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accompanying the

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Regulation (EC) No 717/2007 on roaming on public mobile telephone networks within the Community and Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services

IMPACT ASSESSMENT

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CHAPTER 1. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

1. BACKGROUND

This impact assessment (IA) report examines options arising from the Commission's review of the functioning of the Roaming Regulation[1] pursuant to Article 11 thereof. In particular it examines the possible extension of its duration beyond its current expiry date of 30 June 2010 with regard to intra-Community voice roaming services and the possible extension of its scope to cover intra-Community SMS roaming and/or intra-Community packet data roaming services. In each case it examines the impact of these options on consumers and the industry.

Due to the specific cross-border characteristics and structure of the international roaming markets, national regulatory authorities (NRAs) were not able to deal effectively with the lack of competitive pressures and the ensuing unjustifiably high prices for Community-wide roaming services. The NRAs, through the medium of the European Regulators Group (ERG), which has been established in order to give expert advice to the Commission on regulatory issues with a single market dimension, acknowledged this problem and called on the Commission to act at European level. The Commission adopted a proposal for a Regulation on public mobile networks within the Community[2] on 12 July 2006.

On the basis of the Commission's proposals and in response to persistent concerns over the high prices paid by EU citizens when using their mobile phones to make and receive voice calls while travelling abroad in other Member States, and in order to ensure a high level of consumer protection and the smooth functioning of the Internal Market, on 27 June 2007 the European Parliament and the Council adopted the Roaming Regulation.

The Roaming Regulation is based on Article 95 of the EC Treaty. It came into force on 30 June 2007 and will expire on 30 June 2010 unless the European Parliament and Council decide to extend it beyond that date, on the basis of a proposal from the European Commission.

The Roaming Regulation requires mobile telephony network and service providers within the Community to offer their customers a 'Eurotariff' for voice calls made and received when roaming in other Member States which complies with the price ceilings specified in the Roaming Regulation. These ceilings will be further reduced by the Roaming Regulation on 30 August 2008 and 2009[3]. The Roaming Regulation also places a ceiling on the average

1 (EC) No 717/2007 of the European Parliament and of the Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC, OJ L 171 of 29 June 2007 p 32-40

2 Proposal for a regulation of the European Parliament and of the Council on roaming on public mobile networks within the Community and amending Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services of 12 July 2006, COM(2006)382 final.

3 The retail charge (excluding VAT) of the Eurotariff which a home provider must offer its roaming customer for the provision of regulated roaming voice calls shall not exceed €0.49 per minute for any call made or

wholesale price that one mobile operator can charge another for the provision of regulated roaming calls at wholesale level[4].

The Regulation includes requirements on mobile roaming providers which guarantee a minimum level of price transparency for their customers and NRAs are charged with the task of monitoring and supervising compliance with the Roaming Regulation and may intervene on their own initiative to ensure compliance.

The Roaming Regulation[5] also calls on the European Commission to review the functioning of the Roaming Regulation and report to the European Parliament and the Council before 30 December 2008. In its report, the Commission is required to assess whether the objectives of the Roaming Regulation have been achieved and whether, in the light of developments in the market and with regard to both competition and consumer protection, there is need to extend its duration and/or to amend it, taking into account the developments in charges for mobile voice and data communication services at national level and the effects of the Roaming Regulation on the competitive situation of smaller, independent or newly started operators. Provided that the European Commission finds that there is such a need, it shall submit a proposal to the European Parliament and the Council.

The European Parliament and Council also charged the Commission in the Roaming Regulation specifically with reviewing developments in wholesale and retail charges for the provision to roaming customers of data communication services, including SMS and MMS, and, if appropriate, including recommendations regarding the need to regulate these services.

Regulatory proposals in the review of the functioning of the Roaming Regulation are based on the provisions of Article 95 of the EC Treaty.

2. DEVELOPMENTS SINCE THE ADOPTION OF THE ROAMING REGULATION

The Commission services commenced preparations for the review of the functioning of the Roaming Regulation in the Autumn of 2007. The main elements of the Commission Services work in preparation for this Review, together with other significant developments, are summarised in this section.

2.1. Implementation of the Roaming Regulation

The Roaming Regulation entered into force on 30 June 2007. The obligations relating to wholesale voice roaming prices (Article 3 of the Regulation) took effect on 30 August 2007, while the transitional period allowed for the introduction by roaming providers of the Eurotariff came to an end on 30 September 2007. Implementation of the Roaming Regulation,

€0.24 per minute for any call received. These ceilings shall decrease to €0.46 for calls made and €0.22 for calls received on 30 August 2008 and to €0.43 and €0.19 respectively on 30 August 2009 (Article 4(2) of the Roaming Regulation).

4 The wholesale price ceiling is set at €0.30 per minute, decreasing to €0.28 and €0.26 on 30 August 2008 and 30 August 2009 respectively (Article 3 of the Roaming Regulation).

5 Article 11 of the Roaming Regulation

and the transition to the 'Eurotariff' in particular went smoothly, with only a few exceptions noted by NRAs.

At the end of September 2007 it is estimated that over 400 million EU citizens could benefit from the 'Eurotariff' which makes it the standard, default tariff in Europe. While per minute retail roaming prices in the EU in 2007 were probably significantly lower than in 2005[6] and 2006, in the second quarter of 2007 (the quarter preceding the entry into force of the regulation) the average was €0.77 for outgoing voice calls and €0.42 for incoming voice calls[7]. Prices have now fallen to no more than €0.49 per minute for making calls and to no more than €0.24 per minute for receiving voice calls (excluding VAT).[8] The ERG and operators have also reported that in general the application of the new wholesale ceilings is working smoothly.

The Roaming Regulation has also ensured that consumers benefit from more transparent information on roaming charges. The ERG's first Benchmark Report (see below) found that operators have now broadly complied with the transparency obligations set out in the Roaming Regulation even though some further progress appears to be needed to ensure full compliance and to tackle problems such as "hidden charges", resulting from the use of billing for roaming charges by minutes instead of by the second.

2.2. ERG Benchmark Reports

Shortly after the adoption of the Regulation, the ERG established a project team to monitor the implementation of the Regulation and to provide input to support the Commission's review of its functioning as well as input to the key policy issues that need to be addressed. The main activity of the ERG in this context is an extensive six-monthly data collection exercise which has formed the basis for two Benchmark Reports.

2.2.1 First ERG Benchmark Report in January 2008

The ERG published the first of its six-monthly reports in January 2008 covering the 6 months from April to September 2007 and including data from 150 mobile service providers in all Member States[9]. The ERG estimates that this covers around 95% of EU consumers using international roaming services in January 2008. The fact that the 1st report includes data from before the Roaming Regulation came into effect gives a reference point against which the trend in roaming tariffs can be measured.

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6 The average for 2005 was estimated to be around €1.10 per minute

7 It should be noted that the EC economic model looks at actual volumes rather than to billed volumes, since this will allow a more precise calculation of price elasticities in future reports. Thus, the average price as derived in this impact assessment cannot be directly compared to the average price as estimated by ERG in its reports of January and August 2008, in which average prices were derived based on billed volumes.

8 For customers who have selected a 'Eurotariff'.

9 ERG (07) 85, available at http://erg.eu.int/doc/publications/erg_07_85_intl_roaming_rep.pdf

Given that the first reporting period only ran until shortly after the Roaming Regulation's full effects were felt, it was still too early to draw conclusions on the overall effects of the Roaming Regulation in the ERG's 1st report. However, the figures for that period already illustrate the positive impact of the Roaming Regulation on average tariffs. The report noted that prices for roaming calls made and received have fallen in all EU Member States.

The report indicates that prices for data and SMS roaming services were high with a very diverse pattern across Member States. Average data prices in the 3rd quarter of 2007 were measured at €5.24 per MB down from €5.81 in the second quarter. The average SMS price (€0.29) was the same in both quarters. There were significant gaps between the highest and lowest SMS charges with the average price in Spain being over €0.50 compared to €0.15 in Estonia. Poland showed the highest average charge per MB for data roaming at over €11 while Austria was the lowest at just under €4 per MB.

In addition to the implementation of the Roaming Regulation and the levels of prices for data and SMS roaming, the ERG's 1st report also covers other issues on which the Commission has to report to Council and Parliament. These issues relate to traffic steering, inadvertent roaming and actual v. billed minutes (per minute as opposed to per second charging).

2.2.2 Second ERG Benchmark Report in July 2008

The second ERG Report covers the last quarter of 2007 and the first quarter in 2008. This provides evidence that national averages for wholesale and retail Eurotariff prices were in full compliance with the Regulation in all Member States. However, average retail prices remain at, or just below, the cap in around two thirds of Member States. At the wholesale level, there was a clear decrease in the average rate in all countries compared to the position pre-Regulation. For SMS there appears to have been little movement in prices in most Member States, at the retail and wholesale levels. The average data price per megabyte shows a diverse picture, particularly at the retail level where the differences in price between countries remain large, and some countries still have very high average prices. At the overall level, however, it seems that both retail and wholesale prices for data roaming are following a downward trend.

The Report also indicates that roaming minutes billed exceeded actual elapsed minutes by a significant margin (typically 24% at the retail level for calls made and 19% for call received[10]) as a consequence of the practice of many providers of using charging intervals of more than one second at both the wholesale and retail levels.

2.3. Public consultation

The European Commission launched a wide-ranging public consultation on 7 May 2008 asking for comments on the review of the Roaming Regulation and on the possible extension to SMS and data roaming services. 39 questions were raised about the general functioning of the roaming regulation as well as on specific issues such as inadvertent roaming, the effect on smaller operators and domestic prices, the issue of actual vs. billed minutes and the need for similar rules concerning SMS roaming services and data roaming services.

[10] This is in reference to the Eurotariff.

The public consultation[11] was made accessible via the 'Your voice in Europe' website[12]. This is the European Commission's single access point to a wide variety of consultations, discussions and other tools, and was set up in the context of the Interactive Policy-making Initiative as part of the Commission's minimum standards on consultation.

Although the deadline stipulated for submission of the responses was 2nd July, the European Commission has not rejected any submissions that were received later. In total, 45 responses were received and the submissions that have not been marked as containing confidential information are available on the roaming website.[13]

2.3.1 Voice

There was strong support for the view that the voice regulation should be extended beyond the 2010 deadline. In particular, the European Regulators' Group, other individual NRAs, Member States and consumer organizations have argued for retaining both wholesale and retail regulation. Only one Member State (Czech Republic) has expressed itself against extension of the regulation. The GSM Association and the large majority of operators have expressed the view that voice regulation should not be extended since the objectives have been met and prices are not likely to increase in future.

A few small and independent operators, including some that do not form part of alliances, continue to favour an extension of the regulation at least at the wholesale level.

In their submission, the ERG note that so far, there is no sufficient evidence of competition to justify lifting regulation at the retail level since many operators offer the Eurotariff at or near the maximum caps. ERG has assumed that any extension to the regulation would be for a period of three years and would favour further reductions in the glide paths of 2-3 cents at the retail level on the basis of current cost trends. A higher reduction might be justified for incoming retail calls. Moreover, they also indicate that the ceiling could be reduced by 2 cents each year at the wholesale level.

Consumer organizations are also of the opinion that it is still too early to withdraw the Regulation and note that wholesale regulation alone is not sufficient to ensure that there is pass-through of the benefits to retail consumers.

2.3.2 Per-second/per-minute billing

The issue of per-minute and per-second billing was also raised by most respondents. The ERG believes that urgent action is needed to deal with what they call the 'hidden charge' issue. While the regulators acknowledge that retail billing units of 1 second would undoubtedly provide consumers with the most transparent solutions, they also state that a two-part tariff would not be an unreasonable structure given that fixed costs are incurred in setting up a call.

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[11] Available at http://ec.europa.eu/information_society/activities/roaming/roaming_regulation/consultation_may08/index_en.htm

[12] http://ec.europa.eu/yourvoice/consultations/index_en.htm

[13] http://ec.europa.eu/information_society/activities/roaming/regulation/consult08/contributions/index_en.htm

Consumer organizations, such as BEUC and the Finnish Consumers Association, have called for per minute pricing to be banned. INTUG, which protects the interests of business users, has noted that per minute (or 30 seconds) are common for new plans and several per second plans are being discontinued.

The GSM Association, however, points out that billing itemization is indicative of competitive differentiation. To address this issue in the regulation would constitute micro-regulation and erode competition. Many of the operators note that this issue should be left to the market and the large majority of operators that replied have stressed that they have not changed their billing practices as a result of the Roaming Regulation. However, two operators suggested that per second billing should apply at the wholesale level since per minute billing at the wholesale level puts a constraint on the ability of an operator to price on a per-second basis at the retail level. Vodafone, in its non confidential submission notes that by 1 October 2008, its operators in different Member States will all move to '60 plus 1' unitization for the Eurotariff which would mean that the vast majority of their customers would have the same unitization for roaming as for their domestic services.

2.3.3 SMS

The ERG has noted that there appears to be little movement in SMS retail roaming prices up to April 2008, despite strong calls from National Regulatory Authorities and political pressure to bring down prices. They have therefore recommended the introduction of a price cap on the average wholesale rate charged by any one operator to any other operator for SMS roaming, and the amendment of the Eurotariff obligation to include an offer of SMS roaming at a retail rate not greater than a specified maximum cap. The ERG recommended that wholesale charges could vary from 4 to 8 cents while retail caps should be set at a maximum of between 11 cents and 15 cents since such levels would be sufficient to allow full recovery of costs together with a reasonable return. Both NITA, the Danish NRA, and UKE, the Polish NRA have submitted opinions in favour of wholesale and retail regulation of SMS. As for voice services, the Member States that responded to the public consultation were in general in favour of regulation of SMS at wholesale and retail level while only the Czech Republic was against.

Consumer organizations have also expressed themselves in favour of SMS regulation at both wholesale and retail level.

On the other hand, the GSM Association and mobile operators are generally against such regulation. The GSM Association notes that there are few consumer complaints and a number of operators have lowered roaming prices or introduced SMS bundles. Prices have fallen by 18% up to April 2008 and there is a similar price ratio between a voice call and an SMS in the domestic market. The large majority of mobile operators are against any form of price regulation at wholesale and retail level with the main arguments being that prices are not high and that there are very few consumer complaints. However, four operators have expressed themselves in favour of wholesale regulation for SMS since this is the only way retail competition is possible.

2.3.4 Data services

In the responses to the public consultation, there was almost a general consensus on the desire to eliminate 'bill shock' and to this extent, many operators have introduced, or will be introducing, transparency measures to deal with this issue.

The ERG recommends a more cautious approach concerning regulation of data roaming compared to the case of voice and SMS. They suggest that there are some signs of competition at both the retail and wholesale levels. The latest collected data paints a heterogeneous picture of the evolution of rates per MB at retail level. Whereas some countries show a decrease in prices, in other Member States prices have remained unchanged or even increased. It noted there are two special concerns that need to be further investigated when considering price regulation. First, it is concerned that lower wholesale charges should be available to smaller, newer and more independent operators. Lower wholesale charges are a prerequisite to lower retail rates (although not a guarantee). Second, it notes the progress made by certain operators in reducing their wholesale and retail costs but this is not the case in all Member States.

The ERG believes that "immediate, formal regulatory action"[14] is required to improve transparency and eliminate bill shock.

The Danish and Polish NRAs have indicated that wholesale and retail regulation is necessary. On the other hand, the Portuguese government and the Czech government have expressed themselves against price regulation while the Maltese government has left the issue open but said that transparency measures might not be enough to solve the problem.

Consumer organizations have also expressed themselves in favour of regulation at both wholesale and retail levels. BEUC notes rounding of unitization can have big impact on bills and called for a protective cap which could be a price per day subject to a maximum usage limit. INTUG said that data roaming tariffs are prohibitively high and that transparency is a must but is not sufficient for lowering charges. For the EU to be competitive, mobile data access is essential but the current tariffs represent a tax on doing business in Europe, dissuade use and prevent the development of data services in the EU.

The GSM Association, and the majority of operators have expressed themselves against price regulation noting that these services are still being developed, investments in infrastructure are still being made and prices have been falling. Operators also point to alternative forms of competition to data roaming services such as Wifi hotspots and access to internet from hotels.

Some operators have called for wholesale regulation to enable competition at the retail level while two operators have in particular suggested possible changes to the wholesale charging structure to take into account the changes that are taking place in data usage. For example, one suggestion was to move from a per MB charging mechanism to a per minute/hour basis while an alternative charging model would be to move to a pure wholesale model which could be based on a yearly volume commitment by the home network.

2.4. Meetings with interested parties

As with the consultations conducted during the preparation of the Commission's initial proposal for a regulation on intra-Community voice roaming services, the Commission services have remained open to contacts with interested parties throughout the process. The services have listened to and taken note of all views expressed, and have gathered as much information as possible from different players and stakeholders. Meetings with operators and representatives of the ERG, which established a special international roaming project team to

14 ERG opinion p.12

monitor implementation of the Roaming Regulation and develop the ERG's collective position on the review of the Regulation, in the light of market developments, have continued during the process of drafting the present impact assessment report.

2.5. Commission study

The Commission also commissioned a study by independent consultants, Connect2Roam, on "Roaming Data Services". This study focuses on:

- analysing the principal characteristics of mobile data roaming services;
- the commercial and economic features of the wholesale and retail markets for data roaming;
- technical infrastructure needed to offer these services; and
- prices at wholesale and retail levels.

The consultants' final report on this study, dated 24 June 2008, has been published by the Commission on 27 June 2008 at the following address:

http://ec.europa.eu/information_society/activities/roaming/docs/study_data.roaming.pdf

2.6. Developments in the market for SMS and data roaming services

Commissioner Reding warned the industry in February 2008 at the GSM World Congress in Barcelona that prices for SMS and data roaming needed to be reduced by early July 2008 in order to avoid regulation[15].

