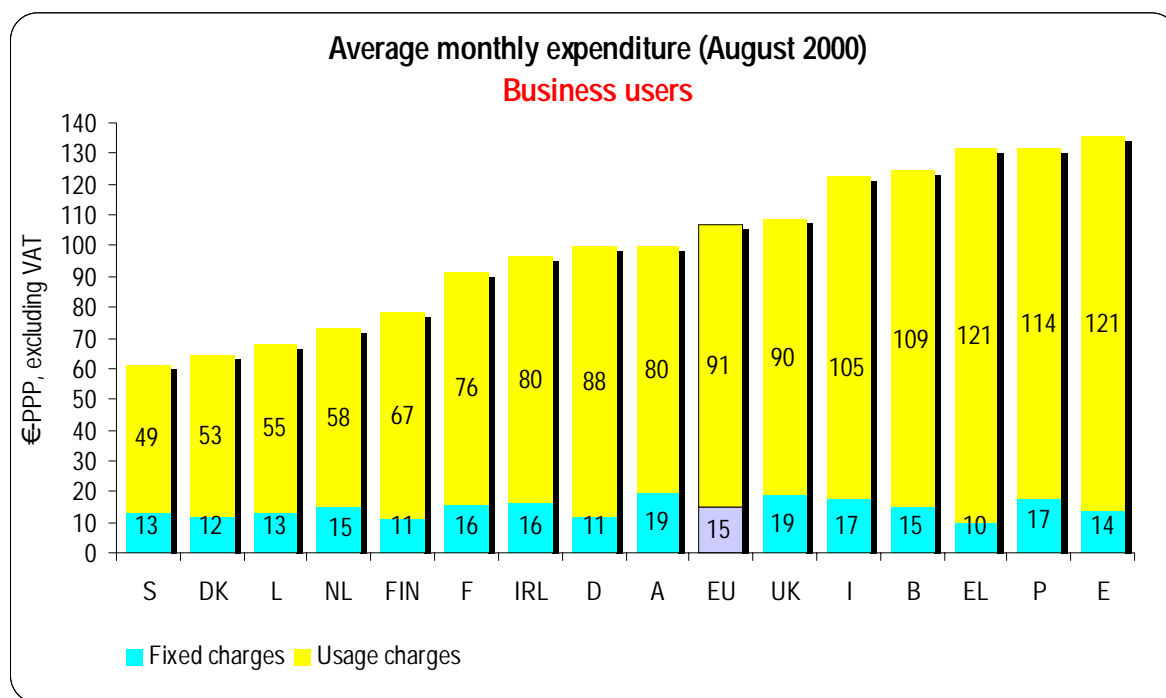
**Chart 8**



<sup>8</sup> Representing 10% of the number of calls to fixed lines.

<sup>9</sup> Representing 6% of the number of calls to fixed lines.

**Chart 9**



## 4. FIXED NATIONAL CALLS

### 4.1. PRICES CHARGED BY THE INCUMBENT OPERATORS FOR INDIVIDUAL FIXED NATIONAL CALLS

This section shows the prices charged by the incumbent operators for individual fixed calls (the same call prices apply to business and residential users). Where the incumbent operator uses a unit-based charging system (see Chart 1), the price of calls of different durations and/or distances may in some cases be identical, where both calls are charged the same number of units.

Prices refer to peak hours (weekdays 11.00) and are expressed in €PPP including VAT. Except where otherwise specified, the figures refer to August 2000.

Prices are indicated for three-minute and 10-minute calls over two distances: 3 km (equivalent to a local call) and 200 km (equivalent to a long-distance call). In several countries the tariff changes at exactly one of these distances: in these cases, the rates for the lower distance band are used.

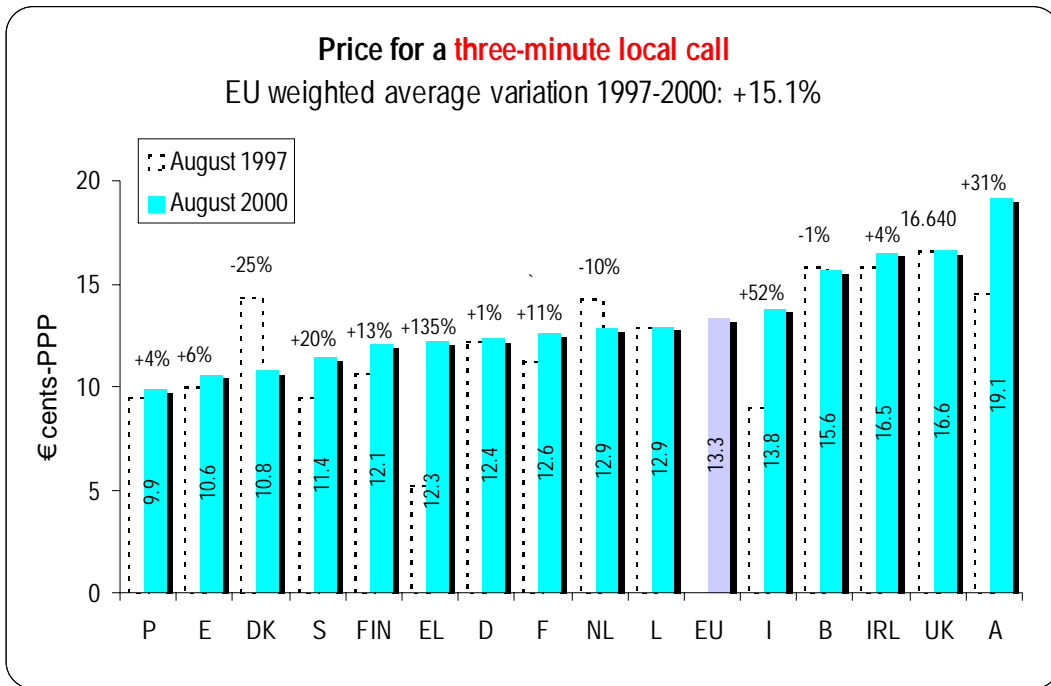
The price of a three-minute call is more affected by the magnitude of the call set-up charge than the price of a 10-minute call.

Where two or more tariff packages are available (i.e. Austria and the Netherlands), the prices refer to the basic residential package. In all other cases the prices refer to the standard tariff (cheaper tariffs may be available under discounted packages).

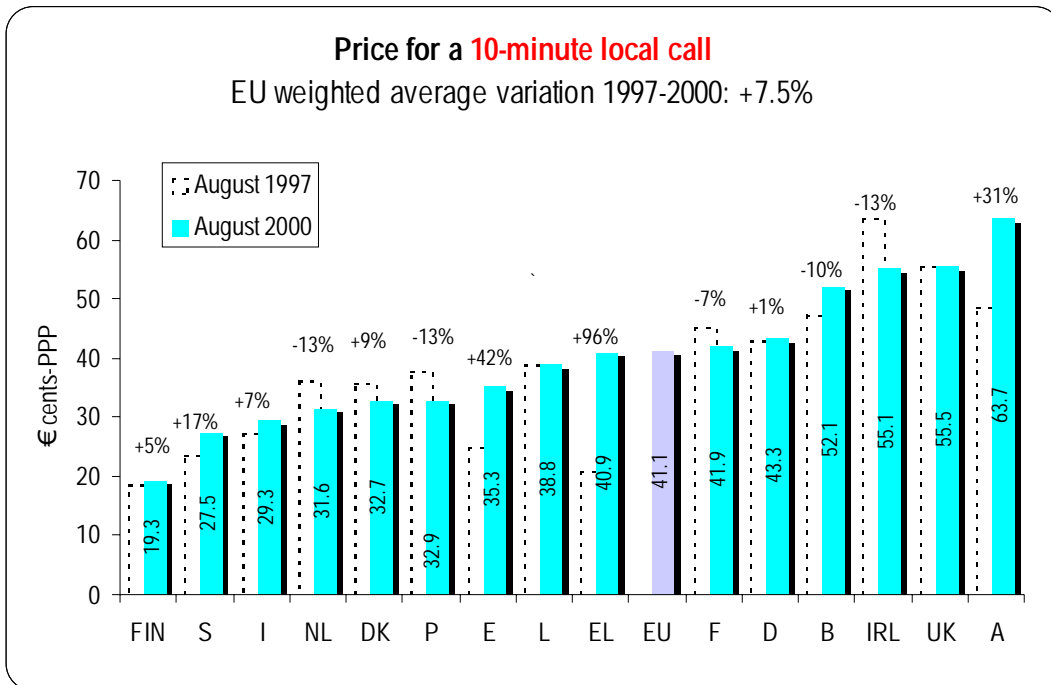
The EU average value is the average of the EU countries weighted according to population in 1999. The percentage variations 1997-2000 are calculated as a weighted average of the variations in the individual Member States, rather than as the variation in EU weighted average values.