On 4 June 2008 Commissioner Reding wrote to the CEOs of all mobile operators in the European Union, requesting information on their price offerings for SMS and data roaming services in the EU as well as on transparency measures taken for those services, as at 1 July 2008. Operators were given till 30 June 2008 to reply to this letter. In total, 82 operators have replied to the letter and the result of their responses is available on the Roaming Website[16].

2.7. Commission Services Inter-service Group

In order to support the preparation and drafting of this Impact Assessment, a Commission Services inter-service group was established. The following Commission Services were invited to participate: Secretariat General, Legal Service, Enterprise and Industry, Health and

[15] See Commissioner Reding's public comments at the GSM World Congress in Barcelona at http://ec.europa.eu/information_society/activities/roaming/docs/dataroamingcomments.pdf: "I have no appetite at all for regulating again. But to avoid regulation, the industry will have to show its responsiveness to consumer concerns by credible reductions of the cost for data roaming both at the wholesale and at the retail level and by transparent offers compatible with the spirit of the single market. The market situation on 1 July 2008 will be decisive for whether regulation will be necessary or not."

[16] (http://ec.europa.eu/information_society/activities/roaming/tariffs/index_en.htm)

Consumer Protection, Internal Market and Services, Competition, Employment, Social Affairs and Equal Opportunities, Economic and Financial Affairs and Trade. There were three meetings of this group (on 27 May, 3 July, 24 July).

2.8. Development of an economic model

In addition to the general data gathering exercise undertaken by ERG, all NRAs have provided directly to the Commission the operator-specific data which was gathered by them as part of that general monitoring exercise. This comprehensive data has enabled the Commission Services to construct an economic model which provides estimates of the impact of the current Regulation as well as the economic impact of the policy options set out in this report. This model is explained in detail in Annex II.

2.9. Impact Assessment Board

On 1 September 2008 the Impact Assessment Board (IAB) in its final opinion recommended the following improvements in summary:

> The IAB indicated that the conclusion that competition is inadequate needs more explanation and the use of competition policy measures should be analysed for at least the data roaming market. Furthermore the report should add key facts/information about the mobile telecoms industry and assess the costs of the transparency measures proposed. In particular the report should explain the rationale for analysing roaming as a market in its own right, as opposed to viewing the purchase of a mobile phone package as the relevant market. With regard to prices the report should not merely present minimum and maximum prices but give a fuller overview of the spread.
>
> The report should assess where possible the impact on revenue (in absolute numbers and as a percentage of revenues and profit) that operators have faced as a result of the existing Regulation and the additional impact that they will face under each of the policy options analysed, and present these figures in a clear overview table.

A more detailed elaboration as to why competition is inadequate and an evaluation of the use of competition policy measures is provided in Chapter 5 on alternative policy options. This also includes an elaboration on the rationale for analysing roaming as a market in its own right, as opposed to viewing the purchase of a mobile phone package as the relevant market.

In relation to the use of competition law instruments, the Impact Assessment associated with the current Regulation referred to the Commission's sector inquiry which covered *inter alia* national and international roaming services. Based on the results of this enquiry, the Commission carried out an in-depth investigation which resulted in statements of objections which set out the Commission’s preliminary position, according to which four operators had infringed Article 82 of the EC Treaty. Following hearings held in June and July 2005 and a further exchange of views with the parties involved, the Competition DG subsequently concluded its investigation while pointing to the Roaming Regulation. However, it should be stated that any regulatory initiative under Article 95 of the Treaty does not preclude the possibility of action under EU competition law.

In relation to the economic impacts (Annex I), these have been expanded to include more detail on the impact of the Roaming Regulation upon industry and in particular on how voice roaming revenues have developed following entry into force of the Regulation including how these are projected to develop over the following years. The impacts of the Roaming Regulation on revenues and profits are also now expressed in relative percentage terms over time as well as in relation to the value of the mobile sector as a whole.

In terms of administrative burden, the Regulation is largely self-enforcing which means that the administrative burden should not be high and therefore not significant. Regarding compliance costs, these are most likely to arise in the area of transparency where some market players have indicated that they will be implementing such measures in any case. As shown on page 75 (section 4.4) the question of the proportionality of transparency measures for data roaming has been considered and the potentially more onerous requirements have been discarded.

It is considered that the length of this document is reasonable in light of the need to carry out a full assessment on three distinct roaming services i.e. voice, data and SMS.

CHAPTER 2. PROBLEM DEFINITION

1. MARKET SIZE AND SEGMENTS[17]

The EU market for mobile roaming services can be divided into voice services, SMS and broadband data services. The three segments together in 2007 accounted for €6.54 billion in revenues.[18] This corresponds to approximately 4.7% of the total EU mobile market, which in the Commission's 13th implementation report was estimated at €137 billion.[19] While in terms of revenues roaming services are thus of less importance to the mobile industry than domestic services or wholesale mobile termination services, the roaming share of an operator's revenue pie is still significant, and typically more attractive than other services from a profit-margin perspective.

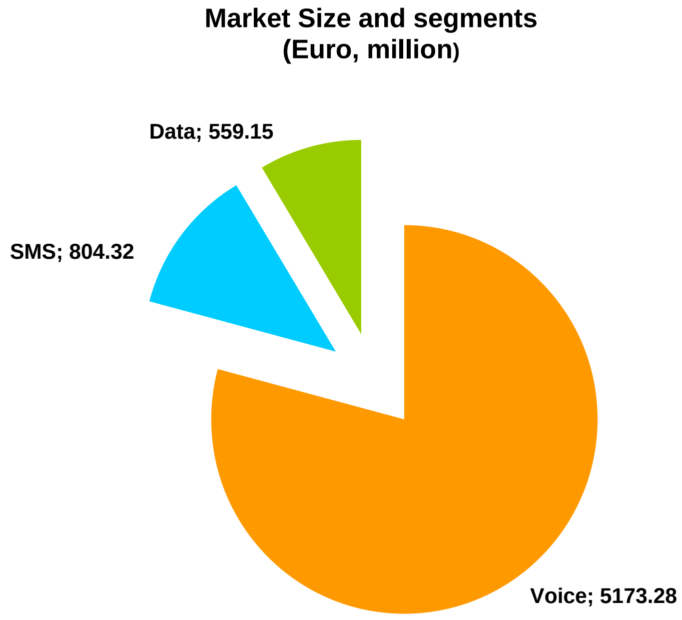
Voice services constituted 79.1% (€5.17 billion) of the overall roaming market in 2007, SMS 12.3% (€0.80 billion) and broadband data 8.6% (€0.56 billion).

[17] All figures in this section are derived from a detailed data-collection exercise undertaken by the national regulatory authorities and the European Commission. Data were collected from 27 NRAs on an individual per-operator basis, and were then aggregated by means a bottom-up approach. See the annex for a detailed explanation.

[18] The market size figure for 2007 is estimated on an as-if-basis, i.e. correcting for the effect of regulation on prices in Q3:2007 and Q4:2007. In other terms, the figure shows what the size of the EU roaming market in 2007 *would have been* in the absence of the roaming regulation (retail price caps mostly came into effect on 30 September 2007). It should also be noted that it is difficult to compare the 2007 figure, which is derived from a comprehensive set of firm-level data, to the figures given in the impact assessment of 2006, which had to rely on other sources.

[19] *Progress Report on the Single European Electronic Communications Market 2007 (13th Implementation Report)*, COM (2008) 153, 19/03/2008, p.3

Chart 1:



Voice and SMS roaming service growth largely reflects the maturity of these market segments; growth for data roaming services is however very dynamic and at least in line with domestic mobile data services growth[20]. The data segment is thus expected to overtake SMS to become the second-biggest roaming segment in one or two years.

[20] Domestic data services are growing at more than 40% p.a. As for roaming data services, according to EC estimates, data volumes grew sequentially over 20% in each quarter of 2007, ranging from 24.6% (Q3:2007 to Q4:2007) to 49% (Q2:2007 to Q3:2007).

2. PROBLEM DEFINITION: VOICE ROAMING

2.1. Background

In its report on the functioning of the Roaming Regulation, the Commission must assess whether, in the light of developments in the market and with regard to both competition and consumer protection, there is a need to extend the duration of the Regulation beyond the 30 June 2010 or to amend it. In considering this issue the Commission has to take into account developments in charges for mobile voice services at national level and the effects of the Regulation on the competitive situation of smaller, independent or newly started operators.

A key question is whether consumers would benefit from competitive retail roaming rates in the long term if the Roaming Regulation were allowed to expire on 30 June 2010. Such a scenario would imply that the market and technological conditions which gave rise to the need for regulation in the first place have altered so that sustainable competition at wholesale and / or retail levels is likely from June 2010 onwards.

2.2. The nature of the problem

2.2.1 Situation before the current Regulation

The Commission's impact assessment accompanying Roaming Regulation identified the absence of a meaningful relationship between prices for EU-wide roaming at both wholesale and retail level one the one hand, and the underlying costs of service provision on the other as one of the key problems the regulation was designed to address.[21] In addition to tackling the excesses which prevailed in the pricing structure for many years, the regulation also sought to increase transparency of prices and offerings for consumers, thereby leading to more competition between operators on this service.

The challenges proposed by the EU market for roaming services were unique in that they could not be addressed by existing regulatory tools. Having studied and analysed the market carefully, national regulatory authorities alerted the Commission that the problem was ‘non-trivial’ and that it required action at EU level. Due to the cross-border nature of the service, a common EU approach for the internal market as a whole had to be adopted.

2.2.2 The current situation

By setting wholesale and partial retail price caps (the latter are partial because the Eurotariff does not apply to all mobile consumers) and by imposing transparency obligations on operators, the regulation arguably succeeded to tackle the challenge explained above. The Commission's monitoring of implementation suggests that obligations imposed by the Regulation are being met, and consumers now have access to a Eurotariff at or below the

[21] Impact assessment of policy options in relation to a Commission Proposal for a Regulation of the European Parliament and of the Council on roaming on public mobile networks within the Community COM (2006) 382 final p.17

price caps permitted by the Regulation. As a result, consumers under the Eurotariff on average save 36.4% for outgoing calls and 42.9% for incoming calls when compared to the prices for EU roaming services prevailing in early 2007.[22]

However despite these gains, it appears that the structural problems with this market have remained intact. While voice roaming services may be an important source of revenues and profits for a mobile operator, from the point of view of consumers prices for voice roaming are perceived as prices for only *one* element of a larger mobile bundle purchased – and as a less important element of this bundle than, say, domestic voice, domestic SMS or a (subsidized) mobile device included in the mobile price plan. This mitigates the ability of operators to use attractive roaming prices as an efficient tool for customer acquisition. Furthermore, the presence of switching costs and the lack of adequate substitutability of voice roaming *once the customer is abroad* reduce the degree of expected competitive rivalry on this service. Both of these structural characteristics suggest, theoretically, that there might be good reasons for continued regulatory intervention.

Based on the Commission's comprehensive data collection and analysis, the evidentiary record since adoption of the regulation confirms this. In its response to the public consultation, the ERG confirms that the fundamental problems which existed prior to the current Regulation remain. According to its submission, consumer surveys indicate that consumers pay little attention to roaming tariffs when making their initial choice of network operator. Nor are they likely to switch networks in response to prices changes for roaming tariffs. There is some competition generated by independent service providers, for example by companies marketing host-country SIM-cards for use while abroad. But these offers have made relatively small inroads into the market.

The current wholesale and retail voice roaming caps were set by Parliament and Council so as to allow all market players to recover efficiently incurred costs (with a contribution to joint and common costs as well as retail costs) and to make a profit on service provision. In other terms, the caps were designed with the intention to allow price competition below the Eurotariff price caps. A key question is thus the extent to which such competition has indeed occurred.

2.2.3 At wholesale level

The average wholesale cap for the period of 30 August 2007 - 30 August 2008 is €0.30 per minute for the provision of a regulated (outgoing) roaming call. It applies to the average of the charges between any two operators over a twelve month period. ERG Benchmark Data Reports indicate that average wholesale charges (between non-group companies) have been decreasing steadily and markedly from 46€c pre-Regulation (Q2:2007), to 39€c (Q3:2007), 27€c (Q4:2007) and 25€c (Q1:2008), an overall reduction of 46% (the charges negotiated for 2008 are likely to take into account the August 2008 reduction in the wholesale cap to 28€c per minute). Eight countries reported an average charge that is 5€c or less than the 2008 average 28€c cap. The distribution of average charges by country has narrowed since the Regulation has come into effect. While these developments are encouraging, there are still a large number of Member States where the wholesale cap is still on average very close to the

[22] See Annex I for a discussion of price levels in 2007. The percentages are based on the Eurotariff price caps of €0.49 and €0.24 valid until mid-2008; Individual savings (as well as savings in coming years) may be significantly higher. Similarly, savings compared to prices in 2005 or 2006 may be more significant.

ceiling set in the Regulation. In addition to the objective of harmonisation, it is also essential to ensure that smaller operators do not suffer margin squeeze and can continue to compete in this market.

2.2.4 *At retail level*

The second ERG Benchmark Data Report for October 2007 – March 2008, the first six months of full implementation of the Roaming Regulation, found Eurotariff offers for making and receiving calls below the maximum caps in around one third of the relevant countries which means that in two thirds of countries the Eurotariff offers are at the maximum caps. Of the one third of countries below the maximum caps, a third of these reported an average price at least 5€c below the 49€c cap for making calls.

While these developments are clearly encouraging, prices do not yet vary sufficiently from the Eurotariff cap to provide evidence of healthy innovation and competition. Despite the recent declines in wholesale tariffs there is so far no evidence that these cost reductions are being passed onto consumers in all Member States. Rather, many operators offer the Eurotariff at or near the maximum caps, while alternative tariffs account for a relatively small share of total traffic. The fact that more than 400 million EU consumers were protected by the Eurotariff, making it the standard default retail roaming offer, suggests that there is little evidence of a significant impact of non-Eurotariff innovative offers, thus further corroborating the initial decision to introduce retail as well as wholesale caps.

3. PROBLEM DEFINITION: VOICE BILLING UNITISATION

3.1. Background

The Roaming Regulation imposes price limits on intra-Community voice roaming services which are expressed in terms of a specified monetary amount expressed on a "per minute" basis, in accordance with normal industry and regulatory practice. The relevant provisions of the Regulation did not however specify explicitly what should be the minimum units of time by reference to which the prices for wholesale and retail roaming voice services were to be calculated when it came to billing for the regulated roaming calls made or received.

Indeed, the ERG benchmark data report for September 2007–March 2008 estimated that per-minute billing practices add around 24% to a typical retail bill for calls made and 19% for calls received using the Eurotariff[23]. The ERG's first report also estimated there was a smaller difference at the wholesale level. This reflected the ‘unitisation’ practices of the mobile carriers, under which charges are not necessarily billed by reference to the actual number of seconds that a call has lasted, but rather by reference to how many units of time (e.g. per minute), or <u>parts thereof</u>, have been consumed.

There are various different unitisation practices in place, for wholesale roaming services as well as for retail services.

[23] It should be noted that several providers were unable to provide accurate information on the difference between actual minutes and billed minutes. For the purposes of the ERG Benchmark Data Report, where data for actual or billed minutes has not been provided, the ERG has sought estimates.

At wholesale level a minimum charge or a minimum duration of 60 seconds are very common. The subsequent billing intervals range between 1 to 60 seconds.

At retail level there may be a call set-up charge or a charge set by reference to a minimum duration. The subsequent billing intervals also range from 1 to 60 seconds. The model 60+60 is common, that means 60 second minimum duration then billing at 60 second intervals. Another approach is to allow a minimum initial charging interval (e.g. 60 seconds) followed by per second billing for all subsequent periods (the '60+1' model).

3.2. The nature of the problem - retail level

It has become apparent that due to the unitisation practices of some operators the billed minutes may exceed the regulated Eurotariff caps and by doing so they would dilute the effects of the EU roaming regulation. In response to a recent ERG questionnaire to National Regulatory Authorities on international roaming (April 2008), 4 NRAs reported an increase in intervals to per minute billing in their Member States.

Divergent legal requirements and practices to billing for the Eurotariff by mobile operators undermine the original aim of the Regulation which was to provide a common price ceiling across the Community. Some Member States have taken different national measures in this area (e.g France, Spain, Portugal and Lithuania) while others have taken no measures at all. These measures would also affect roaming prices. This creates a situation where varying national legal measures result in different approaches to implementation of the price ceilings.

The costs which the end-user has to pay may vary significantly depending on the unitisation model which the operator applies. A 61 second call, for example, would be much more expensive when the 60+60 model is applied than if a 60+1 model was applied. However, it was the objective of the Regulation to guarantee comparable prices within the Single Market. Until now the Roaming Regulation lacks a provision on the unitisation issue which would enhance comparability and clearly and unambiguously prevent operators from diluting the positive effects of the Regulation for consumers by means of increasing their billing units.

3.3. Wholesale level

Wholesale roaming charges are normally charged with a minimum charge of one minute; subsequent intervals are commonly between one and fifteen seconds. By contrast, ERG notes that other wholesale interconnection charges are normally charged per second. Furthermore, it seems that the fixed costs of setting up the call at the wholesale level are already taken account of in regulated termination charges. On that basis, it is hard to see any justification for anything other than billing for the actual volume of wholesale roaming services used. The possibility for divergent approaches to wholesale billing potentially distorts competition conditions for operators when viewed from a single market perspective.

4. PROBLEM DEFINITION: SMS

4.1. Background

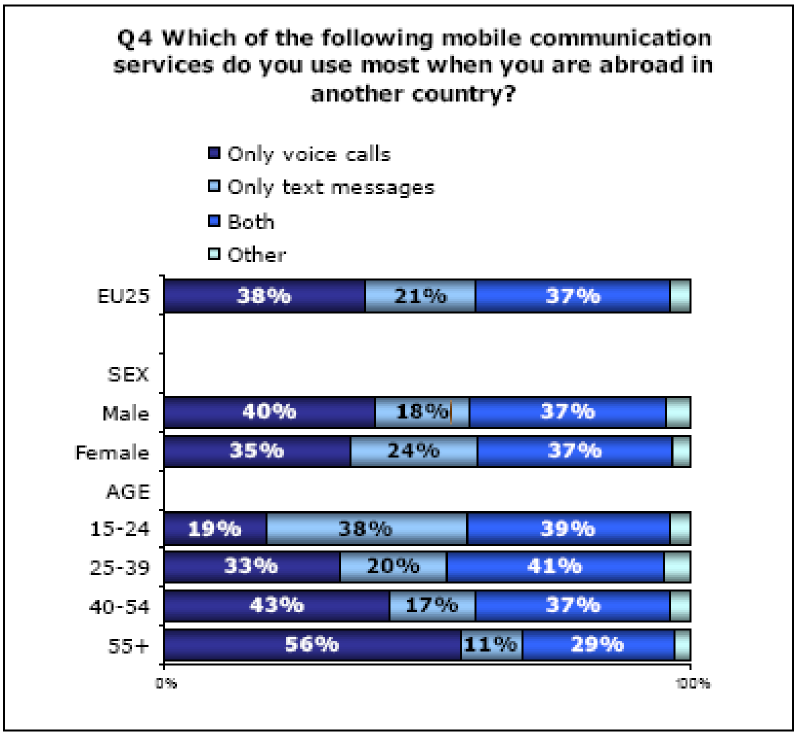
As stated in the Impact Assessment for policy options in relation to the Commission's original proposal for a Regulation on Roaming, of July 2006, some respondents to the Public Consultations held in 2006, identified similar issues of unjustifiably high prices for non-voice roaming services such as SMS as were identified for voice roaming services. However, at that stage, national regulatory authorities had not in general analysed the market for SMS roaming services. In June 2005 ERG launched a public consultation on a common position on the wholesale market for international roaming on public mobile networks (market 17) which was at the time included in the Commission's Recommendation on relevant markets. This market did not include SMS roaming services which meant that the focus of ERG at that time was on voice roaming services. Consequently ERG had not called on the Commission to address the problem at EU level.

Nevertheless, the perceived problems with the level of prices for SMS roaming services and their disassociation from underlying costs were sufficiently clear during the legislative process leading to the adoption of the Roaming Regulation in June 2007 for the legislators to introduce wording in Article 11 calling on the Commission specifically to address the question of the need to regulate intra-Community SMS roaming services in its review of the Regulation and to make recommendations accordingly.

4.2. The nature of the problem

SMS is based on SS7 signalling which consists of routing, transaction and status and control information. SMS is a very simple and mature service, which has a large acceptance across Europe. Considering the figures below, it can be seen that intra-Community SMS roaming prices have an impact on millions of EU citizens. SMS services are particularly used by younger consumers. In fact, 77% of young people[24] (between 15 and 24 years of age) send texts while using their mobile abroad. Within this group of consumers, 38% of the respondents answered that as far as mobile communications are concerned they use only text messages when abroad.

[24] Eurobarometer survey n° 269 – November 2006



Base: respondents who use their mobile phone when abroad (42% of the total sample)

In a recent study prepared by ARCEP[25] it is stated that over 95% of the French consumers between 11 and 24 years old are SMS users (at a domestic level). Thus, high prices for SMS roaming services are likely to have a stronger impact on young people, such as students, who generally have a lower income when compared to older consumers.

Based on the data gathered by NRAs on international roaming, the European Commission services estimate that the SMS roaming market within EU/EEA was worth around €0.8 billion in 2007, which corresponds to approximately 12,3% of overall roaming revenues within the same period. In the same period over 2.5 billion text messages were sent by roaming customers in the EU.

4.2.1 Wholesale: Inter-operator tariffs (IOTs)

The level of the wholesale charges for sending an SMS while roaming within the Community does not appear to be justified by the underlying costs and as in the case of voice roaming services, there appears to be insufficient competitive pressures on operators to bring prices down.

In relation to the underlying costs, according to a study carried by the Danish Regulator, National IT and Telecom Agency[26], in an effective market, the IOT charged should be no higher than 0.80 cent. Some operators claim that SMS prices have been falling and will fall even more as competitive forces continue to play. However, according to ERG figures this does not seem to be the case. In fact, according to these figures, the average IOT charged

[25] "Rapport sur les évolutions tarifaires des prestations de SMS et de transmission de données sur les réseaux de téléphonie mobile français", July 2008

[26] "Analysis of Prices and Costs for Mobile Data Services Abroad" – June 2008

within the EU has clustered around 16 cent from the second Quarter 2007 to the first Quarter 2008.

In 2006, ARCEP notified the European Commission, the analysis of the wholesale SMS termination in mobile networks market (notification FR/2006/0413). In this notification, some cost elements relative to the provision of a domestic SMS were presented. This notification confirms the low level of such cost.

In the negotiations for roaming agreements, mobile operators often focus their attention on voice services, as the revenues of such services constitutes almost 80% of the roaming market. SMS agreements are often included as an appendix to the roaming agreement. This may indicate that the market pressure for price decrease in the SMS roaming wholesale market is even weaker than in voice.

Currently no wholesale SMS termination charge is levied by the visited network operator when a roaming client receives an SMS.

4.2.2 Retail prices and transparency

The average EU SMS retail price for Q1 2008 is around 28.5[27] cent which is (if at all and not only due to statistics) only a very slight decline on the figure of 29 cent published by ERG for Q2 2007[28]. According to the Commission data, SMS prices have shown only very limited progress, with retail prices as high as 80 cent in one case. Most operators' prices seem to be in the 20 to 30 cent range.

On the contrary, at domestic level, SMS bundles are generally offered by operators. These bundles often include a large number of SMS for a monthly fee. Recently in some countries, unlimited SMS offers are becoming widespread. According to the above mentioned ARCEP study, in 2005, mobile operators started to introduce unlimited domestic SMS offers. According to the same study, 28% of consumers have subscribed such type of unlimited offers. Similar SMS bundles are seldom offered for roaming. And even when bundles are offered, the price per SMS is still high (e.g one operator in the UK offers 90 SMS for €25, or €10 for 30 SMS by one Dutch operator). Only one operator in Austria is offering 100 bundled text messages at €0.10 per roamed message.

It is worth mentioning that ERG, in its submission to the Public Consultation stated that the difference between domestic and roaming prices appears to be no better than for voice and that those differences are unlikely to be justified on the basis of roaming-specific costs.

In fact, prices at retail level seem to bear no relation to cost. The above mentioned study developed by the National IT and Telecom Agency of Denmark, states that in an effective market retail price for a SMS sent abroad should not be higher than 4,2 cent (including 25% VAT).

According to the consumer organisation BEUC, another way of looking at the costs versus the price is to look at the regulated SMS termination rates (in France). BEUC point out that the costs of termination ranges from 3.0 to 3.5 cent, depending on the operator. Comparing the

[27] GSM Association have indicated that the average SMS roaming price in Q1 08 was 28 cent

[28] ERG 2nd data collection

cost of 3.5 cent with the average roamed SMS price of 29 cent yields a mark-up of more than an 800%.

It is worth reflecting on why the issue of very high roaming prices has not been addressed by market forces. Similar to the situation for voice services, one of the reasons for high SMS roaming prices is the fact that when choosing a mobile operator, consumers do not take these prices into consideration. As a result, consumers often only become aware of the high prices charged when the service is used. Compared to voice roaming services, lack of transparency of SMS charges is easier to address, because of the fact that SMS services are provided on a per message basis. Nevertheless, the provision of adequate information on prices charged for SMS roaming services is of the utmost importance.

The European Commission has published prices for voice, SMS and data roaming services on its dedicated roaming website[29]. This information not only helps raise consumer awareness of prices, but also highlights the high levels of prices charged as well as the variation in those charges across the Member States.

5. PROBLEM DEFINITION: ROAMING PACKET SWITCHED DATA SERVICES

5.1. Background

Data services, other than SMS, which is treated separately, include Multimedia Message Service (MMS) and internet browsing (as well as access to email) from mobile phones and laptop devices. The use of data services can take place through a number of devices such as mobile phones (smart phones), Blackberry devices, PDAs or laptop computers.

Data roaming rates have been high and the situation has become more pronounced over the past year since the arrival of high-speed internet access or mobile broadband, particularly for laptop users. Such users normally make use of high volumes of data traffic, which when coupled with a lack of flat-rate offers, or limited flat-rate offers followed by per MB charges has led to ‘bill shock’ which at times have reached thousands of Euros for customers.

In the previous impact assessment[30], it was stated that it was difficult to foresee, in relation to MMS services and data services how these would develop and that at their stage of development, there were clearly significant risks of applying inappropriate regulation which could hinder the development of this market.

However, concerns as to the level of charges for data roaming services were raised in the political discussions that preceded the adoption of the Roaming Regulation. It was finally agreed that the Commission would specifically analyse this issue when reviewing the Roaming Regulation.

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[29] http://ec.europa.eu/information_society/activities/roaming/index_en.htm

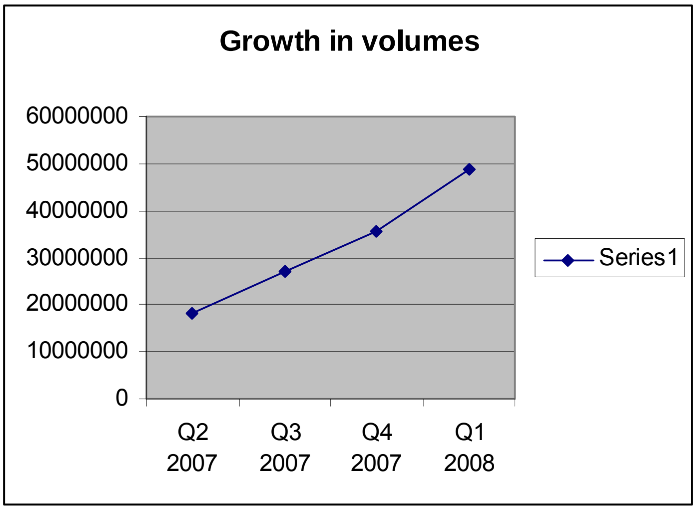
[30] SEC (2006) 925 Commission Staff Working Paper, Impact Assessment of policy options in relation to a Commission Proposal for a regulation by the European Parliament and of the Council on Roaming on Public Mobile Networks within the Community.

To some extent the underlying core problem with data roaming services is similar to that for voice and SMS in that the customer generally has not been sensitive to the prices for data roaming when purchasing mobile services. This may be further complicated by the fact that prices for data roaming services derive from the generally low use of roaming services compared to domestic services. Nevertheless prices for EU-wide data roaming services at both wholesale and retail levels are unjustifiably high when compared to the charges for the equivalent domestic services and to the underlying costs of providing the services.

ERG considers that the costs of provision of data roaming (including a reasonable allowance for common costs and returns) are likely to represent a fairly small percentage of typical current charges. This problem has been compounded by lack of transparency of prices at retail level (where consumers, particularly laptop users, are not aware of the price and usage limits). This makes it very difficult for consumers to understand how much they are going to pay for the service and over the past year or so has created the problem of 'bill-shock'. For some customers, performing relatively simple tasks that would not prove expensive at home, can lead to extremely high bills compared to domestic rates.

5.2. Nature of the problem

Usage of mobile data services is growing rapidly in the European Union albeit starting off from very low volumes. Based on data collected by the European Commission, it is estimated that the total size of the data roaming market, excluding SMS revenues, was €559 million for 2007. The contribution of data roaming services to roaming has also increased considerably and has nearly doubled from Q2 2007 to Q1 2008. Volumes are also increasing as can be seen from the graph below.



There has also been a drop in average retail prices between Q2 2007 and Q1 2008. The average retail price per MB has decreased from €5.81 to €3.65. A price reduction is observed in wholesale prices, at least for non-group companies which have gone down from €3,22 to €2.00 for the same period[31]. This suggests that there is a higher likelihood of pass-through of wholesale price reductions to end users than is the case for voice or SMS roaming services.

[31] The average retail price is blended between group and non-group companies. For the wholesale average, the is blended non group average is taken.

Data roaming services may be subject to greater competitive constraints at retail level, for example, from WiFi services. Laptop users have the possibility to make use of Wifi hotspots which are often are found in airports, stations, hotels, cafés and restaurants. This possibility is also available to a growing number of handsets which are also enabled with Wifi technology. Therefore, to some extent at least, Wifi hotspots and access to the internet in hotels may be considered as providing an alternative to mobile operators for the provision of roaming data services. These can be available either free of charge or charged for periods of time (per hour or per day for example). As of end June 2007, it was estimated there were more than 50,000 hotspots in Western Europe out of 113,000 worldwide[32]. However, data on usage and volume is not available.

Another option is for the roaming customer to use a local domestic mobile broadband SIM card which is a more attractive option than for voice or SMS because there is no numbering constraint associated with the usage of data services i.e. the customer is not worried about losing their number. The fact that data services are not linked to a mobile number also increases the possibility that customers will shop around for more attractive data roaming packages without severing service with their current domestic provider.

The ERG also come to a similar conclusion stating that in contrast to voice, there appears to be some real commercial incentives to cut rates, irrespective of regulatory pressure since domestic mobile data services are growing fast, probably driven to a significant extent by recent price cuts in domestic tariffs and increased consumer access to related technology.

The most recent offers from mobile operators for roaming data services may reflect similar flat-rate charges for Wifi, although the mobile operators' offers include maximum capacity limits of 50MB for example. Nevertheless, such offers remain considerably higher than equivalent national prices.

5.3. Wholesale charges

The relationship between wholesale charges and retail charges is complex, in particular when operators choose to have one retail price per Member State. The fact that operators will have to pay non-discounted high IOTs (the wholesale charge one operator charges another for enabling roaming), may hinder the development of cheap retail offers. The ERG report that wholesale charges have fallen by around 60-70% since 2002-2003 with the average wholesale rate being €2.00 for Q1 2008 though they still exceed costs by far.

While it is becoming evident that discounted prices for wholesale data roaming services can normally range from 25 cents to 75 cents per MB (though the price per MB could be lower for higher volume sessions), problems at the wholesale level still remain for non-discounted prices. The majority of operators have indicated a movement from the standard prices per MB to discounted prices based on volume discounts which apply on a reciprocal basis.

There is strong evidence that competition at wholesale level for data services is still very limited mainly because traffic steering techniques are not yet effective. Because home operators only have limited success in steering traffic onto preferred networks they are therefore forced to pay extremely high rates on non-preferred networks.

[32] Source: Confidential submission from an operator in the public consultation.

These 'non-preferred' network charges which in many cases can be even higher than €10 per MB, can create considerable problems. While home operators can negotiate relatively low rates with their preferred networks, they continue to face extremely high non-preferred network charges thus pushing up the average wholesale price paid by a home network provider even if only a very small proportion of the traffic goes to a non-preferred network.

The fact remains that significant volumes of traffic go to non-preferred networks. Rates on such non-preferred networks are extremely high, thus pushing up the overall average wholesale charges to unjustifiably high levels.

Traffic steering for data roaming is not as effective as it is for voice since it is constrained by the network coverage and quality of service issues. Moreover, operators prioritise traffic steering for voice services onto networks which might not be the most appropriate for data services in terms of price or data transfer speeds.

This affects all operators in the market, but especially smaller operators with weaker bargaining power. The end result is high average wholesale prices which creates uncertainty for operators and hinders their ability to compete at retail level with transparent and competitive retail packages.

Therefore, until such high wholesale standard prices are reduced, the development of competitive retail offers will be hindered as shown in the examples in the box below.

Example A:

An operator has a negotiated rate of 25 cents per MB. The standard rate with other operators is at €10 per MB. If 80% of traffic is steered to the preferred network, the average price per MB would still be €2.20 even though the operator has a wholesale rate of 25 cents per MB for the large majority of traffic.

Example B:

An operator has a negotiated rate of 25 cents per MB. The standard rate with other operators is at €1 per MB. If 80% of traffic is steered to the preferred network, the average price per MB would be 40 cents.

While the case for wholesale intervention on voice is clear, the case for intervention for wholesale data is even stronger. This is not only because of less effective traffic steering, but also because the much higher differential which exists between wholesale data rates on preferred and non-preferred networks, as compared with the differential that existed for voice, considerably raises the average wholesale costs an operator incurs which translates into extremely high retail charges.

5.4. Retail charges and transparency

With the introduction of 3G services including 3G roaming, prices for wholesale data services have started to become more important in roaming negotiations particularly in view of the fact that users have become accustomed to low monthly domestic fees for data services (e.g. €10 in Austria and €13 in the United Kingdom[33]). Retail data roaming charges ranging up to more than €15 per MB are leading customers to receive bills that can run into hundreds if not thousands of Euros. The ERG notes that the average retail price per MB is €3.65 for Q1 2008 but the spread of retail prices is very wide and in eight Member States it averaged between €8 and €11. Even though there has been a decrease in retail prices, access to the internet while roaming is, in many cases, prohibitive.