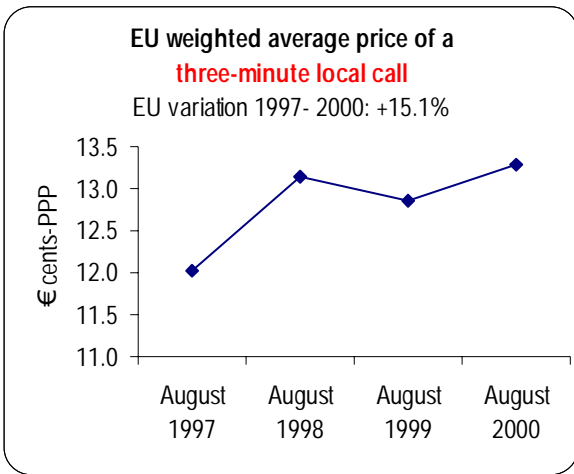
**Chart 10**



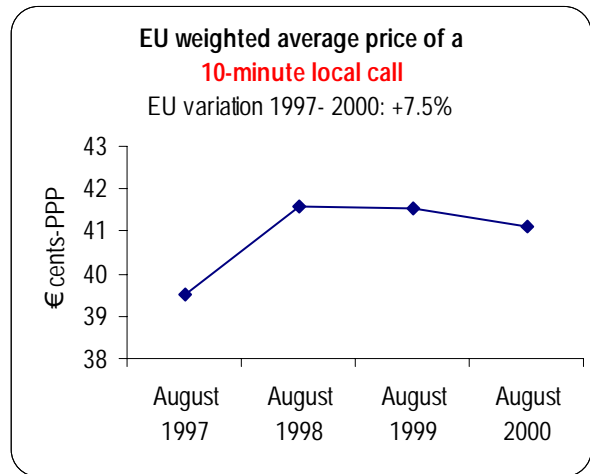
**Chart 11**



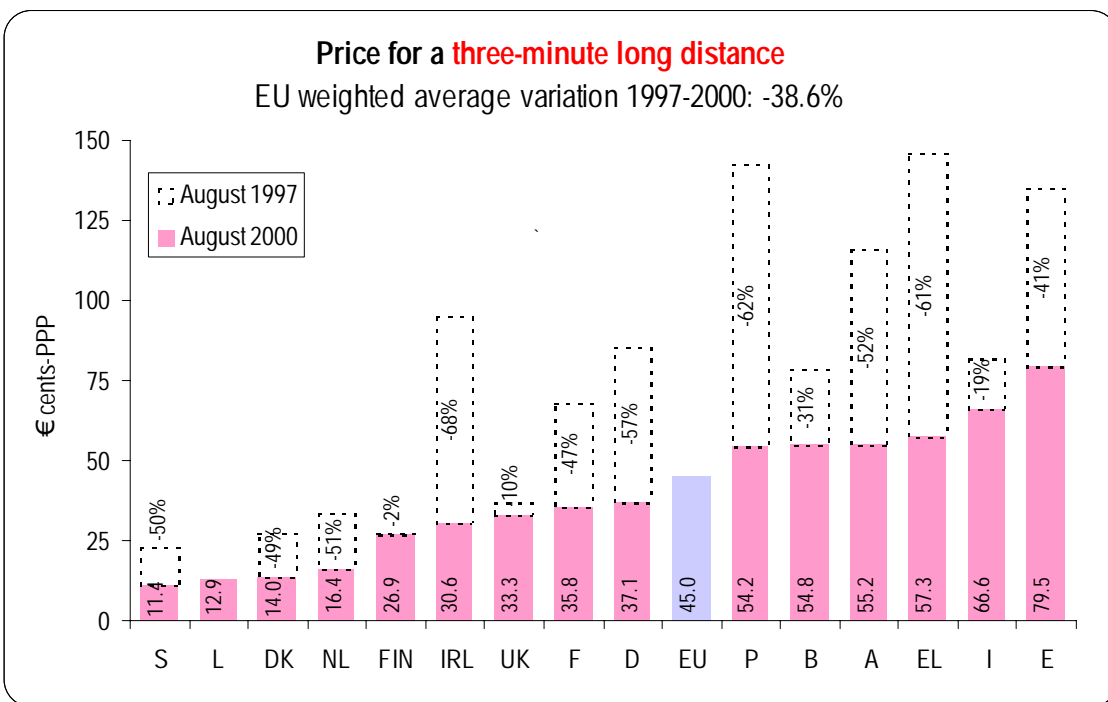
**Chart 12**



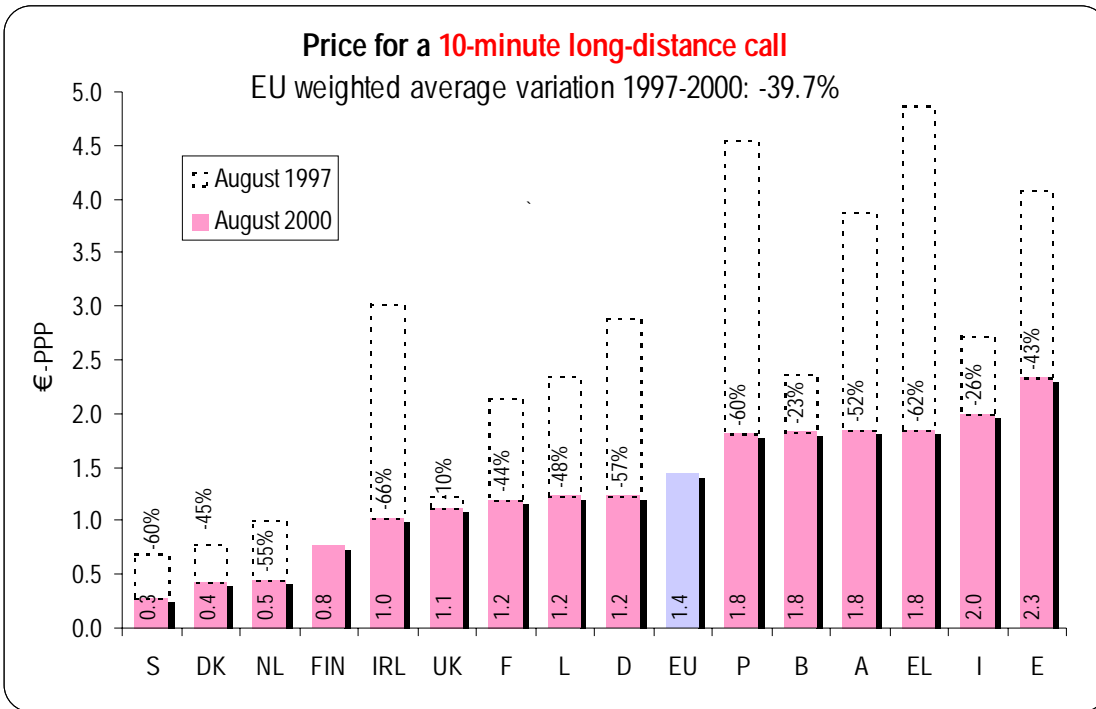
**Chart 13**



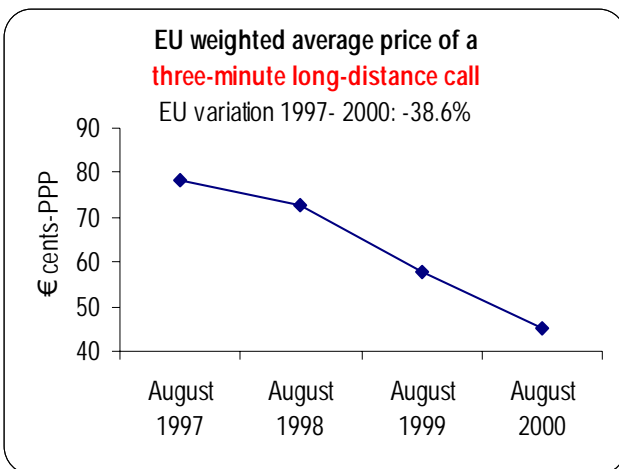
**Chart 14**



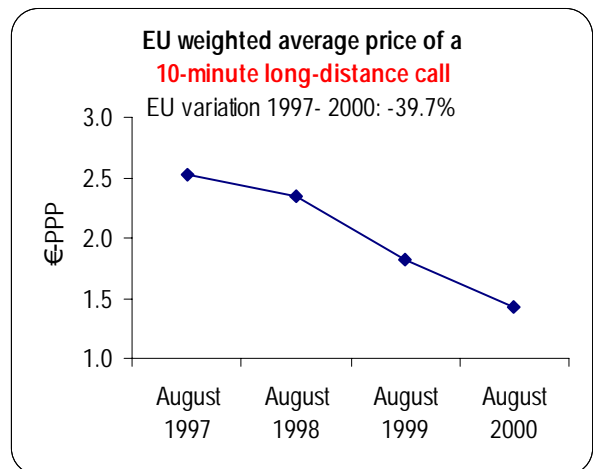
**Chart 15**



**Chart 16**



**Chart 17**

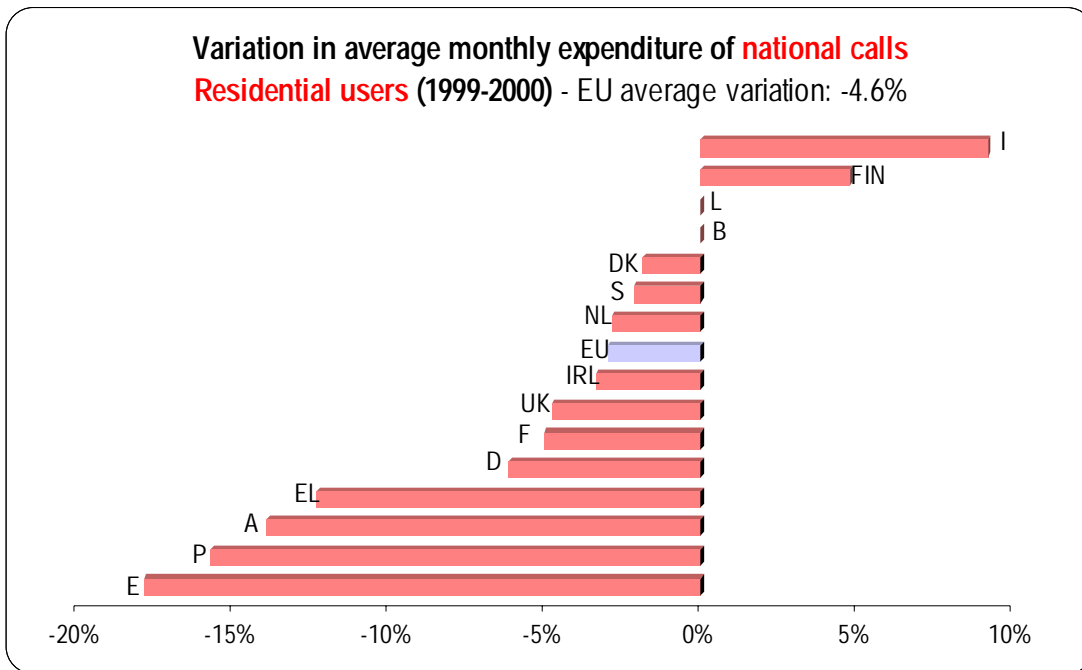


#### 4.2. TREND OF THE BASKET FOR FIXED NATIONAL CALLS

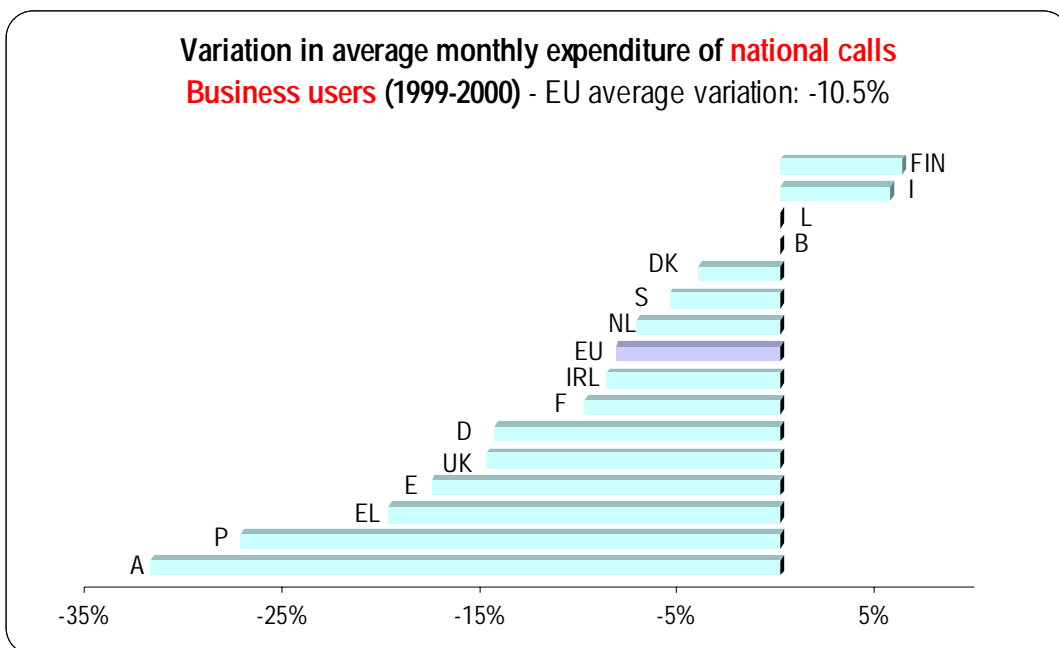
The following charts show the variation in the monthly expenditure of residential and business users on fixed national calls in nominal terms from August 1999 to August 2000 (in order to maintain consistency over time, the “old” OECD basket, which includes only fixed national calls, is used).