However, with usage of data services increasing, significant problems have emerged related to lack of transparency and 'bill shock' as a result of the high per MB charges that may apply. In general, users are less likely to understand a price per MB of data than a price per SMS or a per minute voice call. Laptop users may receive unexpected data downloads such as software maintenance downloads, spam etc. Moreover, it is difficult to manage data volumes being transmitted. For example, if your email programme is switched on, it might be impossible to block receipt of a large document unless the programme is disconnected.

At the moment, there are very few operators that have effective means in place for monitoring the amount of data being used by consumers or for consumers to control the choice of tariff in real-time. Flat-rate data roaming offers which have emerged over recent months are a good starting point to tackle the problem. However, for a very light user, or for someone who is surfing the internet from a mobile phone or accessing emails from a Blackberry device, a flat-rate daily charge might not be suitable even though the per MB charge would be considerably higher.

Moreover, operators are only now starting to introduce transparency measures aimed at solving the problem of 'bill shock'. In its response to the Consultation, the GSMA noted that the GSMA and its member operators have been working over the past few months on the development of data monitoring usage tools for people accessing mobile services via a laptop computer through a data card or dongle. Some operators have been able to implement indicative solutions while others are working to offer real time solutions. However, the majority of respondents, apart from industry, have highlighted that transparency remains an issue and that measures should be formulated requiring companies to introduce effective measures to control bill shock.

[33] Source: GSMA Press Release 11th June 2008

CHAPTER 3. THE CASE FOR EU ACTION (SUBSIDIARITY TEST)

As mentioned in Chapter 1, given the cross-border nature of the international roaming market the NRAs were unable to act and deal effectively with the lack of competitive pressures in this market. Furthermore, NRAs which are responsible for safeguarding and promoting the interests of mobile customers who are resident within their territory are not able to control the behaviour of the operators of the visited network situated in other Member States. This led the NRAs to call on the Commission to act at European level. In December 2005[34], the ERG alerted the Commission to its concern that measures being taken by NRAs would not resolve the problem of high prices. It also made it clear that it was committed to working with the European Commission to develop an appropriate and more complete solution. The ERG described the problem as 'not trivial'. It further noted that roaming creates an exceptional instance where an apparent case of consumer detriment is not prospectively solved by the application of the regulatory framework. ERG has confirmed in its response to the public consultation that nothing has changed in that respect in the meantime.

It was also noted in the Impact Assessment associated with the current Roaming Regulation that in the absence of any such action to address this problem there would be persistent pressure on Member States to take measures to address the level of EU-wide roaming charges. However, any such measures would create divergent results across the European Union and be ineffective, given the particular cross-border characteristics of the services concerned.

As far as the options outlined in this Impact Assessment for the continued regulation of voice roaming services are concerned, precisely the same considerations apply as did when the current Roaming Regulation was first proposed. Indeed it is for this reason that the ERG has called on the Commission, in its response to the public consultation, to propose an extension of the Roaming Regulation in time, so that it continues to apply a solution at Community level for the continuing problem of Community-wide voice roaming services, both at wholesale and retail levels.

Similarly, the very same special characteristics that apply to the Community-wide voice roaming markets (and warranted Community action under the current Roaming Regulation) also apply to the provision of Community-wide SMS and data roaming services. For these services too action by the Member States would not be effective in resolving the problem of unjustifiably high prices, given the cross-border nature of the services and the fact that competitive pressure is limited by the fact that these roaming services are also not purchased independently but as part of a wider retail package. This is implicitly acknowledged in Article 11 of the current Roaming Regulation, which called on the Commission to include data communications, including SMS, in its review of the functioning of the Roaming Regulation and, if appropriate, make recommendations regarding the need also to regulate those services at the EU level.

[34] ERG letter to the Director General of the Commission's DG Information Society, Mr Fabio Colasanti, December 2005

It is for this reason too that the ERG, in its response to the public consultation on the review of the Regulation has called on the Commission to act at European level with regard to SMS roaming and data roaming services[35].

Consequently, it is necessary to consider action at EU level to ensure an effective response on a cross-border basis in relation to Community-wide SMS and data roaming services, as well as with regard to the continuing regulation of voice roaming, and to ensure that divergent approaches by Member States do not constitute an obstacle to the realisation of the internal market or distort the competitive conditions for roaming services across the Community. As is the case for the current Regulation, any regulatory proposals arising from this review will be based on Article 95 of the EC Treaty.

A concrete example of the risk of divergent approaches in the absence of harmonised rules can be seen in relation to the issue of the unitisation of billing for voice roaming services, one of the elements under consideration in this Impact Assessment. A number of Member States (e.g. Spain, Portugal, Lithuania and France) have already imposed varying requirements with regard to per second billing on their operators as a matter of national law, while others have not so far done so. This creates divergent conditions for operators in different Member States which, in the context of a cross-border activity such as Community-wide roaming, is not conducive to the completion of a single market for electronic communications.

It is also worth noting that the Commission's proposals for the revision of the 2002 regulatory framework for electronic communications, currently under discussion in the European Parliament and Council, have not altered the key principles applicable to the assessment of significant market power in the electronic communications markets, since these remain valid and the most effective means of promoting competition and maximising consumer welfare in the vast majority of markets. International roaming services however remain an exceptional case, in which the specific characteristics of the market require a more targeted approach. The continued application of the regulatory framework for electronic communications, modified and updated where appropriate following the Commission's Review proposals, should not prevent the adaptation of the specific rules contained in the Roaming Regulation in line with other considerations, so as to ensure the most effective means of achieving a high level of consumer protection whilst improving the functioning of the single market with regard to Community-wide roaming services.

[35] See also Ed Richards' comments on text and data roaming in the EU, 29 January 2008 at http://www.ofcom.org.uk/media/speeches/2008/jan/stakeholdermeeting: "national regulators are unable to address these issues unilaterally."

CHAPTER 4. OBJECTIVES

1. BROAD OBJECTIVES

The general objective of EU action is to promote the further development of the single market for electronic communications services, which include voice telephony, SMS and data services, for users of public mobile telephone networks for EU-wide roaming services when travelling within the Community. In concrete terms, the objective is to ensure that prices paid by users of public mobile telephone networks for EU-wide roaming services when travelling within the Community are not unjustifiably higher than the charges payable by that user when calling, sending SMS or transferring data within his home country.

The general objective is fully in line with the horizontal EU level strategies, in particular the Commission's i2010 initiative which stresses the crucial role of information and communication technologies (ICT) in achieving the growth and jobs objectives of the renewed Lisbon strategy. In the area of electronic communications, the i2010 initiative aims to create a Single European Information Space by 2010 that offers affordable and secure high bandwidth communications, rich and diverse content and digital services. It is also consistent with the 'Europe of Results'. Furthermore, the general objective is also compatible with objectives of the existing regulatory framework for electronic communications, which aims to create an open and competitive single market for electronic communications services and networks in Europe and encourage innovation.

2. SPECIFIC OBJECTIVES

The general objective translates into a number of specific objectives of an EU action in the area of mobile roaming services. These objectives are intended to tackle the problem of excessive prices of mobile roaming communications, the underlining problem drivers (insufficient competition), the need for a consistent approach across the EU, improved transparency and low administrative burdens. Concerning the links between the specific objectives, they are complementary and they all support the general objective of strengthening the single market in mobile communications.

The following specific objectives have been identified:

1. To ensure that there is no return to the excessive retail and wholesale voice roaming prices that existed before the Regulation.

2. To ensure that there is a meaningful relationship between retail voice, SMS and roaming prices and the underlying costs of providing these services as well as between these prices and equivalent domestic prices.

3. To ensure adequate transparency for mobile users of prices for voice, SMS and data roaming services so that customers can be empowered to control their expenditure and avoid shock bills.

4. To ensure customers do not pay for more than they consume (taking account of reasonable set up charges) and that there is a consistent approach to the billing of voice roaming services across MS.

5. To ensure the maximum number of customers can avail of reasonable tariffs for voice, SMS and data roaming services in the shortest possible time.

6. To ensure that mobile operators can compete by differentiating their roaming services on the basis of quality and ease of use (transparency).

7. To ensure that operators can avail of wholesale rates for voice, SMS and data roaming services which will enable them to compete in the retail roaming market.

8. To ensure that any policy initiative does not hinder market and technological developments which may ultimately render regulation unnecessary in the longer term.

9. To minimise the administrative burden for market players and national regulatory authorities associated with implementation of any policy initiative.

10. To ensure maximum simplicity of any policy initiative in accordance with the principles of Better Regulation.

11. To ensure consistency of approach across Member States in relation to pricing at wholesale and retail levels, transparency measure and roaming billing approaches.

12. To ensure coherence of any initiative with principles contained in the Telecoms Regulatory Framework.

CHAPTER 5. ALTERNATIVE POLICY OPTIONS

Regulation should always be used as a last resort and only when it is clear that market forces will not bring about the desired objective. For example, regulation could be avoided if acceptable and effective self-regulation proved to be an option. It is necessary therefore to consider the potential impact of regulatory and non-regulatory approaches.

1. SELF REGULATION

Self-regulation is defined as the possibility for economic operators, the social partners, non governmental organisations or associations to adopt amongst themselves and for themselves common guidelines at European level (particularly codes of practice or sectoral agreements). As one of its responsibilities, the Commission scrutinises self-regulatory practices in order to verify that they comply with the provisions of the EC Treaty. The Commission notifies the European Parliament and the Council of the self-regulatory practices that it regards, on the one hand, as contributing to the attainment of the EC Treaty objectives and as being compatible with its provisions and, on the other, as being satisfactory in terms of the representativeness of the parties concerned, sectoral and geographical cover and the added value of the commitments given.

While it is understood that some operators within the industry have explored possibilities for a more structured approach to wholesale data charging, these initiatives have not proved successful and, even if they had, they may have raised issues under EU competition law.

The success of self-regulation would depend on how effective the industry can be in ensuring compliance by members. The complexity of voice, data and SMS roaming charges means that assessing compliance is extremely challenging and would require significant industry resources. The absence of effective sanctions could prove to be a problem.

In view of past experience and the underlying structural limitations on competition in the roaming markets, leaving the problems to be addressed by means of self-regulation does not seem to be a viable solution.

2. CO-REGULATION

The co-regulation approach implies a regulatory framework in which the overall objectives, the deadlines and mechanisms for implementation, the methods of monitoring the application of the legislation and any sanctions are set out. The regulator also determines to what extent defining and implementing the measures can be left to the concerned parties. Such provisions, for example sectoral agreements, must be compatible with Community law and must be in the interests of the public. Co-regulation must be transparent. Members of the public must have access to the act and to the implementing provisions.

This approach was not considered appropriate as an alternative to the current Regulation, which, as explained above, has been largely successful in addressing the problem of high voice roaming charges. Co-regulation is likely to be more effective than self-regulation but the fact that specific goals are broadly defined could prove to be a problem when it comes to measuring compliance. As in the case of self-regulation, clearly any collective industry action or agreements in relation to prices for voice, SMS or data roaming services could raise competition concerns. It is therefore considered that Co-regulation is not an appropriate approach.

3. SOFT LAW

Under this approach, the Commission could issue a Recommendation to Member States with guidelines on appropriate rates for voice, SMS and data roaming charges. An exercise of benchmarking SMS roaming and data roaming prices could be established on the basis of best practice prices across the Community. Such an approach would not bind Member States or operators but would rather act as a form of encouragement or target to be achieved. Such benchmarking would also increase transparency by highlighting the extent to which operators' voice, SMS and data roaming prices are out of line with best practice prices in the EU.

However, given the relative lack of response from the industry to calls for lower SMS roaming charges and the potential for widely differing approaches at national level (to what is a cross-border problem) and the fact that no one NRA has the necessary regulatory tools to address the problem at both the wholesale and the retail levels, it is considered unlikely that such a soft law approach would be sufficient to address the enduring problems that have been identified as underlying the roaming markets.

4. ASSESSMENT OF COMPETITION ASPECTS

When the Commission in the summer of 2006 first proposed to regulate the market for international roaming services in the Community, the wholesale segment of this market was listed in the Recommendation on relevant markets[36] as a market susceptible to *ex ante* regulation. The reason for having listed this market as a market susceptible to *ex ante* regulation was that the Commission, after due performance of the three-criteria test, came to the conclusion that this market was in need of sector-specific forward regulation rather than of mere *ex post* oversight under general competition policy.

Several national regulators started to review this market but were unable to identify any operator with significant market power (dominance) and to impose appropriate remedies to reduce high roaming charges.

The competition law principles embedded in the EU regulatory framework (i.e. that a market is defined in accordance with supply and demand characteristics and that regulatory interventions should remove distortions of competition on identified product markets) govern the present analysis. While mobile services are typically sold as a bundle, it is often necessary based on competition law principles for the regulator to analyze individual supply and demand peculiarities of each element. For instance, in the past, regulators have looked at possible anti-competitive effects of on-net/off-net domestic call price differentials; at possible

[36] Commission Recommendation of 11 February 2003, 2003/311/EC

distortions arising from mobile call termination; or again at the economic characteristics of domestic SMS termination. Similarly, as regards international mobile roaming services, voice, SMS and data services in their respective wholesale and retail aspects may be regarded as separate product markets and require careful and separate analysis in order to arrive at a thorough understanding of the issues involved.[37]

This impact assessment examines various policy options designed to harmonize the prospective regulatory treatment of mobile roaming services in the Community. In this respect, it posits that the structural characteristics – in conjunction with its cross-border nature and importance for the internal market - pertaining to the market for voice roaming services (which necessitated the inclusion of this market in Recommendation 2003/311/EC) hold true in analogous fashion for SMS roaming services, and, albeit to a lesser extent[38], for mobile data roaming services.

Could competition policy alone tackle high data roaming prices?
It is conceivable that the instruments of EU competition policy alone could be used to address some of the issues discussed in chapter 9 below. In particular, one can imagine a situation where a finding of dominance on the wholesale market for mobile data roaming services might be the basis for a further finding of abusive (excessive pricing) behaviour and subsequent fines. However, any such inquiry would be complicated by the current ineffectiveness of traffic steering (raising questions of collective dominance and/or collusive behaviour), questions relating to substitution of data roaming by other access forms, such as WiMax, and the incentive-distorting cross-border nature of the service which suggests that the application of a competition law approach would be difficult and rather time consuming. Moreover, competition law procedures could only tackle individual operators' pricing behaviour whereas the proposal tries to address a situation where a large number of operators pursue a policy of excessive prices. A sector-specific approach is thus favoured here.

It should be stressed at the outset that harmonizing the regulatory treatment of mobile roaming services in the Community is not tantamount to an attempt to simulate a hypothetical competitive process or outcome. The difficulties for a regulator to specify the price for a product or service which would be the outcome of a hypothetical competitive equilibrium situation are well-known. First, though in a static setting (where investment is the exception and there are no economies of scale) the competitive outcome would be that prices are equal to marginal or incremental costs, such outcome is difficult to be computed by the regulator in practice because of imperfect information. Second, in a dynamic setting (where fixed costs are high and where there are barriers to entry), the competitive outcome may well be higher than incremental costs. In fact, the only thing that could safely be asserted in such a setting is that the competitive level will result in prices somewhere between incremental costs and stand-alone costs. It is therefore not the task of this impact assessment to make a judgment on a hypothetically competitive price for roaming services.

[37] This is not to say that the impact of potential regulation does not need to be read in the larger context; see the annex for a comparison of some of the potential financial impacts on industry stemming from the regulation of roaming services with overall market parameters.

[38] Substitutability, the nature of price vs. quality competition and the stage of market development differ for this service. See chapter 9 below.

Rather, the Commission's impact assessment accompanying Regulation (EC) No 717/2007 identified the 'absence of a meaningful relationship between prices for EU-wide roaming at both wholesale and retail level one the one hand, and the underlying costs of service provision on the other' as one of the key problems the regulation was designed to address. In other terms, it emphasized the disconnection between the cost structure and the observed prices in the EU for voice roaming services. For example, it was argued that while the costs of producing an outgoing roaming call could be approximated by applying a two or three times multiple of the average EU mobile termination rate (MTR), the actual price charged was several times higher, and thus arguably not reflective of economic value. This analysis remains valid today and, *mutatis mutandis*, applies to today's SMS and mobile data roaming prices.

The same is true for other parameters such as profit margins. While elsewhere in the mobile bundle competition has driven average profit margins to EBITDA[39] levels of often below 40 percent, the margin made on roaming services is substantially higher.[40] Furthermore, it is also true that since the adoption of the voice roaming regulation (and indeed during many years preceding it) there was no significant actual or potential entry which could have constrained existing pricing practices. Indeed, no such entry should be expected barring significant and unforeseen technological progress – despite the attraction of potentially high profit margins in the absence of regulation.

Overall, it would be a strong signal for emerging competition on roaming services if a significant number of operators could be observed to engage in price competition below the regulated caps, or if market forces were gradually to drive down roaming prices to the level of comparable, i.e. domestic, services. In the current implementation period of the voice regulation, no such thing could however be observed. Only a minority of EU mobile customers has been offered a Eurotariff below the regulated price caps, and alternative offers still have to gain traction.

The lack of competition signalled by the above considerations, the cross-border nature of roaming services as well as their importance to the completion of the internal market, are thus central to the proposal to impose transparency obligations and to set certain price ceilings for voice, SMS and data roaming services, which allow operators to compete by offering better terms and conditions at both the wholesale and retail levels.

For the sake of completeness, one may finally ask whether there is a point at which the market would be deemed to be competitive. On this issue, competition has clearly both a process-dimension (such as market entry/exit or the number of players) and a performance-dimension (such as resulting prices or profit margins). It would therefore be reductionist for the regulator to set an artificial milestone (such as a hypothetically correct price or a 'fair' profit margin for industry), which, if reached, would trigger the end of regulation. Rather, the competitive dynamics of the market, including the behaviour of participants and the evolving market structure, should be carefully followed in the period going-forward to evaluate whether

[39] Earnings before interest, taxes, depreciation and amortization (EBITDA).

[40] For instance, the margin on SMS roaming services by some measure can be estimated to be close to a multiple of 8.5 of the cost base. Similar findings apply to data roaming. Nor are these margins readily justifiable by some simple reference to Ramsey pricing (as occasionally submitted by some industry players).

regulation remains, all things considered, the best available option available from an internal market perspective.

5. TARGETED REGULATION

The following chapters examine options for regulatory intervention to address the main problem areas identified in Chapter 2. Assessment of possible ways of addressing the problems of the mobile roaming market is relatively complex. For this reason and for the reason of proportionality, options are formulated at different levels (general options and more detailed sub-options) and their assessment is carried out in two stages. In the first phase, all options (apart from those that are discarded already at the beginning) will be assessed against a predefined set of five assessment criteria. These criteria are closely linked to the specific objectives identified in section 4. In the second stage (an in-depth quantitative and qualitative impact analysis) is provided only for those options that score best in terms of achieving the objectives. In the final comparison stage, the detailed sub-options will be benchmarked against the same five assessment criteria taking into account the results of the in-depth impact analysis and final conclusions will be drawn. The criteria are as follows:

Effectiveness – the extent to which the options achieve the main objective of reducing the mobile roaming charges. This criterion relates to objectives 1 to 5.

Competition – the extent to which the options improve competition on the mobile market and strengthen competitive pressures. This criterion relates to objectives 6-8.

Efficiency – normally measures the extent to which the objectives can be achieved at least costs. The cost of any proposed measure would include administrative costs (link to the objective 9), compliance costs for mobile operators (e.g. cost of implementing regulatory measures) and the expected loss in profits (in case of price regulation). For options where existing data and evidence allows quantitative modelling of costs and benefits, a full cost-benefit analysis will be performed and the criterion will measure the difference between costs and benefits in terms of the overall social welfare.

Consistency – the extent to which the options provide for a harmonised outcome and prevent market fragmentation. This criterion relates to the objectives 10 and 11.

Coherence – the extent to which the options are coherent with the general principles of the electronic communications regulatory framework and EU law in general. This criterion relates to the objective 12.

CHAPTER 6. VOICE ROAMING OPTIONS

1. VOICE ROAMING POLICY OPTIONS

1.1. No policy change

Before taking action, regulatory or otherwise, to resolve a particular problem the possibility of 'doing nothing' should be considered. This is a base case against which other forms of action can be assessed. For the purposes of voice roaming services, the option of 'no policy change' would effectively mean allowing the Regulation to expire on 30 June 2010, with the resulting removal of all the regulatory obligations currently contained in it.

As noted in the section on voice problem definition, the evidence suggests that given the structural characteristics of the voice roaming market and the evidentiary record of the regulated period, removing either wholesale or retail price regulation for voice would not be an effective option. There is a significant risk that the underlying lack of competitive pressures in the voice roaming market and the incentive for mobile operators to maximise their roaming revenues would translate into a return to higher retail and wholesale prices for intra-Community roaming if the pricing obligations in the Regulation were to disappear on its expiry in 2010. For this reason it is concluded that the Regulation should be extended beyond 2010.

In the longer term market and technological developments may render regulation unnecessary. For example, Voice over IP (internet protocol) has to a certain extent revolutionised fixed telephony, paving the way for cheaper voice services and the provision of innovative services. The advent of 3G networks and Wi-Fi hotspots is leading to interesting developments in mobile services. New mobile handsets which are capable of providing mobile over IP are also emerging. However, IP mobile telephony is set to become a reality only in the medium term. It is predicted that voice traffic won't significantly move to VoIP until around 2013 – 2015, after the period considered for extension of the Roaming Regulation..[41]

The Regulation should therefore be extended in duration. This section addresses the options for extending the Regulation including its duration and structure.

1.2. Duration

The Regulation should be extended over a reasonable period which will ensure continuation of the benefits while providing sufficient time to assess the extent to which real competition may have developed in the meantime. In light of the expected timing for future market developments, an extension of one or two years would not be sufficient for that purpose. The Commission services believe that a further period of three years from 30 June 2010 is

[41] See Analysys Research, "Forecasting the Commercial Impact of Wireless VoIP in the USA and Western Europe", 2006. But by 2015 Analysys predicted that 33% of mobile voice traffic in Western Europe will be carried using VoIP. 'Western Europe' is not defined in the report.

required in order to ensure that consumers continue to benefit from reasonable roaming rates while at the same time providing sufficient time for competition to develop and a review to be carried out.

1.3. Transparency regulation

The transparency measures for voice roaming services are an indispensable element of the current regulation. However, just as was the case for the current regulation (and in light of the fact that the underlying structural problems which justified voice regulation are still present) it is considered that transparency measures alone will not be effective.

1.4. Wholesale voice regulation

For the current Regulation, the ERG had indicated that it was not possible for any national regulatory authority to address effectively the high level of wholesale Community-wide roaming charges because of the difficulty in identifying undertakings with significant market power in view of the specific circumstances of international roaming, including its cross-border nature. National regulators continue to hold this view, and have indicated that the Regulation should be extended at wholesale level. Moreover section 2.2.3 above has shown that, while there has been some progress, in many Member States wholesale are still around the maximum allowed price ceilings, and that competition below these levels is limited. Wholesale voice regulation should be maintained for this reason alone.

A further consideration for why wholesale regulation was deemed necessary in the Regulation was to avoid the risk of disrupting the orderly functioning of the roaming market by putting smaller operators at a dramatic competitive disadvantage in particular where retail regulation is imposed (margin squeeze created by retail obligations combined with the absence of sufficient commercial bargaining power to be able to purchase adequately priced wholesale inputs). In particular, it should be noted that large groups are able to internalize large parts of their wholesale costs either by relying on transactions with fully-owned subsidiaries or by negotiating agreements with other large groups to form alliances (in which wholesale traffic is exchanged at massively discounted price levels). Smaller operators do not have access to either strategy; nor have larger operators used their superior competitive positioning and lower cost-base to undercut significantly the Eurotariff price caps at retail level (see section below).

A removal of wholesale caps in this setting is likely to be damaging to competition because it would seriously hinder the ability of smaller operators to compete with larger players. It is considered therefore that continued wholesale regulation is necessary.

1.5. Retail voice regulation

Section 2.2.4 above has shown that the regulated wholesale caps and the transparency obligations contained in the Regulation have so far failed to prompt operators to engage in significant price competition below the Eurotariff price caps at retail level.

One of the objectives of regulatory intervention was however to ensure that consumers can avail of reasonable retail roaming offers (on a sustainable and forward-looking basis), and that any excesses in the pricing structure be eliminated. If sufficient competition existed for the provision of retail roaming services the lower costs resulting from capped wholesale roaming charges would be passed through to the retail consumer - retail regulation would become unnecessary. The Regulation is based on the assumption that such pass-through to retail level would not occur. The ERG has agreed to this view, and concluded that pass-through of wholesale roaming price reductions to the retail level - in whole or at least to a significant extent - cannot be taken for granted.

One potential reason for very limited pass-through could be the fact that not all wholesale capacity is actually traded, with approximately 25-30% of large EU operator's wholesale roaming demand being met by group-owned subsidiaries. One could argue that industry-wide wholesale caps – whatever their level – can only be partially effective in these cases, and will not necessarily result in retail prices lower than the caps.[42] Another potential reason, as pointed out in the Commission's impact assessment accompanying Roaming Regulation is that

> 'because from a demand perspective receiving a call is a good substitute for making a call (rather than a complement) - the price difference between these two kinds of calls, active and passive, - is economically crucial: large price differences will lead to large substitution effects. Thus, there are good reasons to assume that the price level of active calls is determining indirectly the price level for passive calls – and vice versa. If this is true, then even a dramatic reduction in wholesale input prices would not result in comparable reductions at retail level for active calls […]'[43]

.

While the effectiveness of wholesale caps can be questioned, it is also possible that the current wholesale caps are too high, and work to reduce rather than maximize the retail margin available to operators inclined to engage in intense price competition on this service.[44] Consequently, by further reducing the current level of wholesale caps, operators would be granted a greater degree of pricing flexibility, potentially resulting in more effective competition (see section on regulatory options below).

From the arguments in the preceding sections it should be obvious that given the structural characteristics of the voice roaming market and the evidentiary record of the regulated period, regulation at both retail and wholesale level will continue to be necessary.

[42] A Commission analysis based on confidential operator data suggests that for the period Q2:2007 – Q1:2008 approximately 25-30% of large operators' wholesale roaming demand was produced in-house, i.e. by group-owned subsidiaries. In other terms, 25-30% of these groups' wholesale volume was captive or nor supplied as an exogenous (and market-priced) input factor. Note that these figures are confined to genuine intra-group traffic and do not include alliance-based traffic, which to some extent (particularly if priced in collusive fashion) might also be unaffected by wholesale caps.

[43] COM(2006) 382 final, p. 18

[44] This effect would be particularly pronounced for smaller non-alliance operators, which have to purchase wholesale capacity as genuinely external production inputs.

1.6. Summary evaluation and assessment of impacts

Returning to the evaluation criteria set out in Chapter 5 the choice between regulatory options can be summarised as follows:

Effectiveness

It is considered that a combination of transparency measures as well as retail and wholesale regulation is the only way to ensure an *effective* outcome. Retail regulation only could be damaging to *competition* as there is a strong possibility it will lead to margin squeeze for smaller players. Equally, if regulation is applied at wholesale level only, it is likely that the consumer will not see the benefits in the form of lower retail prices. That leads to the conclusion that regulation should be imposed at both retail and wholesale levels to protect the interests of roaming customers.

It is sometimes claimed that the benefits flowing to consumers from regulated roaming prices could be invalidated by compensatory price changes of mobile operators elsewhere in the retail price structure – for example by price changes for domestic services. However, the Commission has argued in the past that such spillover effects (or waterbed effects) were unlikely to occur in a domestic setting where competitive forces (for instance MVNOs, who have only very few roaming customers) would always constrain operators' ability to price *ad libitum*. The data recently collected by ERG confirm that in fact there is no evidence of significant spillover effects due to the current regulation.

Competition

There is a competition problem in the voice roaming market which will not be addressed by transparency measures only or by allowing the Regulation to expire. While in the longer term, market developments may increase the possibility of achieving sustainable competition, in the medium term, a combination of retail, wholesale and transparency measures that provide flexibility to operators, could at least help to stimulate a degree of competition within the parameters of the regulation.

Efficiency

The administrative burden associated with the extension of the Regulation is likely to be relatively lower than was the case for the implementation of the current Regulation, given that many of the required measures are already in place e.g. data collection. In any case, even if regulatory measures had not been taken, data collection by national regulatory authorities to facilitate monitoring of market developments would still have been necessary. In the case of voice regulation, the measures are generally an extension of existing obligations where costs of implementation have already been incurred. The ERG believes that the ongoing administrative burden arising from the Regulation is relatively light, as the Regulation is largely self-enforcing, as a consequence of its design.

As for compliance costs, the GSMA estimates that the industry as a whole spent approximately €150 million to implement the Regulation (mainly overhead and staff). However, prior to the Regulation the industry had acknowledged that there was a problem with roaming charges but claimed that this could be addressed without the need for regulation. Therefore, even in the absence of regulation, operators would have incurred costs in implementing alternative transparency measures as well as other roaming offers. Therefore it seems likely that part of the estimated cost suggested by the GSMA would have been incurred in any case. Finally the GSMA estimate obviously needs to be read in the context of the €2.3 - €2.7 billion gains in consumer welfare as a result of the Regulation in the first year alone.

Consistency

One of the key benefits of the current Regulation is consistency of approach at wholesale and retail levels and in terms of uniform basic transparency requirements. A major part of the problem with roaming was that no one NRA on its own could tackle the problem since it could not control the wholesale charges imposed on its own operators by operators from another Member State. Equally, if an NRA had been able to intervene to control wholesale charges within its own Member State, this could only have benefited consumers in another Member State and then only if pass-through had occurred. At retail level, the Eurotariff provides EU citizens with a guaranteed maximum roaming charge anywhere in the EU.

Coherence

As stated earlier, the problem of persistently high and unjustified roaming charges could not be addressed under the Telecoms Regulatory Framework. Nevertheless the proposed extension of voice regulation is consistent with the general principles of that Framework. For example, the proposed extension of voice roaming regulation will aim to preserve flexibility for competition while at the same time protecting consumers and, as noted above, providing a consistent approach. These are all key principles of the EU regulatory framework. This extension gives a similar role, for example, in terms of monitoring and dispute resolution, to NRAs as exists in the framework.

In the table below, the options are measured against the pre-defined criteria set out in Chapter 5. Each scenario is rated between "---" (very negative impact), "=" (no change) and "+++" (very positive impact). The scores are expressed in absolute terms and show to what extent the main regulatory options achieve the specific objectives identified in Chapter 4.

Criteria / Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
No policy change	--	--	=	--	--
Transparency only	+	+	+	+	+
Wholesale regulation only	++	++	+	+	++
Retail regulation only	++	--	+	+	+
Wholesale and retail regulation including transparency	+++	++	+	++	++

The following section examines options for extension of the Regulation at retail and wholesale levels.

2. OPTIONS FOR WHOLESALE AND RETAIL REGULATION OF VOICE ROAMING SERVICES

2.1. Glide path for price ceilings

If, as has been argued in this impact assessment, regulation continues to be justified at both wholesale and retail level, it is necessary to ask whether going forward the existing price caps should be maintained or adjusted annually in accordance with a predetermined glide path.

Prices for domestic mobile services have generally declined over recent years as a result of competition. For example, the Commission's 13th Implementation Report shows that mobile prices in the low usage basket (as calculated by the OECD) have fallen by around 10%, and the prices for mobile services in the medium usage basket and the high usage basket have decreased by nearly 14%.[45] Arguably, prices for voice roaming services should similarly decline over time to reflect such developments.

Furthermore, the Regulation's price caps for voice roaming services should reflect lower input costs in future years. Current wholesale caps take account of the different elements involved in the production of roaming calls, in particular the cost of originating and terminating calls including overheads, signalling and transit. The most appropriate benchmark for call origination and call termination in the EU is the (typically regulated) mobile termination rate (MTR), which has seen significant annual decreases in the past. Accordingly, the Regulation's wholesale caps (and to some extent its retail caps) should reflect those decreases.[46] Details on the cost structure are provided in Annex I. With the exception of some small roaming specific costs, the cost structure does not differ significantly from that which applies to domestic calls.

2.2. Maintain current price ceilings

Under this option, the caps in place at the current expiry date of the Regulation (30 June 2010) would remain in place at the same levels for the duration of the extended regulation i.e. up to 30 June 2013. Compared to a glide path option, such an approach would have relatively less impact on the industry and at the same time would provide a degree of consumer protection. On the other hand, if roaming was a competitive market, one would expect that prices would fall to reflect increasing competition and lower costs. This approach would not be in line with the general price developments in the overall mobile sector.

In fact, in its response to the public consultation ERG suggest that if the caps had been set on the basis of earlier work carried out by Copenhagen Economics, the starting point would therefore be around 8€c/min lower, at both wholesale and retail levels, than the limits set out in the Regulation. There are two reasons for this difference. First, according to ERG, the charge caps set by Council and the European Parliament in the Regulation were higher than the levels implied by the independent cost analysis. Second, termination rates fell further than had been expected at the time the independent analysis was carried out. The current retail caps were deliberately set at generous levels to allow operators the flexibility to compete below these levels. If the caps are maintained at current levels actual prices could well continue to cluster close to the maximum ceilings. It is reasonable to expect that prices should decline to reflect anticipated further reductions in those costs over time. While a healthy margin should be maintained to allow for the possibility of competition, consumers should be entitled to expect some benefits in terms of lower retail prices as a result of declining costs. Therefore, there is no justification for departing from the approach taken in the current Regulation which also includes a glide path to reflect declining costs. For these reasons this option should be discarded.

[45] COM (2008) 153 March 2008

[46] Though perhaps not entirely, as the Regulation does not pursue a fully cost-orientated approach: the caps have been set with the twin aim of eliminating the excesses in the pricing structure while allowing operators a sufficient degree of freedom to innovate and profit.

	2010	2011	2012	2013
Retail outgoing	43	43	43	43
Retail incoming	19	19	19	19
Wholesale	26	26	26	26

2.3. Glide path option 1

This option is based on the proposal of ERG. The ERG posits that falling input costs – such as lower termination rates and other efficiencies - give scope for lower wholesale and retail roaming price caps. The ERG glide path in its reliance on projected further decreases in EU termination rates is premised on forecasts suggesting that MTRs are likely to fall by an average of 1 cent per year from 2008 onwards. ERG states that this fall in input costs is likely to justify a 2 cents reduction each year in the level of the wholesale cap. It is considered by ERG that these reductions at wholesale level justify reductions of 2 to 3 cents at retail level for outgoing calls. In order to be consistent with the linear glide path contained in the current Regulation, option 1 therefore proposes a glide path of 3 cents for outgoing calls. For incoming calls a similar approach is proposed.

The above approach would lead to the following glide path for voice services:

	2010	2011	2012	2013
Retail outgoing	43	40	37	34
Retail incoming	19	16	13	10
Wholesale	26	24	22	20

2.4. Glide path option 2 - with wider gap between wholesale and retail ceilings

An alternative option would consist in accepting the logic of decreasing production costs over time, yet to differentiate carefully between the extent of these decreases at wholesale level on the one hand and at retail level on the other.