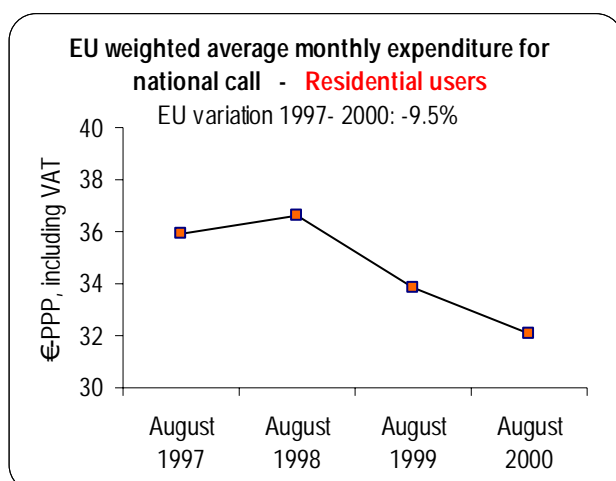
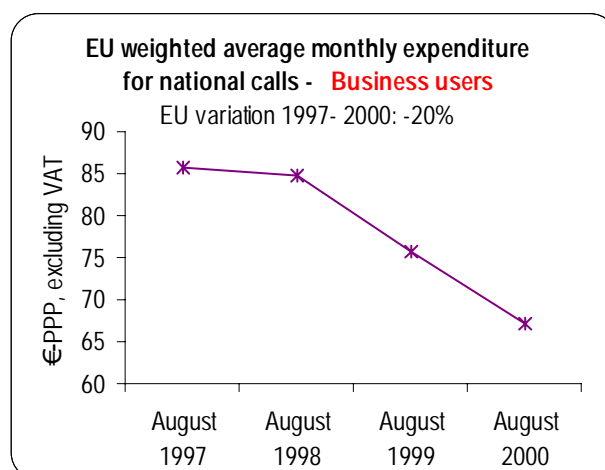
The variation in the international basket is shown in section 5.

**Chart 18**



**Chart 19**



**Chart 20****Chart 21**

## 5. FIXED INTERNATIONAL CALLS

The following charts show the prices of the international call basket (an estimate of the average cost in each country of an international call) and the price of a 10-minute call to specified destinations (within Europe, to Japan and to the USA).

### 5.1. PRICE OF AN AVERAGE FIXED INTERNATIONAL CALL (INTERNATIONAL CALL BASKET)

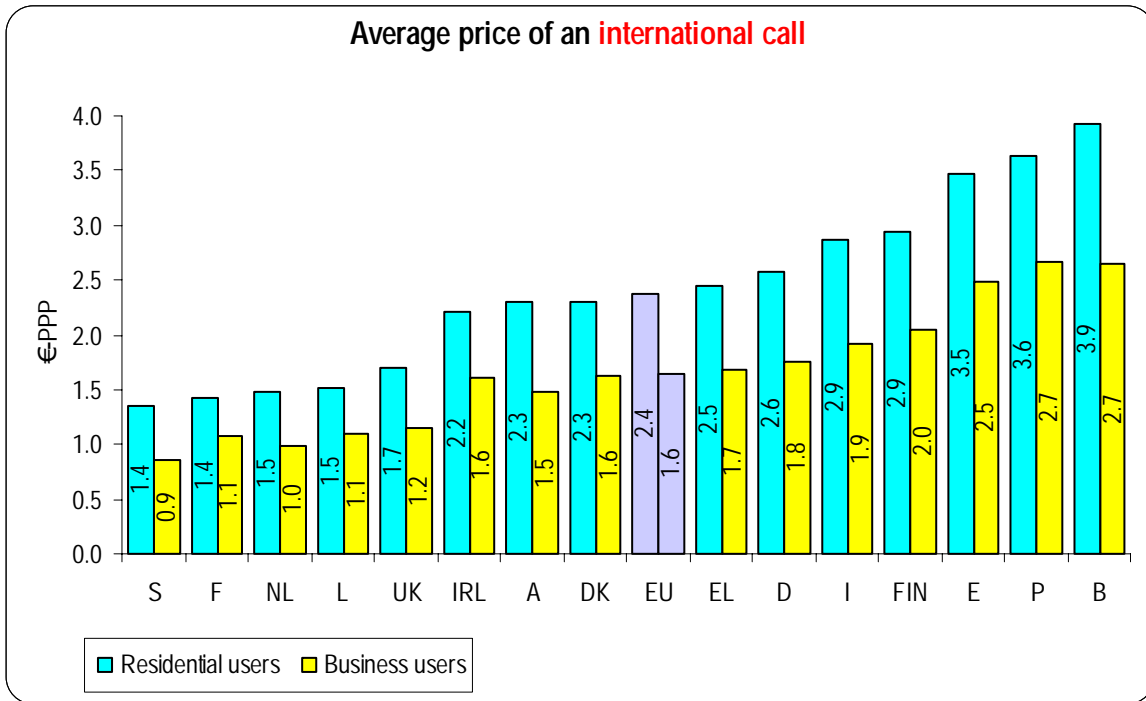
The basket of international calls for each country indicates the weighted average price of a three-minute call during peak hours and a five-minute call during off-peak hours from the originating country to each other OECD country. The basket uses the zoned weighting method, which divides the OECD members into three zones: Europe, North America and Asia/Pacific. Each destination is weighted according to its position relative to the country of origin: calls to a country in the same zone have a 50% weighting, calls to a country in the adjacent zone have a 30% weighting, and calls to a country in the distant zone have a 20% weighting. The prices refer to the standard tariff packages, and not to any cheaper tariffs which may be available under discounted packages.

The residential basket includes VAT. Call charges are weighted between peak and off-peak hours: 25% for peak hours and 75% for off-peak hours. The business basket excludes VAT. Call charges are weighted 75% for peak hours and 25% for off-peak hours. The average price of an international call is lower for business users than for residential users because of the heavier weighting given to three-minute peak-hour calls, which are on average cheaper than five-minute off-peak calls, and because VAT is excluded for business users but included for residential users.

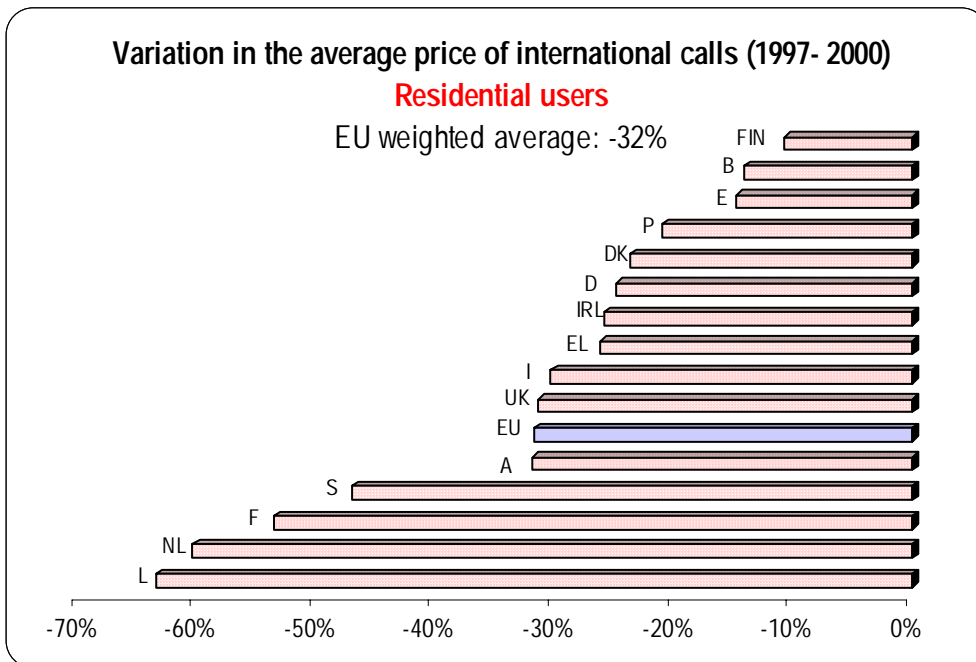
Values are expressed in €PPP and give the position in August 2000.