Based on recent notifications and current experience with the EU mobile call termination markets in the context of the Article 7 procedure, the average EU mobile termination rate may be projected to decline from €0.1051 (January 2007) to just below €0.05 by 2012.[47] This corresponds to a compound annual reduction of 13.1% over the period from 2007 – 2012. Accordingly, the implied reduction in future wholesale price caps (starting at €0.26 in 2010) should be in line with this rate.

Turning to retail caps, it is safe to assume that any future efficiencies in production accruing from learning effects in marketing and retailing roaming services are likely to be less pronounced. Consequently, future retail caps should follow the glide path proposed in option 1 (which is a *continuum* of the path in the current Regulation) but should be set in slight divergence from the wholesale caps.

This approach would yield the following glide path:

	2010	**2011**	**2012**	**2013**
Retail outgoing	43	40	37	34
Retail incoming	19	16	13	10
Wholesale	26	23	20	17

The prime virtue of this option is that it serves to increase the margin available to operators between the wholesale and retail price caps, thereby potentially allowing additional room for price competition to emerge below the regulated Eurotariff caps.[48] Until 2013, the retail margin available to mobile operators would increase to 100% (from a current level of 65.3%).

Furthermore, in terms of relative competitive positioning of operators, while from an aggregate industry perspective the level wholesale rates is immaterial (IOTs cancel themselves out at overall EU industry level), smaller operators – in particular those unaffiliated with an alliance - could reap significant benefits from lower wholesale rates and spur future price competition.

3. VOICE REGULATION IMPACT ANALYSIS

The general impact of extending voice regulation at wholesale and retail level was examined in the previous section. This section looks at specific impacts relevant to the choice between the two glide path options presented in the preceding section.

[47] For purposes of accuracy, an average EU MTR of €0.048 has been projected for 2012.

[48] It is argued in Chapter 2 that as yet there is not significant evidence for innovation and competition to have developed underneath the regulated caps. The present option seeks to address this issue.

3.1. Consumer and industry welfare - economic impact

The Commission's economic model presents an assessment of the overall economic impact of option 1 for a glide path and the alternative approach which envisages a greater decline in the level of the wholesale caps over the extended period of the Regulation. The details are contained in Annex I.

For glide path option 1, the Commission's economic model suggests that, as a direct result of extended regulation, for the first year of the extension (to end June 2011) consumer welfare could be increased by approximately €3.4 and €4.7 billion (depending on the elasticity scenario) over the 2007 pre-regulation base case. Again depending on elasticity assumptions, the change in industry profits could range from an increase of €274 million to a decline of just over €1.1 billion for the same period. The effects on industry profitability are in fact more moderate than could have been expected, bearing in mind that the fall of wholesale costs that has been observed since the regulation came into force has opened up an increasing gap between the caps foreseen in the regulation and the actual costs. Finally, overall social welfare (the net effect of increased consumer welfare and changes in industry profits) would increase by between €2.3 and €5.0 billion.

For glide path option 2, the Commission's economic model suggests that, as a direct result of extended regulation, for the first year of the extension (to end June 2011) consumer welfare could be increased by approximately €3.5 and €5.0 billion (depending on the elasticity scenario) over the 2007 pre-regulation base case. Again depending on elasticity assumptions, the change in industry profits could range from an increase of €232 million to a decline of €1.2 billion for the same period. Finally, overall social welfare (the net effect of increased consumer welfare and changes in industry profits) would increase by between €2.3 and 5.2 billion. It should be recalled, as shown in Chapter 2 that, based on an estimate of 2007 pre-regulation revenues, voice roaming was valued at €5.17 billion which represents 3.8% of the total EU mobile market.

Glide path option 2 therefore produces a slightly greater overall social welfare result than glide path option 1.

3.2. Competition - impact on smaller operators

One of the aims of the current Regulation at wholesale level was to ensure that smaller operators did not suffer margin squeeze as a consequence of having to comply with maximum retail price ceilings while at the same time facing the possibility of relatively high charges imposed by larger operators at the wholesale level. Both options above continue to provide this protection. However, the second glide path allows for a steeper decline in wholesale caps compared to option 1. While this produces only a marginal difference in industry profits (largely because wholesale revenues and costs cancel each other out at the level of the industry) it nevertheless provides the possibility for enhanced competition at retail level by widening the margin in relative terms between wholesale and retail caps.

In terms of *efficiency (including administrative burden), coherence* with the general telecoms regulatory framework and *consistency of approach* both of these glide path options would score equally. However, it is considered that glide path option 2 would be more *effective* as it provides a greater opportunity for competition to work below the levels of the caps.

The following table summarises the comparison between these two glide path options in the context of the criteria specified in Chapter 5:

Criteria / Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
Glide path option 1	+	+	+	+	+
Glide path option 2	++	++	++	+	+

CHAPTER 7. BILLING UNITISATION POLICY OPTIONS

There are various options to amend the Regulation in order to address billing unitisation for roaming voice calls.

1. UNITISATION AT RETAIL LEVEL

The legal requirements applicable at national level to the retail billing practices of mobile operators differ across the Community. While in most Member States the billing unitisation practices of mobile operators are not regulated, in four Member States[49] per second billing obligations have been imposed.

The divergent legal requirements and practices applicable to the billing of roaming calls across the Community therefore can be seen to create different conditions in different Member States, thereby distorting competitive conditions in the single market. In addition, for consumers from the four Member States with per second billing obligations for domestic mobile phone calls, the user experience can change substantially simply by crossing a border in the case of operators who practice per minute charging for roaming calls.

Given the Community-wide, cross-border nature of intra-Community roaming services, it is therefore appropriate for the Regulation to harmonise the obligations on mobile operators in this regard, in the interests of strengthening the single market.

There is a range of options available for dealing with the unitisation issue at the retail level.

1.1. Do nothing

As experience with implementation of the Regulation has shown there appears to be little incentive for operators to change billing practices for voice roaming services. It has been noted that these roaming billing practices are not in line with general domestic billing practices where competition is more effective. As mentioned in Chapter 2 operators adopt divergent approaches in different Member States which is not conducive to the completion of a single market for electronic communications. Therefore it is considered that this problem will not be resolved in the absence of regulation.

1.2. Retail Billing Option 1 – Additional transparency obligations

For example, additional transparency obligations could be imposed, requiring operators to publish information on the actual price charged for calls of specific durations (e.g. how much a 30 second call will cost; how much a 61 second call will cost). This would make it easier for customers to be aware of the real costs of a roaming call and to compare the prices charged by different operators. However the underlying problem is primarily related to the charging mechanism as opposed to any lack of awareness on the part of the consumer This option

[49]France, Spain, Lithuania and Portugal.

would therefore be *ineffective* as it would not tackle the problem (that customers are being charged for services they do not receive) while adding considerably to the amount of pricing information that roaming customers will receive. . This option can therefore be discarded.

1.3. Retail Billing Option 2 – Strict per second billing obligation (1+1)

At retail level, it would also be possible to require strict per second billing, whereby home providers are required to bill their roaming customers on a per second basis from the first second of the call, i.e. both during the first minute of the call and during all subsequent minutes. This is referred to as the "1+1" approach. This approach would be the simplest and most *efficient* approach and have the most immediate and transparent effect on the roaming customer's bill. However, it would also preclude home providers from charging any form of set up or connection charge at the retail level, which was a common practice across the Community even before the entry into force of the Regulation. It would therefore have the biggest financial effect on the mobile operators. Moreover, this approach would also run contrary to the practice which now exists in the Member States which have a per second billing requirement under national law. In such cases a set up or connection charge is permitted, despite the obligation on operators to charge their customers on a per-second basis.

For incoming roaming calls, to align the underlying wholesale cost (the termination rate) to the retail cap, a strict per second basis is justified i.e. no minimum initial billing period.

1.4. Retail Billing Option 3 – Modified per second billing obligation (30+1)

In order to permit home providers to continue to include a reasonable set up charge in their retail bills, a modified per second billing obligation could be included in the Regulation, for example to allow a minimum initial charging interval (e.g. up to the first 60 seconds of a call, followed by per second billing for all subsequent periods (the "60+1" approach).

ERG notes that, in general, such a two-part tariff is not an unreasonable structure if cost causality is taken into account, given that fixed costs are incurred in setting up a call. A call of even one second will require VLR / HLR, Intelligent Network lookup (related to number portability) as well as single billing. These cost are minimal, however they should be considered. The ERG has also noted that 60 seconds (currently this would be 46 cents) is likely to far exceed the actual costs of setting up a call.

Setting a minimum billing period at a level of 30 seconds would serve two purposes. First, it would allow operators to recover comfortably the fixed set up. Secondly, because this approach is comfortably above costs it conforms with the principle set out in the current Regulation to allow operators the freedom to compete by differentiating their offerings and adapting their tariff structures thus allowing operators to offer shorter minimum charging periods or even full per second billing.

It may therefore be appropriate to allow a lesser initial charging period at a maximum level of 30 seconds (30+1), to cover the set up costs. Therefore this is the <u>maximum</u> that any operator could impose as a fixed set up charge. Operators are free to impose lower set up charges or indeed to opt for strict per second billing.

No minimum initial charging period is justified in the case of Eurotariff calls received, as the underlying wholesale cost is charged on a per second basis and any specific set up costs are already covered by mobile termination rates.

1.5. Retail Billing Option 4 – Further reduction of the price caps

Finally, the maximum price limits for roaming voice calls set by the Regulation could be reduced further, by an amount calculated to compensate consumers financially for the billing unitisation practices currently being applied. This option would be *ineffective* and disproportionate as it would penalise those operators which currently apply per second billing on a voluntary basis and create an overwhelming incentive for all operators to move to billing on a per minute basis for both the first and subsequent minutes. It should therefore be discarded.

2. UNITISATION AT WHOLESALE LEVEL

Since the move by some operators to per minute billing at retail level has been explained by the need to recover wholesale costs charged on a per-minute basis, it will be necessary to also look at wholesale charges and whether these should be billed on a per-second basis.

2.1. Wholesale Billing Option – Do nothing

Currently, wholesale interconnection charges between operators are billed on a per second basis across the Community. However, given the fact that the current practice is for wholesale charges for roaming to be charged on a per minute basis, in particular for the 1st minute, intervention at the retail level to protect consumers and harmonise the practice in the EU would require intervention at the wholesale level since per-minute wholesale charges could give rise to margin squeeze for particularly short calls. Therefore the 'do nothing' option is not a viable proposition.

2.2. Wholesale Billing Option – Per-second billing

At the moment, there are inconsistent approaches to charging at the wholesale level. While there are some operators that already charge IOTs on a per-second basis, there are others which have a set-up charge included in their agreements. This may vary but in most cases is billed at 60 seconds.

The fixed costs of setting up a call at the wholesale level are already taken account of in regulated termination charges. In addition a per second basis is in general applied for other wholesale interconnection charges at domestic level.
Since wholesale interconnection charges at domestic level (termination rates) are in general charged on a per-second basis, it would be appropriate to introduce such a charging mechanism as this would be the most effective outcome in dealing with the problem. For this reason, the Commission services agree with the ERG that there is no justification for billing other than the actual volume. In particular, a per-second approach at the wholesale level might also enable some operators to charge on a strict per-second basis at the retail level.

3. ASSESSMENT OF IMPACTS

3.1. Consumer and industry welfare - economic impact

The distribution of call length is not available to enable the Commission services to estimate the duration of calls and this is not expected to become available even in the medium term. Nevertheless, if one where to assume a move to a complete per second billing system, (since 2007), then consumers would have made savings of nearly €1 billion for both calls made and received (broken down into €696 million for calls made and €242 million for calls made)[50]. However, the impact on the industry is mitigated by that fact that a maximum 30 second set-up charge will be permitted.

3.2. Competition - impact on smaller operators

The move to per-second billing at wholesale level will give smaller operators more flexibility particularly to compete at the retail level. Currently, it would not be feasible for such operators to move to per-second billing at the retail level even if they wanted to for competitive reasons since they often have to pay on a per-minute basis at wholesale level. Therefore at the wholesale level, a move to per-second billing allows for more competition.

4. SUMMARY EVALUATION

Effectiveness

Option 3 (modified per second 30+1) will deliver the most effective outcome as it will remove the 'hidden charge' of billing per minute while at the same time allowing a reasonable set-up charge for operators. Moreover, the decision to move to per-second billing at the wholesale level may also encourage more competition at the retail level by allowing operators to charge a set-up fee lower than 30 cents.

Efficiency

Once a decision has been taken to intervene, any option would require some minor changes to the billing systems but these may be considered as minimal and therefore should not have any material impact on operators.

Competition

The suggested option of 30+1 is preferable to transparency or strict per second billing in terms of competition. It is envisaged that this would apply to the Eurotariff only and as such operators would be free to provide other offers with different structures. The move to per second billing at wholesale level could help to stimulate further competition.

Coherence

[50] Based on ERG estimates of impact of per minute billing combined with Commission market data

While modified per second billing is not mandated as part of the Telecoms Regulatory Framework, it is considered that the case of roaming is exceptional in that it does not exhibit the competitive tendencies of other mobile services. Set-up charges followed by per second billing are common practice for domestic mobile services.

Consistency

A move to a 30+1 billing regime for roaming would encourage consistency of approach as it is possible that if Member States were to act to address this problem it would give rise to diverse approaches across the EU. This approach is also consistent with commercial practice for domestic charges and with charging at wholesale level domestically.

The following table summarises the impacts of the various options for voice billing unitisation:

Criteria / Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
Do nothing	-	-	-	-	-
Strict per second (1+1)	+	-	+	-	-
Modified per second	++	+	++	+	+

CHAPTER 8. SMS POLICY OPTIONS

1. REGULATION OF SMS ROAMING SERVICES

Before taking action, regulatory or otherwise, to resolve a particular problem the possibility of ‘doing nothing’ should be considered.

1.1. No policy change

The option of 'no policy change' would mean not intervening on SMS roaming prices, i.e. allowing market forces to drive prices down. As noted above, there is strong evidence that SMS prices are unjustifiably high, at several times the cost of provision, and that they have been relatively stable for some time.

The discrepancy between domestic SMS prices and SMS roaming prices remains unjustifiably high. Despite recent strong calls from the European Commission and national regulators for significant price reductions, there has been relatively little movement in the market. In fact, as previously mentioned, the average EU SMS retail price for Q1 2008 is around 28.5[51] cent which is (if at all and not only due to statistics) only a very slight decline on the figure of 29 cent published by ERG for Q2 2007. Thus, in order to ensure that such prices decline over time in a manner consistent with trends which should be expected from a competitive market with declining costs, this option will not be effective.

It seems unlikely that there will be any major market or technological developments which would suggest that SMS roaming prices are likely to fall in the medium term in the absence of regulation. Thus, competition is not likely to be reinforced as a result of technological developments in the following years.

The 'No policy change' option may also result in an inconsistency problem. In fact, according to the available information the retail price of an SMS sent while abroad can range from 6 cents in Estonia and 80 cents in Belgium.

In terms of efficiency, this option could lead to contradictory results. On the one hand, NRAs or market players would not face the administrative burden resulting from the implementation of a new regulation. However, the European Commission, ERG and NRAs would most probably be required to continue the monitoring of market developments. The need for a new review of the roaming regulation in the near future could then be possible.

Therefore it is considered that the 'do nothing' option is not viable in this case.

1.2. Tariff Transparency for roaming SMS

It may be appropriate to adjust the provisions of Article 6 of the Regulation which provide for transparency of voice roaming prices and the provision of price information to roaming customers to also include price information on roaming SMS messages. As in the case of

[51] GSM Association have indicated that the average SMS roaming price in Q1 08 was 28 cent

voice, the transparency measures for SMS roaming services are an indispensable element of the current regulation. Also, given the fact that the underlying structural problems for SMS roaming are similar to those for voice roaming, it is considered that transparency measures alone will not be effective to address these problems.

1.3. Wholesale regulation only

If a price ceiling for wholesale SMS roaming charges (IOTs) only were imposed, this would be an efficient option in order to enable mobile operators to reduce their retail SMS roaming charges without the risk that their retail revenues would not cover the wholesale costs of providing the SMS roaming service to their customers.

However, to regulate only at wholesale level would assume that market forces would be sufficient to guarantee a substantial pass-through of wholesale reductions to the retail level within a relatively short period. The same economic arguments as apply to the voice roaming area would suggest that such an assumption would be ill-founded: given the lack of competitive pressures in the retail roaming markets, there is a significant risk that operators would not pass through the benefits of lower wholesale rates to their retail customers.

Thus, this option is unlikely to be effective as far as ensuring that customers will pay reasonable retail prices.

1.4. Retail regulation only

The imposition of price ceilings for SMS roaming services at the retail level would be effective in so far as it would achieve reductions in prices for consumers. However, without wholesale regulation, there is a risk that smaller operators could suffer margin squeeze because they may face relatively high wholesale charges while their retail prices are capped. This ultimately would not allow them to provide competitive SMS roaming offers.

Thus, this solution could also prevent efficient smaller operators from continuing to profit from the provision of voice, SMS or data roaming services. As was the case for voice roaming, the significance of this risk would suggest that retail regulation alone would not achieve the desired objectives of regulation.

This option could result in inconsistency as significant wholesale price differences might be incurred, which could result on unintended market distortions.

1.5. Wholesale and retail regulation

Assuming that regulation at wholesale level only or retail level only are not sufficient to achieve the objectives set, it is then necessary to consider regulation at both levels. From the problem definition section it is clear that the wholesale charges are not justified by the underlying costs to the host operator. Equally the retail margin is currently rather high without sufficient justification. Therefore, it is considered that wholesale and retail regulation are both necessary to ensure the removal of excessive retail and wholesale SMS roaming prices.