The variations in nominal terms since August 1997 are also shown. The EU percentage variations over time are calculated as a weighted average of the variations in individual Member States, rather than as the variation in the EU weighted average value.

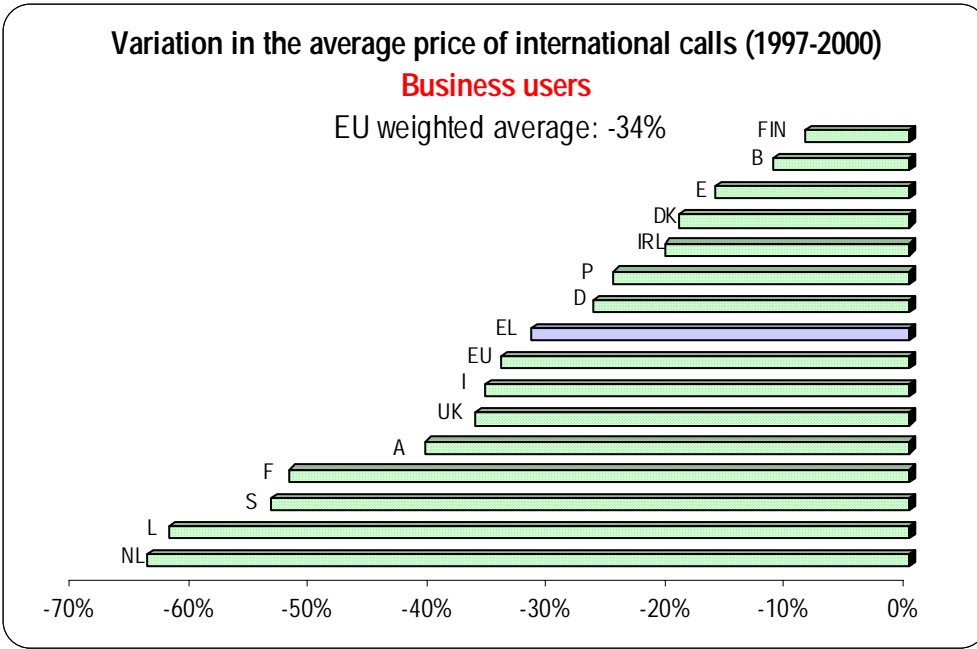
**Chart 22**



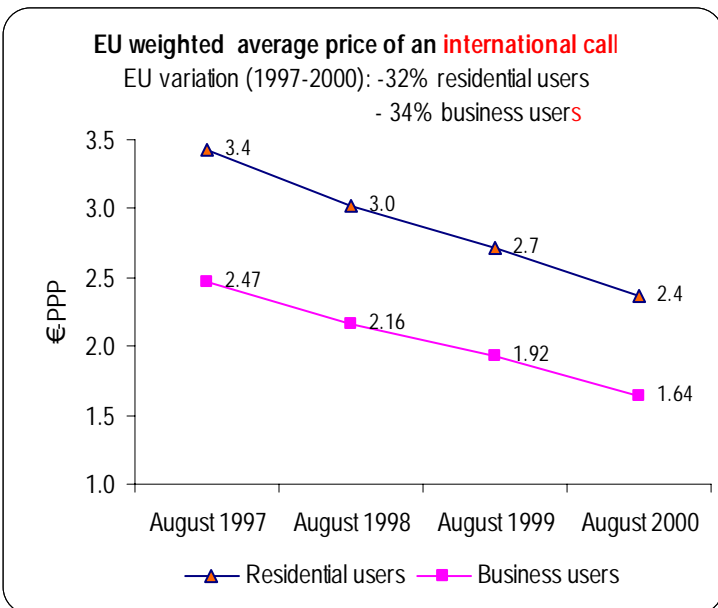
**Chart 23**



**Chart 24**



**Chart 25**



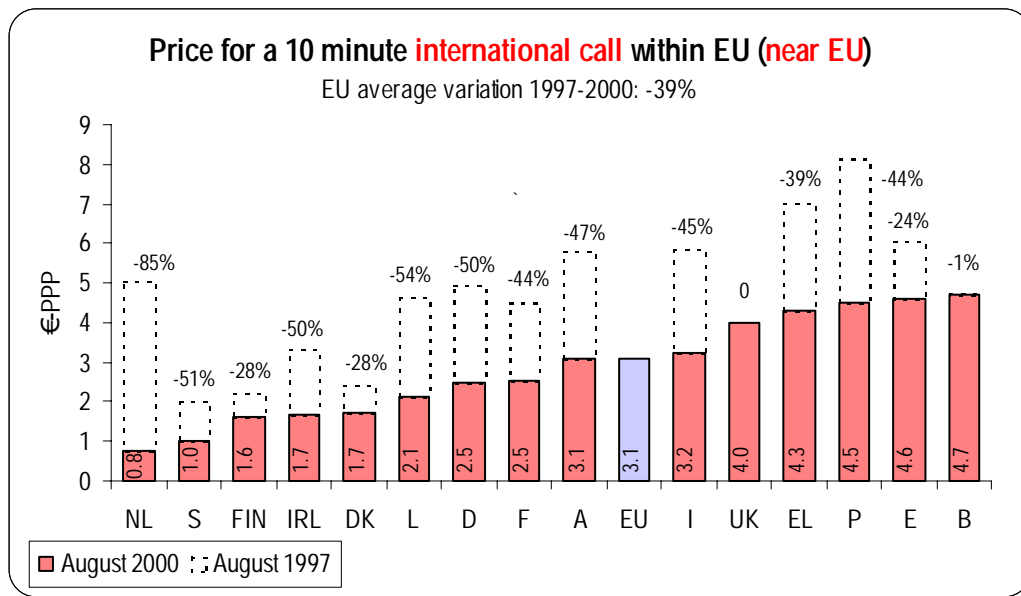
## 5.2. PRICES OF INDIVIDUAL INTERNATIONAL CALLS TO EUROPE, JAPAN AND THE USA

The following two charts show the prices of a 10-minute international call (including VAT) during peak hours (weekday 11.00) to four different destinations: neighbouring country<sup>10</sup> (near EU), more distance country<sup>11</sup> (far EU), Japan and the USA.

Figures are expressed in €PPP at August 2000 values, including VAT; they refer to the European incumbent operators, the EU weighted average, DKK for Japan and AT&T for USA.

Where possible, price variations since August 1997 are also included.