2. SUMMARY EVALUATION AND ASSESSMENT OF IMPACTS

Returning to the evaluation criteria set out in Chapter 5 the choice between regulatory options can be summarised as follows:

Effectiveness

As for voice, it is considered that a combination of transparency measures as well as retail and wholesale regulation would ensure an *effective* outcome. Equally, if regulation is applied at wholesale level only, it is likely that the consumer will not see the benefits in the form of lower retail prices. Retail only regulation could cause margin squeeze for small operators.

Competition

Retail regulation only could be damaging to *competition* as there is a strong possibility it will lead to margin squeeze for smaller players.

Wholesale and retail regulation would promote competition, as wholesale price regulation would be proposed at levels that would allow operators to obtain a reasonable return even in the case where an operator would set SMS retail prices below the caps. Under this option, smaller mobile operators would be protected from a price squeeze, which ultimately would result in less competition in the market.

Efficiency

The extension of wholesale and retail regulation to SMS would not cause any major administrative burden. For example, the ERG Benchmark Data Reports on international roaming already provides data for SMS.

It is important to refer again that National Regulators believe that the ongoing administrative burden arising from the Regulation is relatively light, as the Regulation is largely self-enforcing, as a consequence of its design.

Consistency

As for consistency, wholesale regulation only could have a positive effect at wholesale level, but as previously mentioned this may not have a significant impact at the retail level.

Wholesale and retail regulation would ensure consistency of approach across MS in relation to pricing at wholesale and retail levels for roaming services.

Coherence

As a result, this option is considered the most coherent with the general principles of the Regulatory Framework. In fact, it would contribute to the promotion of competition, and effective consumer protection and would have a decisive role as far as the harmonisation is concerned.

The extension would promote further development of the single market for electronic communications services for users of public mobile telephone networks for EU-wide roaming services when travelling within the Community.

In the table below, the options are measured against pre-defined criteria. Each scenario is rated between "---" (very negative impact), "=" (no change) and "+++" (very positive impact).

Criteria Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
No policy change	--	--	=	--	--
Tariff Transparency only	+	+	+	+	+
Wholesale regulation only	+	+	+	+	+
Retail regulation only	+	-	+	+	=
Wholesale and retail regulation plus transparency	++	++	+	+++	++

Assuming the current Regulation is to be extended to include regulation of SMS at retail and wholesale levels as well as transparency measures, the next issues to consider are the duration of such regulation and the levels of the price ceilings together with whether these should decline each year in accordance with a predetermined glide path.

3. DURATION

As shown earlier, SMS exhibits many of the same structural problems as in the case of voice. Market and technological developments which might render the need for regulation unnecessary are unlikely to occur in the short to medium term. There is a strong case for aligning the period of regulation with that of voice. This would ensure certainty for both consumers and market players while allowing sufficient time for real competition to develop over that period. Therefore the Regulation should be amended to include SMS roaming services with effect from 1 July 2009 for a period of four years to 30 June 2013.

4. OPTIONS FOR WHOLESALE AND RETAIL REGULATION

When a roaming customer sends an SMS, the visited network bills the home network a wholesale fee for the SMS origination service. The home network bills the roaming customer a retail fee for the complete service (which includes the origination leg and also the termination of the SMS on the recipient's terminal).

When setting the price ceilings for retail roaming SMS, it should be borne in mind that the termination rate at domestic level is generally not regulated. The termination payment faced by the retail operator is on average 4.36€c per SMS according to the latest ERG benchmarking (as mentioned in the ERG submission to the Public Consultation).

On the other hand, there are no wholesale or retail charges for receiving an SMS. Nevertheless, the cost for terminating the SMS at the visited network must also be taken into account when setting the price ceilings for roaming SMS. According to some submissions to the Public Consultation, the costs incurred at the wholesale level are minimal since an SMS is treated by the visited network as pure signalling.

The following section examines three options for regulation of wholesale and retail SMS roaming charges. The first is proposed by the Danish national regulatory authority (NITA) while the other options were proposed by ERG.

4.1. Option 1 – NITA cost model

The Ministry of Science Technology and Innovation of Denmark submitted as an Annex to its answer to the Public Consultation, a recent study carried out by the National IT and Telecom Agency, the Danish Regulatory Authority[52]. The study presents a comprehensive and detailed analysis of the prices and costs for SMS and data roaming services with a view to assessing whether regulatory intervention is needed.

According to NITA, the costs to the visited network (wholesale cost) of an SMS being sent can be categorised as follows:

- origination;
- international transit.

Also, according to NITA, the unit cost of sending an international roaming SMS is slightly less than the costs of sending a national SMS, since the SMS centre (SMSC) will not be used in originating an international roaming SMS. In relation to the international transit it is assumed that the costs for an SMS are very close to zero. NITA also suggests that operators should be compensated for the lack of wholesale cost coverage for receiving SMS. This

[52] http://en.itst.dk/interconnection-and-consumer-protection/filarkiv-international-roaming/English%20abstract.pdf

compensation would be equal to 0.40€c. Therefore the overall wholesale cost would result from the following formula:

Origination costs + international transit + Receiving SMS = 0.4 cents + 0 + 0.4 cents = 0.8 cents

At the retail level, according to NITA, the costs to the home operator related to a SMS sent from abroad can be divided into the following categories:

- handling/receiving SMS;
- termination of SMS;
- retail costs.

In its submission NITA states that the network elements used are the Mobile Service Switching Centre (MSC) and SMSC which together amount to 0.13€c /SMS.

As for the termination of SMS, a distinction is made between the following three scenarios:

- SMS terminating on the sender's home network
- SMS terminating on another network in the home country
- SMS terminating on another network where the recipient is roaming

The first scenario covers the situation in which the recipient is an end-user on the sender's home network. This results in an internal network cost of 0.40€c / SMS. The second scenario relates to the situation in which the recipient network is another national network in the home country. In this situation there is a termination payment from the sender's home network to the recipient's network of 2.68€c / SMS in Denmark. However, as previously mentioned the average termination rate in EU27 is around €4.36c. The third scenario considers the situation in which the recipient is roaming on a network other than the sender's home network. In this scenario, there are no termination charges to be paid.

NITA assumed that 20 per cent of the traffic is destined for end-users abroad i.e. roaming, while 80 per cent of the traffic is destined for end-users in the home country. It is also assumed that the home provider has a 25% market share, which will result in around 25% of the traffic to the home country terminating on the operator's own network, with 75 per cent of the traffic to the home country terminating on competing networks. On that basis, a weighted average price for termination costs can be calculated at 1.74€c per SMS based on the following formula:

0.2x 0 + 0.8x(0.25x 0.40€c + 0.75x 2.68)= 1.74€c / SMS

NITA estimates that the average absolute retail mark-up for a national SMS is 0.81€c / SMS. When the roaming customer receives an SMS while roaming, no termination charge is levied by the host network on the home (originating) network. Therefore, on the basis of the analysis above, the overall costs to the home network, excluding the visited network wholesale charge (IOT), are as follows:

Incurred costs	*€c / SMS*
Handling / receiving (SMSC)	0.13
Termination costs in 2009	1.74
Retail markup	0.81
Receiving SMS	0
Total	2.68

Therefore the total estimated cost to the home network (and consequently the retail price ceiling implied by the NITA analysis) is 3.48€c excluding VAT (0.8€ (wholesale level) + 2.68€c (retail level)).

4.2. Option 2 - Retail price ceiling at 15 cents

According to ERG, the costs faced by retail operators (in both this option and option 3 below) consist of:

- Wholesale charge (IOT) – which includes *inter alia* origination and international transit;

Plus home operator costs which include:

- Termination payment (payable by the home operator);
- Retail cost;
- Reasonable return.

As for regulation of wholesale charges, this method proposes that the wholesale price cap is set on the basis of national SMS termination rates. ERG uses the 75th percentile of European domestic non-regulated SMS termination rates as a starting point for its calculations. According to the latest ERG Benchmark Report on SMS termination rates, the average charge is 4.40€c, and the 75th percentile is 4.99€c. ERG state that the average rate would be expected to decline as charges are brought more into line with costs (NRAs estimate that this average would not exceed 4€c at 1 January 2010). On this basis, they estimate that the average cost for terminating an SMS is 4€c.

The cost of originating an SMS also needs to be covered, together with the other roaming-specific costs (e.g international transit). ERG believes that the roaming specific costs do not exceed 0.5€c per SMS. As for origination costs, the average cost of originating an SMS could also be estimated at 4€c. On this basis, ERG indicates that the total wholesale costs of provision of a roaming SMS (including reasonable return) could be assessed at 8€c (4€c for origination and 4€c for the unrecovered cost of terminating incoming SMS) per SMS[53].

53 This assumes that no wholesale charge is levied for termination of a roaming SMS and that the wholesale charge for originating a roaming SMS additionally covers the cost of terminating incoming SMS.

As mentioned above, in setting the retail cap, it is necessary to consider the termination payment on the home network, the retail cost and a reasonable return.

For the termination payment (as also in the NITA methodology – option 1) it is assumed an average operator's market share of 25%. Thus, 25% of the SMS traffic will terminate on its own network. In this case, the operator faces an internal network cost of around 0.5€c per SMS. On this basis the average termination payment can be calculated at 3,4€c (4,4€c*75%+0,5€c*25%). As far as the retail cost is concerned, ERG consider that the available data indicates that the mark-up could be lower than 1€c/SMS and as high as 3€c. This estimation is also confirmed by other submissions to the Public Consultation, and also in one of the meetings that the European Commission had with operators in the context of the review of the Roaming Regulation.

Overall, ERG indicate that it is not necessary to allow more than 7€c (which includes the termination payment, retail costs and a reasonable return) at the retail level for the recovery of costs plus a reasonable return.

This produces the following price ceilings over the period of regulation:

	2009	2010	2011	2012
Sending - Retail	15	15	15	15
Sending - Wholesale	8	8	8	8
Receiving – both retail and wholesale	0	0	0	0

ERG did not suggest a glide path for the future trend of these price ceilings. In fact, as the wholesale cap takes into consideration termination rates which are not regulated, it could be difficult to estimate an evolution for these termination rates.

ERG has indicated that this model has some drawbacks. Firstly, SMS termination rates are unregulated and set at a high level compared to real cost. Secondly, there is at the moment no complete SMS termination benchmark which can be used for this purpose, as the ERG benchmark exercise does not include all countries. This Report on SMS termination rates does however contain data from most Member States.

4.3. Option 3 - Retail price ceiling at 11 cents

The second method proposed by ERG for regulating wholesale and retail SMS roaming charges uses NITA's SMS price and cost analysis (option 1) as a basis but is more generous that the pure NITA approach in terms of the ceilings proposed.

Under this option, wholesale costs (including origination, international transit, interconnect costs and billing costs plus a reasonable return) would not exceed 2€c per SMS for any

European operator. As in option 2, ERG also added an allowance for the unrecovered cost of termination. Using this method, it is concluded that the total wholesale cost should not exceed 4€c per SMS. It should be noted that the equivalent figure under the pure NITA approach is 0.8€c.

At retail level, the price cap is calculated on the basis that termination is payable by the retail operator at an average rate of 4.4€c (i.e. using a similar method to option 2). ERG indicate that it is not necessary to allow more than 7€c to cover the home operator's costs plus a reasonable return (includes a termination charge of 3.4€c[54] plus retail costs and a reasonable return).

This formula would lead to the following SMS price ceilings:

	2009	2010	2011	2012
Sending - Retail	11	11	11	11
Sending - Wholesale	4	4	4	4
Receiving – both retail and wholesale	0	0	0	0

The advantage of this approach is that it gives a realistic estimate of the actual costs faced by operators at wholesale and retail levels for example by reflecting the real average termination rate in the EU27 (4,4€c) instead of the average termination of 2,68€c in Denmark only (used in option 1). ERG did not prescribe any glide path. Unlike the case of voice, where termination rates are regulated, it is difficult to predict a significant downward trend for underlying SMS roaming costs. It is therefore reasonable not to include a glide path for SMS price ceilings.

5. SMS IMPACT ANALYSIS

It is important to bear in mind issues that differentiate the voice and SMS roaming market. SMS termination rates are only regulated in France, while for voice, termination rates are regulated in all Member States. Therefore, when evaluating options for voice regulation, the use of the average regulated termination rate as a benchmark for wholesale prices provided transparency, simplicity and certainty. However, as this is not the case for SMS, the use of unregulated termination rates when setting IOT charges would not provide the same benefits. Furthermore, at the moment there is no complete SMS termination benchmark that can be used for this purpose. The ERG Benchmark Report on SMS termination rates does however contain data from most Member States.

Option 3 is considered an *effective* method given that it reflects a meaningful relationship between the wholesale SMS cap and the underlying costs of providing these services. However, as stated above, it should be noted that the retail price ceiling has to cover the real

54 Assuming that a mobile operator will terminate in average 25% of the SMS traffic on-net. On this basis the average termination payment can be calculated to 3,4€c (4,4€c*75% + 0,5€c*25%).

average cost of termination as this is in fact a cost incurred by the home operator whenever a roaming customer sends an SMS.

On the other hand, it should be borne in mind that option 1 is based on the relatively low SMS termination rate in Denmark, and therefore it is considered that it would produce price ceilings which are too aggressive for practical application in almost all Member States. Furthermore, termination rates for SMS (which are to be borne by the home operator) are not regulated and presently stand at 4.4 cent on average with considerably higher rates applying in some countries.

The main objective of regulation is to eliminate excessive prices while retaining flexibility for operators to compete below the levels of the caps. Option 1 above would result in SMS roaming caps that would be significantly below equivalent average domestic price levels in all Member States. For this reason, option 2 and 3 allow more space for *competition* as the difference between the retail price ceiling and the wholesale cap is higher in both of these options.

At wholesale level, option 3 is preferred over option 2 because it provides a better reflection of the wholesale costs actually incurred while at the same time proving greater flexibility than the approach advocated under option 1. At retail level, option 3 is clearly preferable from a consumer perspective. Like option 2, it still allows a generous margin above the wholesale cost and, unlike option 1, it reflects the real costs of termination payable by home operators.

In terms of *coherence* with the EU telecoms regulatory framework and *consistency of approach* options 2 and 3 would score equally. However, as noted above it is considered option 3 would be more *effective* and more efficient in terms of consumer benefits but would be equal in terms of *administrative burden*.

5.1. Social welfare

The Commission has modelled the options proposed by ERG (see Annex II for details).

For option 2 (15 cents), the Commission's economic model suggests that as a direct result of regulation consumer welfare could be increased by approximately €0.707 billion to €0.995 billion for every year of the regulation. The precise change would depend on the elasticity scenario regarded as the most realistic one. In this option, total economic welfare gains could be estimated to range from €0.639 to €1.301 billion, depending on the elasticity scenario.

In the case of option 3 (11 cents), the economic model suggests even a higher level of consumer welfare increase. In fact, in this case in every year of regulation the model yields a consumer welfare between €0.884 billion and €1.243 billion, according to the elasticity scenario. As for the social welfare, this option would result in an estimated gain ranging from €0.716 billion and €1.514 billion.

6. COMPARISON OF OPTIONS

In the table below, the options are measured against the pre-defined criteria described in Chapter 5. Each scenario is rated between "---" (very negative impact), "=" (no change) and "+++" (very positive impact).

Criteria / Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
Option 1 – NITA	+	-	+	+	=
Option 2 – (price ceiling of 15)	+	+	+	+	=
Option 3 – (price ceiling of 11)	++	+	++	+	=

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CHAPTER 9. DATA ROAMING POLICY OPTIONS

1. REGULATION OF DATA ROAMING SERVICES

In contrast to SMS roaming, prices for data roaming have shown significant movement over the last year. There is evidence to suggest that such movement is not just the result of political pressure but that there is also a genuine recognition on the part of operators that prices need to be reduced as a response to consumer concerns over 'bill shock' and to exploit the untapped potential for growth in the market. While prices at wholesale and retail levels remain high, there is a downward trend and, given that this is a developing market, the movement in prices that has occurred suggests that regulatory intervention to control prices needs to be considered very cautiously.

Before taking action, regulatory or otherwise, to resolve a particular problem the possibility of 'doing nothing' should be considered.

1.1. No policy change

In this case the option of 'no policy change' would mean no regulatory intervention i.e. allowing market forces to work. As noted above, the retail prices for data roaming services have declined from €5.81 per MB in Q2 2007 to €3.50 per MB in Q1 2008.

This price trend may therefore suggest that the market should be allowed to develop without regulatory intervention particularly as growth of these services in terms of volumes and revenues is also very much in evidence. Competition from WiFi services may put further pressure on prices for mobile data usage while roaming. Moreover, as more users take-up such services at home, in many cases by subscribing to monthly flat rate fees, the pressure on data roaming prices could continue to grow.

On the other hand, the continuing discrepancy between domestic data prices and roaming data prices remains high with a diverse pattern across Member States, leading to the ongoing possibility of 'bill shock' for consumers. As noted in Chapter 2, prices have increased in some Member States. While average wholesale prices may be falling, operators have reported that extremely high charges still exist leading to problems developing competitive retail offerings. Lack of transparency remains a key problem and it is far from certain that recent efforts by some operators to enhance transparency for this service will ensure that the problem of 'bill shock' is eliminated in all Member States particularly while retail and wholesale prices remain at current exorbitant levels. Therefore, while regulatory intervention should be treated cautiously, it is considered that measures of some form will still be necessary to tackle this problem.