Chart 26

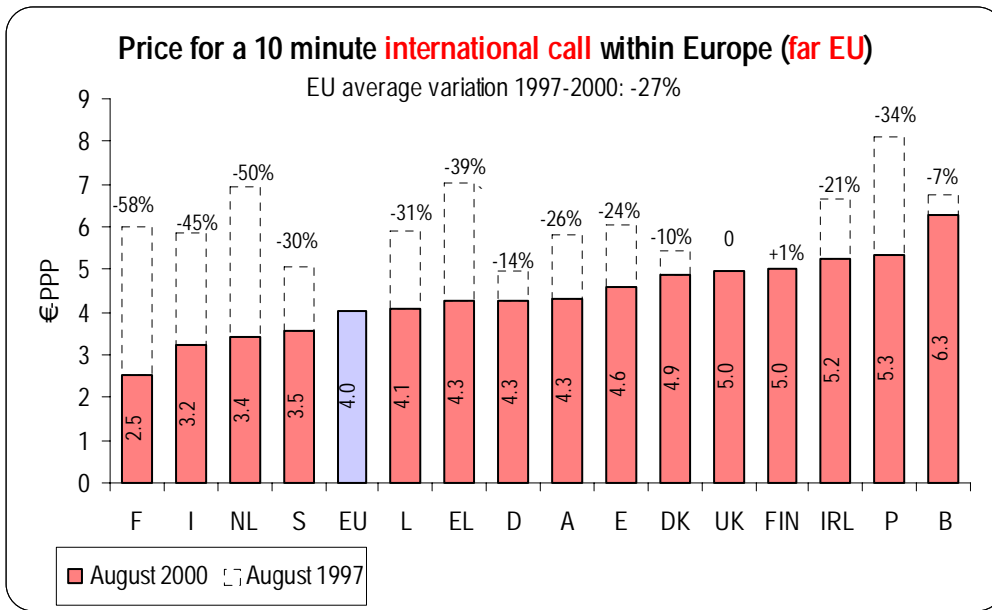


<sup>10</sup> The neighbouring countries are defined as: France for Belgium, Germany and the United Kingdom; Sweden for Denmark and Finland; Italy for Greece (and *viceversa*); Portugal for Spain (and *viceversa*); the United Kingdom for Ireland, USA and Japan; Germany for Luxembourg, The Netherlands and Austria; Belgium for France.

<sup>11</sup> The more distant countries are defined as: Greece for Belgium, Denmark, Germany, France, Ireland, Luxembourg, The Netherlands, Austria, Finland, Sweden, the United Kingdom, USA and Japan; Denmark for Greece, Spain, Italy and Portugal.



**Chart 27**



**Chart 28**

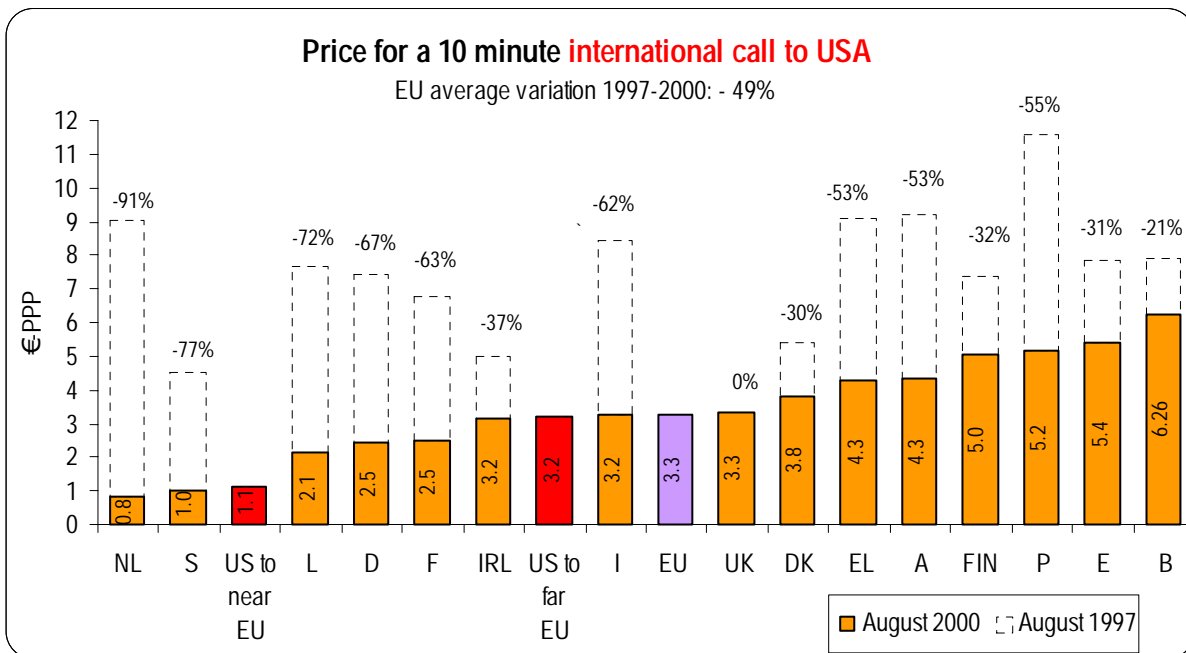
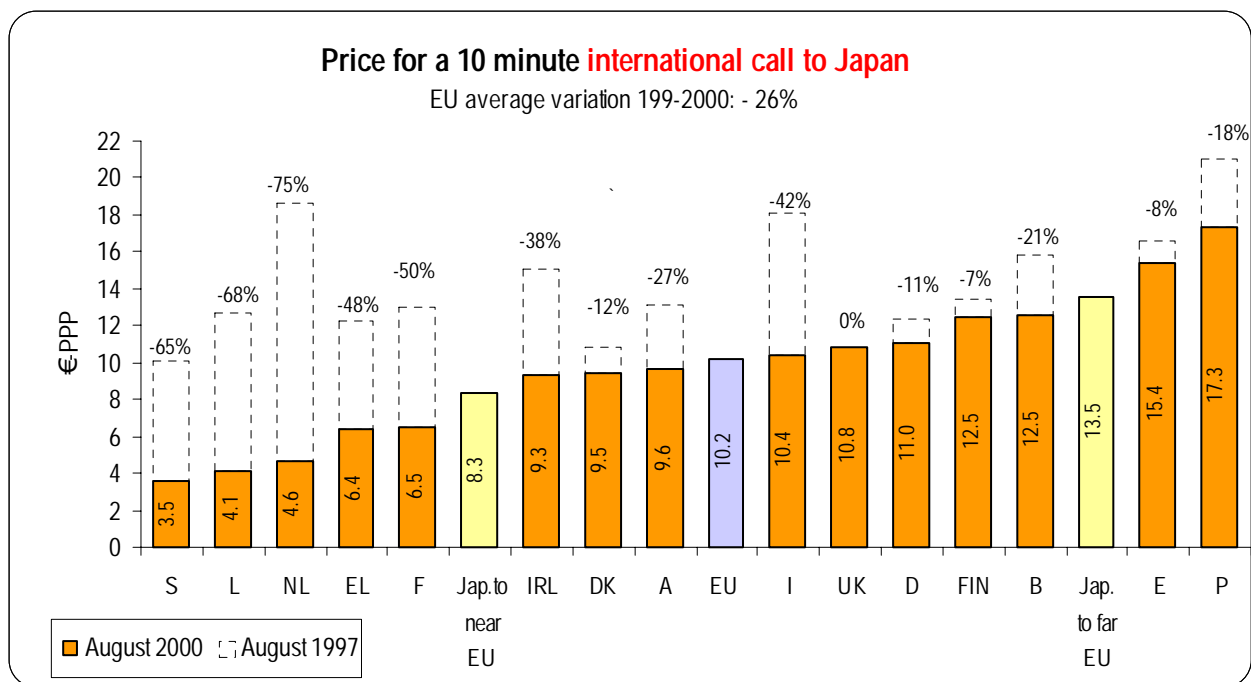


Chart 29



## 6. COMPARISON BETWEEN THE EU, JAPAN AND THE USA

This section compares the prices charged by the incumbent operators in Japan and the EU and by leading operators in the USA for public voice telephony services.

For the EU, the prices charged by the cheapest and the most expensive incumbent operators are shown as well as the EU weighted average<sup>12</sup>.

For Japan and the USA, the prices quoted for national and international calls relate to different operators, as there is a split market where different operators have traditionally been allowed into the two market segments.

For the USA, the prices for national calls are those charged by Ninex/Bell Atlantic/Verizon (in New York city)<sup>13</sup> and Pacific Bell (in the State of California), and the prices for international calls are those charged by AT&T. Since prices vary substantially across the country, these tariffs are merely examples and are not necessarily typical (for example, many operators offer “free” local calls, depending on the tariff package chosen by the subscribers).

For Japan, the national call prices are those charged by NTT and the international call prices are those charged by KDD

Prices include VAT and are those applying on August 2000.

<sup>12</sup> Average of the prices charged by the incumbent operators in each Member State weighted by population of the Member States in 1999.

<sup>13</sup> The operator has changed name twice during the past four years. Prices for the same operator may vary depending on the specific user location in the area covered by the local operator. We have taken the prices for New York city.

Unlike in previous reports, the euro exchange rate is expressed in terms of purchasing power parities (€PPP), using the official EURO rates applying on August 2000 (see appendix for more details on € and €PPP exchange rates), and weighted rather than simple averages are used. These figures are therefore not comparable with the figures given in previous reports.

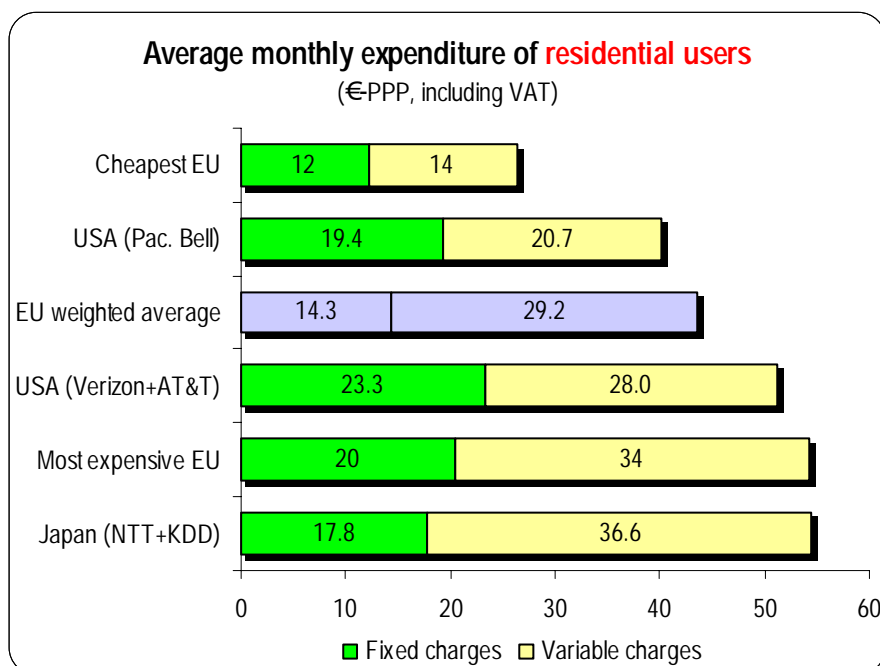
As the cost of living is much higher in Japan than in Europe, there is a substantial difference (-43%) between prices expressed in € and in €PPP (for the USA the difference is around 8%). If the prices were expressed in €, the difference between prices in Europe and in the USA would be lower, and the prices in Japan would generally be higher than the prices in Europe.

### 6.1. COMPARISON OF AVERAGE MONTHLY EXPENDITURE (CALL BASKET)

The following charts compare the average monthly expenditure of residential and business users in the EU, Japan and the USA.

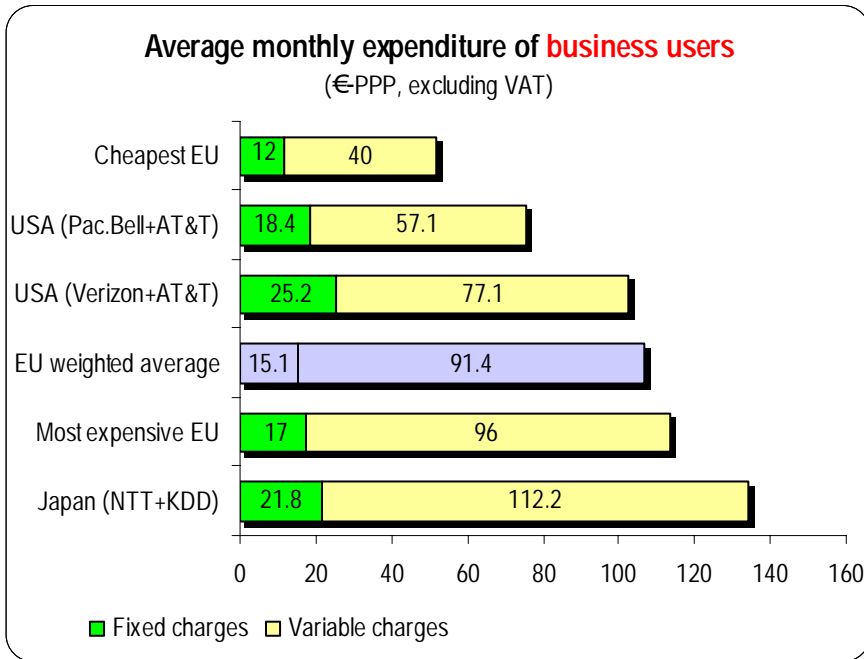
The fixed charges include the annual line rental charge plus the charge for new line installation (depreciated over 5 years). The usage charge refers to a basket<sup>14</sup> of calls of all types from the operators' fixed network (national, international, calls to mobile) (see section 3 for more details on the definition of call basket).

**Chart 30**



<sup>14</sup> 1 392 calls for residential users and 4 086 calls for business users.

**Chart 31**



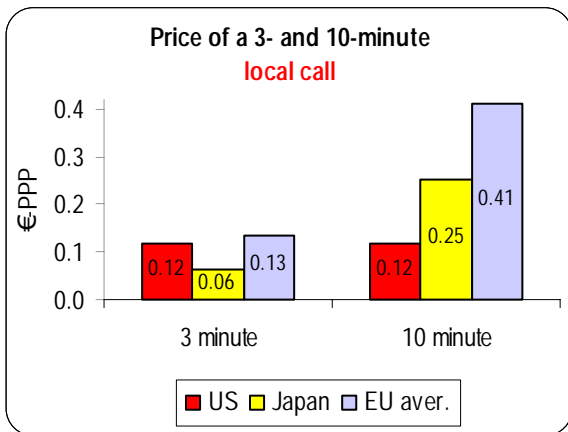
**6.2. COMPARISON OF PRICES OF AN INDIVIDUAL NATIONAL CALL**

The following charts compare the prices charged by the incumbent operators in Japan (NTT) and the EU and by a leading operator in the USA (Verizon) for a 3-, 5- and 10-minute national call during peak hours (weekdays 11.00).

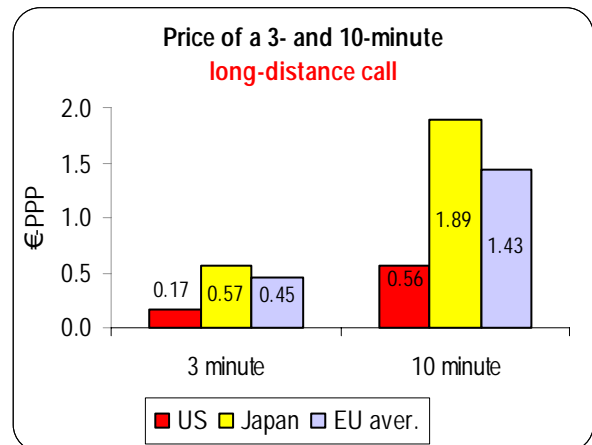
The longer the call, the greater the difference between the EU price and the US price: +10% for a 3-minute call, +87% for a 5-minute call, +249% for a 10-minute call. This does not apply to long-distance calls, where the price difference is around 160% irrespective of the call duration.

In Japan, local calls (expressed in €PPP) are cheaper than in the EU, but long-distance calls are around 20% more expensive. The price difference for local calls falls as the call duration increases: prices are 116% higher in the EU than in Japan for a 3-minute call, 75% higher for a 5-minute call, and 63% higher for a 10-minute call.

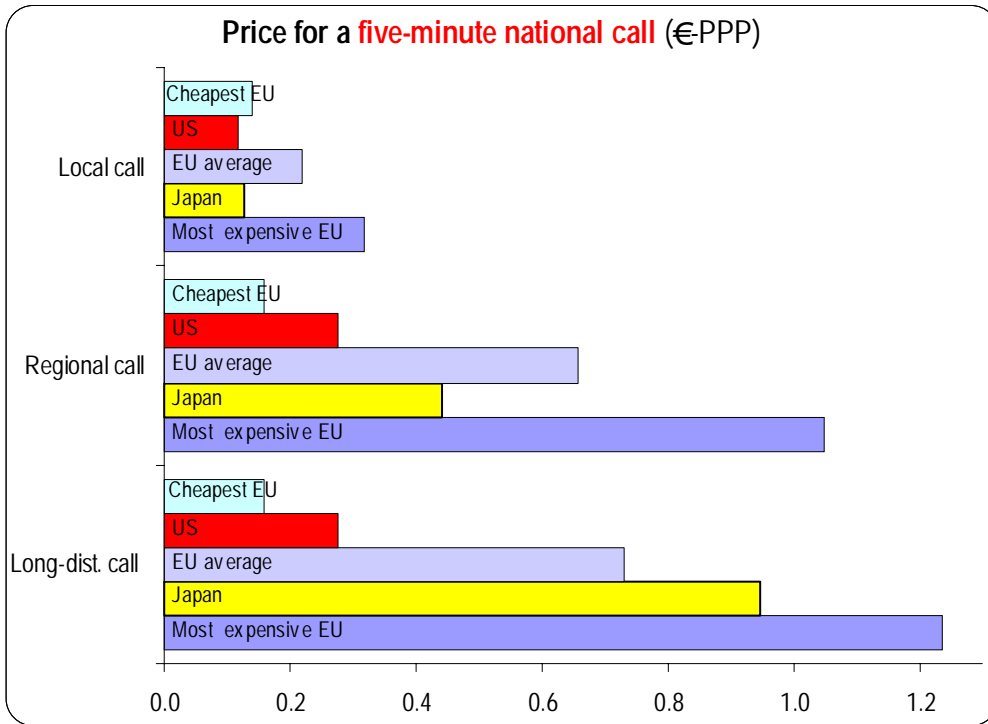
**Chart 32**



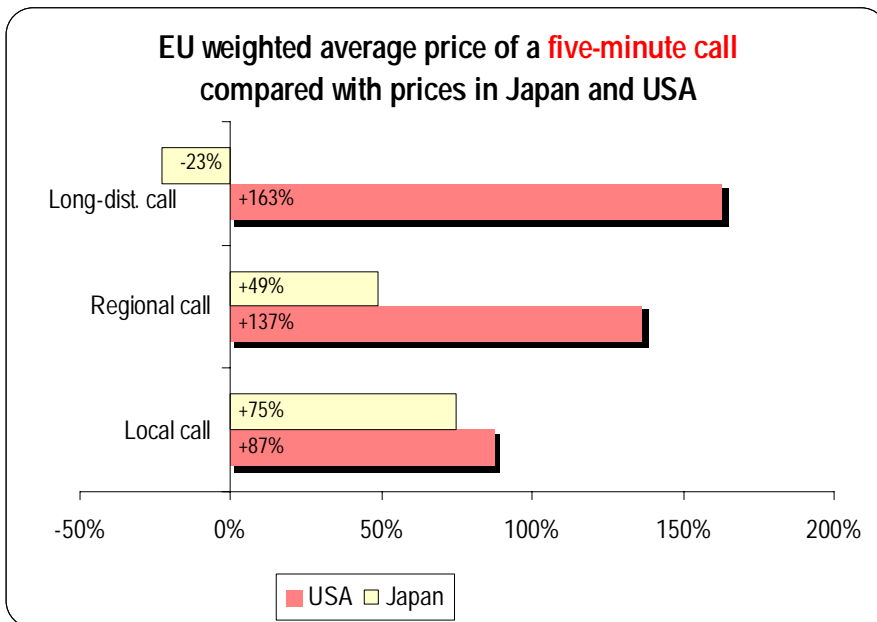
**Chart 33**



**Chart 34**



**Chart 35**



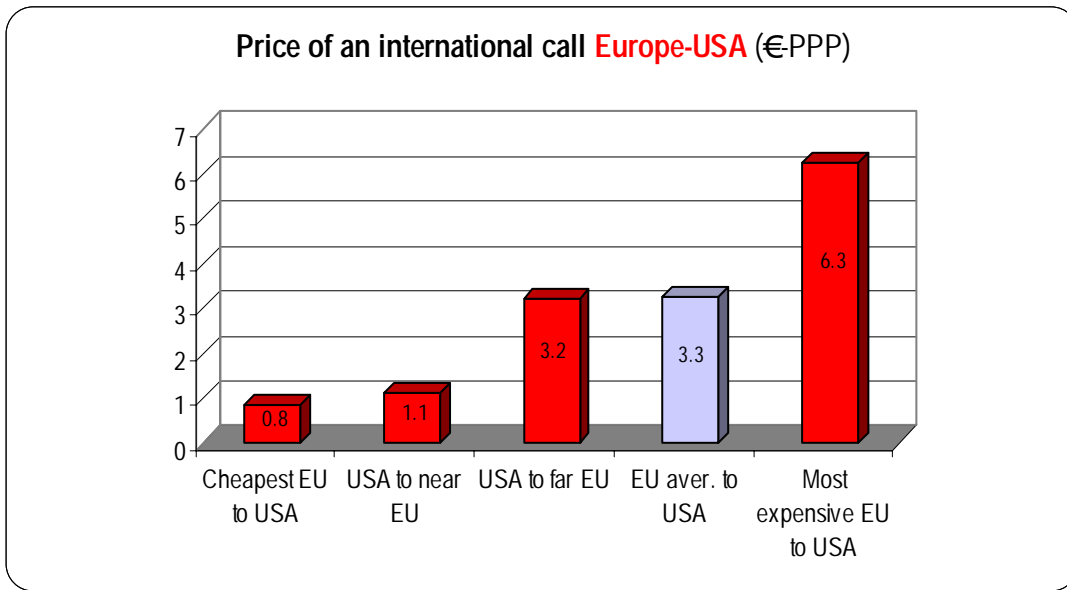
### 6.3. COMPARISON OF A 10-MINUTE INTERNATIONAL CALL TO USA AND JAPAN

The following charts show the price of a 10-minute international call (including VAT) during peak hours to Japan and USA and *viceversa*.

Figures are expressed in €PPP at August 2000 value; they refer to the European cheapest and most expensive incumbent operators, the EU weighted average, DKK for Japan and AT&T for USA.

For Japan and the USA, “near EU country” is defined as the United Kingdom, and “far EU country” as Greece.

**Chart 36**



**Chart 37**