1.2. Transparency regulation only

Lack of transparency is a key element of the problem and for data roaming services and consequently measures to improve transparency must be part of the solution. There are various approaches that could be considered for improving transparency starting from basic information provision requirements to more prescriptive measures. The main aim of such measures should be to improve price transparency for data roaming consumers by giving consumers the tools to control their expenditure for these services and also to inform them about the charges that apply when 'roaming' in the internal market. Targeted regulation in the form of improved transparency is therefore desirable. The options for achieving this are considered further below.

As noted in the problem definition section, 'bill shock' for data roaming services is a significant problem particularly for high volume users. It is also becoming evident that high volume users are not necessarily business customers but also residential customers who are increasingly accustomed to using mobile broadband services at home. While many operators have recognised this problem, concrete transparency measures are necessary to address this problem. The question is whether such measures on their own would be sufficient to address the key underlying problems in this market or whether these measures need to be supplemented with either wholesale or retail regulation.

Transparency measures will help to address the problem of 'bill shock' by increasing consumer awareness of the retail charges and by giving consumers the tools to control expenditure. However, while helping to increase consumer awareness, such measures are unlikely to address the extreme levels of the prices at either the retail or wholesale levels. The merits of wholesale and/or regulation are considered below. Options for transparency regulatory measures are considered in more detail later in section 4 of this Chapter.

1.3. Wholesale regulation

High wholesale charges (particularly on non-preferred networks), combined with traffic steering difficulties for data roaming, are causing a lack of predictability for operators in relation to their wholesale costs, which translate into difficulties with providing transparent retail offers and clear information to consumers. If operators can have greater certainty and control over wholesale costs this is likely to enhance transparency at retail level particularly, for example, by allowing for more flat-rate offers or for lower per MB charges. Such extremely high rates arise when traffic cannot be steered onto preferred networks which would normally offer reasonable rates. Some operators have indicated that these high wholesale prices limit their capacity to offer lower retail tariffs and note that, even in cases where just one operator in a given Member State retains a high wholesale rate, this has a negative impact on end-user prices.

The problem is caused by the relative ineffectiveness of traffic steering which results in operators having to pay exorbitant rates for the remaining traffic. In the first place, not all networks are homogenous and the different speed of roll-out of 3G networks and HSPA in particular means that there are quality issues that are not prevalent for voice or SMS. Moreover, these technological constraints mean that it is more likely that traffic is diverted onto non-preferred networks than for voice, thus incurring higher wholesale charges than would otherwise apply. Voice still remains the most important element in the negotiations for wholesale roaming and hence an operator is likely to steer all traffic to his preferred voice partner, irrespective of the wholesale price for data services.

A wholesale cap would eliminate these excessive charges. It is therefore considered that some form of wholesale regulation (in combination with transparency measures as per the previous section) is necessary.

1.4. Retail regulation only

The imposition of price ceilings for data roaming services at the retail level would be effective in ensuring reductions in prices for consumers. However, as explained in the problem definition section, the imposition of such a cap at retail level would require a corresponding reduction at wholesale level if all operators are to be in a position to offer the service without a suffering a loss.

Therefore, this solution could prevent even efficient smaller operators from being able to provide these services and this alone suggests that retail regulation only would not achieve the desired objectives.

1.5. Wholesale and retail regulation

Wholesale and retail regulation may be necessary if there is lack of competition at both levels. However, action to reduce the level of the wholesale charges is likely to have a positive effect on retail prices. Current levels of wholesale prices (as described above) constrain market players (particularly smaller players) from competing at retail level e.g. particularly their ability to offer flat-rate packages at retail level.

Unlike voice and SMS roaming, data roaming face potential competition from other forms of access, such as wireless access (WiFi) and broadband access from fixed locations (e.g. in hotels). Indeed, it appears that this kind of access is generally developing and spreading. Another option is for the roaming customer to use a local domestic mobile broadband SIM card which is a more attractive option than for voice or SMS because there is no numbering constraint associated with the usage of data services i.e. the customer is not worried about losing their number. The fact that data services are not linked to a mobile number also increases the possibility that customers will shop around for more attractive data roaming packages without severing service with their current domestic provider.

This option therefore should not be considered at this stage of the development of the data roaming market.

2. SUMMARY CONCLUSION ON REGULATORY APPROACH

Returning to the evaluation criteria set out in Chapter 5 the choice between regulatory options can be summarised as follows:

Effectiveness

A combination of transparency measures as well as some form of wholesale regulation is the optimal way to ensure an effective outcome. Retail regulation, either alone, or together with wholesale regulation for data services is extremely difficult in view of the fact that there is a very wide range of services which would need to be addressed. Moreover, different consumers have different needs suggesting that a one-size fits all approach would be extremely restrictive and highly ineffective, at least at this stage of development of the market. Moreover, retail regulation alone could lead to margin squeeze for smaller operators.

This leads to the conclusion that regulation should be imposed at wholesale levels to encourage competition in the market while also ensuring that transparency measures are in place to protect consumers.

Competition

Data roaming services are negotiated between operators together with voice and SMS. For many years, there was little emphasis on prices for data roaming in these negotiations at the wholesale level since the main emphasis was on voice. By tackling the high prices which exist on non-preferred networks, intervention at the wholesale level will help stimulate competition at the retail level.

Efficiency

A combination of transparency measures as well as some form of wholesale regulation for data services would not cause any major administrative burden. For example, the ERG Benchmark Data Reports on international roaming already covers data services.

It is important to reiterate that national regulators believe that the ongoing administrative burden arising from the Regulation is relatively light, as the Regulation is largely self-enforcing, as a consequence of its design.

The Commission is aware that operators will incur costs resulting from the introduction of tariff transparency measures. However, as recognised by all respondents including operators in their submissions to the public consultations, the implementation of such transparency measures is needed.

Consistency

One of the key benefits of the current Regulation is consistency of approach at wholesale and retail levels and in terms of uniform basic transparency requirements. Regulatory intervention was required because no NRA on its own could tackle the problem since it could not control the wholesale charges imposed on its own operators by operators from another Member State. Equally, if an NRA had been able to intervene to control wholesale charges within its own Member State, this could only have benefited consumers in another Member State and then only if pass-through had occurred. These issues are equally valid for data roaming. In the case of data roaming, a consistent approach to transparency would do much to eliminate bill shock for consumers.

Coherence

A combination of transparency measures coupled with a form of wholesale regulation will preserve flexibility for competition while at the same time protecting consumers and, as noted above, providing a consistent approach. These are all key principles of the general regulatory framework. This extension gives a similar role, for example, in terms of monitoring and dispute resolution, to NRAs as exists in the general framework.

3. COMPARISON OF OPTIONS

In the table below, the options are measured against pre-defined criteria. Each scenario is rated between "---" (very negative impact), "=" (no change) and "+++" (very positive impact).

Criteria / Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
No policy change	-	-	=	-	-
Transparency only	+	+	+	+	+
Wholesale regulation plus transparency	++	+	+	++	++
Retail regulation only	+	--	=	+	-
Wholesale and retail regulation	+	=	=	++	=

4. DETAILED OPTIONS FOR TRANSPARENCY REGULATION

The options for transparency regulation are as follows:

4.1. Provision of basic pricing information

The first time that a roaming customer initiates a data roaming service, his home provider should provide him automatically with personalised tariff information on the charges applicable to that roaming customer. The customer should have the right to opt out of receiving such information. This service should be provided free of charge to consumers. While for those with a mobile device such an obligation could take the form of an SMS, for laptop users initiating a data roaming session, this could either take the form of an SMS, email or a welcome page which informs the customer of the costs that apply.

4.2. Cut-off and warning limits

Mobile operators should offer all their roaming customers, free of charge, an opportunity to specify in advance a maximum financial limit for their outstanding charges for data roaming services (the "Cut-Off Limit").

Mobile operators should also ensure that an appropriate warning message is sent to the roaming customer's mobile telephone or other device when one or more intermediate charge limits, agreed between the customer and the home provider in advance, are reached. This warning message could inform the roaming customer of the approach of the "Cut-Off Limit" and of the procedure to be followed by the customer if he or she wishes to request the continued or renewed provision of those services.

Such an approach would enable consumers to determine in advance, how much they are willing to spend, before the mobile operator cut-offs the service temporarily unless they opt-in again. This approach would also directly tackle the problem of 'bill shock' since a customer would have to decide in advance of his spending limit and then is again informed when this limit is reached.

4.3. Real time expenditure information

Some operators are already developing real-time expenditure information systems or near real-time systems particularly for laptop users. Other operators are also in the process of developing such systems which enable customers to determine the exact amount of volume and price that is being charged for their data roaming sessions. Such a measure may take longer to implement, particularly for smaller operators who do not have the economies of scale required to develop such systems. It still has to be seen whether such an approach would be feasible for handsets since software developments may be required on existing devices.

4.4. Flat rate offer

A further safety measure could be that of imposing an obligation on operators to offer a flat-rate tariff in view of the fact that many customers are becoming used to flat-rate tariffs for domestic use of data services. mobile operators should make available to their roaming customers a flat-rate tariff for the provision of data roaming services up to a specified 'fair use' volume limit. Such an offer should be provided on an 'opt-in' basis since such offers may not be attractive to some consumers.

While all of the options above have merit, it would be disproportionate to require all operators to introduce all of these measures by means of regulatory intervention. It is considered that the provision of basic price information is essential for consumers and should be considered further as a possible regulatory measure. Equally, allowing the consumer to choose cut-off limits would provide a very effective tool for dealing with the problem of 'bill shock'. While flat rate offers are an important market development which lead to improved transparency, it is unnecessary to require operators to provide such an offer by means of regulation. Real time expenditure information is clearly beneficial but, in light of the potential costs of developing such systems, particularly for smaller operators, this option should be discarded in terms of a possible regulatory measure.

5. DETAILED OPTIONS FOR WHOLESALE REGULATION

5.1. Option 1 – Aggressive Wholesale cap linked to best market offers

To date, there has been little work done by NRAs on costing approaches for data services. However, the Danish NRA, NITA, has noted that unit costs for downloading or sending 1MB of data on a visited network are approximately the same as those at national level. The average of Danish company's costs of downloading or sending 1 MB of data is 61 cents for GPRS and 37 cents for UMTS technology. The weighted average cost is 39 cents per MB while international transit is €0.0671. Therefore, according to the NITA figures, the total cost per MB for the visited network is estimated at 45 cents. However, many operators are already offering wholesale services at even lower levels.

At present according to information received from operators, there are offers in the market of 25 cents and 50 cents on a reciprocal basis. According to the ERG the average wholesale charge per MB for 'group' companies is around 50 cents per MB. This raises the possibility of establishing a benchmark cap at a much lower rate (for example, 25 cents per MB is already being offered on a reciprocal basis).

A wholesale cap, set at say 25 cents, could act as a strong catalyst for further competition at the retail level in the short-term. However it might also be too close to costs and therefore hinder operators' flexibility to compete at the wholesale level.

5.2. Option 2 –Wholesale cap set at safeguard level

An alternative approach to wholesale regulation could be to set a wholesale cap which would eliminate extreme prices which in many cases can exceed €10 per MB. Such a cap should be set well above the more recent market offers (e.g. 50 cents and 25 cents) and also above the average group rate per MB which is currently at around 50 cent per MB. The latest figures from ERG indicate that the average EU price per MB for non-group operators has dropped from €2.56 in Q4 2007 to €2.00 for Q1 2008. The relatively high non-group average is a direct result of the traffic steering problem noted above.

While it is likely that this price per MB will fall by the time the regulation enters into force, many operators will continue to face the problem of relatively high charges on non-preferred networks. An average ceiling of €1 per MB is not a direct intervention on charges and is sufficiently above some current market offers (the effects of which will not yet have been seen in the ERG data) to avoid disruption of competitive forces and therefore minimises the risks that prices should cluster around the cap. It is also low enough to have a meaningful impact on the 'bill shock' problem at retail level. It is anticipated that at current rates of growth the impact of such offers will drive down the average per MB charge to well below the €1 per MB mark. Equally it would eliminate the extreme wholesale charges which currently hinder the development of competition at retail level.

5.3. Option 3 – A new wholesale model

A more radical change to the wholesale model could also be considered. For example, the charging system could be changed from the current per MB structure to a time-based approach. While this may lead to greater transparency, further study would be required to assess whether such an approach is feasible. For example, it is uncertain how such a charging practice would affect some devices which are permanently online but which do not consume high volumes.

Another approach could be to move to a pure wholesale model based on a yearly volume commitment by the home network which would enable retail flexibility while allowing the visited network to receive guaranteed revenue to cover its investments in capacity and coverage.

While these approaches have merit, it would be overly prescriptive to specify detailed charging structures given the developing nature of roaming data services' charging models.

The ERG has suggested that a possible alternative approach which could induce more competition in data roaming services might be for the roaming user to use a domestic mobile data service in the visited country. Because of potential technical difficulties, it is considered that this is not an option in the short or even medium term but is worthy of further consideration as a possible long term development.

6. ANALYSIS OF THE IMPACTS

Having looked at the options for data roaming services and concluded above that retail regulation is not necessary at this stage, the following section examines the impacts of the remaining options for transparency and wholesale regulation.

6.1. Transparency

As noted in section 4 above it is considered that two measures could be imposed, namely, the provision of basic price information and the requirement to offer consumers the possibility of choosing a cut-off limit.

6.1.1 Industry impact

The obligation to provide basic price information to customers and the obligation to enable them to specify cut-off limits with warning mechanisms should be sufficient to inform customers of the differences that apply when roaming and also ensure that the problem of 'bill shock' is addressed. Given that the relatively more onerous obligations of including a flat rate offer and real time updating have been discarded, it is considered that the impact on the industry of the remaining two options is very limited, particularly in the context of the consumer benefits. The provision of basic price information when roaming is a basic pre-requisite for the consumer to be informed. For the cut-off limits, a one year time lag would be allowed to enable market players to develop the necessary systems.

6.1.2 Consumer impact

Consumers should be able to opt-out of transparency systems and opt-in again within reasonable timeframes. The transparency measures proposed will consumers that are informed about prices and that have a choice to decide on how much they would like to spend before having the service cut-off, are more likely to use services particularly if they are not likely to be aware of the price and hence refrain from using such services.

6.1.3 Administrative burdens

The first chosen transparency measure to provide basic pricing information can be implemented in a relatively short-time frame. The second chosen transparency measure, to provide for a cut-off may require more administrative work for operators but in the medium-term should enable them to save time dealing with complaints from customers that have accumulated ‘bill shock’. Moreover, such measures, particularly for laptop users, could be applied at the point when a first data roaming session is started and therefore would not require prior contacting of the customer for example. The implementation of this measure is not likely to involve significant additional costs given the stated intention of many market players to implement measures to address the problem of 'bill shock'.

6.2. Wholesale regulation

Having discarded option 3 (new wholesale model) in the previous section, it is therefore necessary to look at what impacts the remaining two approaches would have both on consumers and on operators.

Data services, in particular data roaming services, are still in the early stages of market development. Given that this market is characterised mainly by early adopters, it would be very difficult to assess elasticity of demand particularly since it is not clear at this stage what impact a decrease in price would have on uptake in the market. While voice and SMS are relatively mature markets, the same cannot be said for data roaming services. Not every mobile user has a handset that is capable of making use of data services. For these reasons, the Commission services believe that the inclusion of roaming data services in the economic model in the Annex to this document would produce uncertain results.

6.2.1 Industry and consumer impact

Option 1

Under option 1 a price cap at 25 cents per MB would bring the wholesale prices down by more than 85% of what is currently being paid on average for non-group traffic. While not all operators have access to such wholesale rates, setting such a low cap could encourage operators to price these services at the cap, thereby potentially not leaving sufficient scope for competition.

As stated above, it is still early to determine the elasticities of demand that price decreases can bring. It would therefore be unrealistic to try to forecast what the increase in volume would be if the price was to decrease to cost levels. However, the impact on the industry of option 1 could be such as to limit long-term competition since for mobile broadband to develop in the internal market, the current wholesale model may need to be changed. Therefore a wholesale price cap based on initial cost-based work may prove to be detrimental in the long run.

From a consumer point of view, it may be argued that large operators already offer their customers packages that are based on the equivalent wholesale rates, particularly where the traffic is within the group network. However, while volumes are increasing, there is little evidence to indicate that prices at the retail level have yet reached a level that is close to what is being paid for the same service at home.

Option 2

While it is equally difficult to model the financial impact of option 2 it can be concluded that the impact on the industry may be deemed to be minimal, as the overall industry average wholesale charge per MB will decline to levels below the safeguard cap. Nevertheless for that proportion of traffic which cannot be steered effectively, it is unlikely that operators would reduce their wholesale rates unilaterally. For such traffic operators have no incentive to reduce prices since they would receive this traffic irrespective of the price that is being charged.

Such a safeguard approach will give operators more control of their wholesale costs and should therefore enable them to focus on retail prices that are of benefit to consumers. Together with transparency therefore, consumers are expected to benefit from lower retail prices for data roaming services and hence use the service more. Moreover, spillover effects for specific data services are deemed to be negligible since operators are at the moment offering data services at attractive prices domestically to encourage take-up.

6.2.2 Competition and impact on smaller operators

Under option 1 smaller operators will have access to lower wholesale prices but if such prices are set at levels which could be close to cost this will limit competition at the wholesale level. The aim of regulation should be to maximise flexibility for competition to occur while at the same time eliminating the extreme charges.

Option 2 preserves the possibility for competition at wholesale level while at the same time ensuring that operators will no longer have to face extreme charges on non-preferred networks. This will facilitate greater certainty and consequently enhanced competition at retail level.

6.2.3 Administrative burden

In terms of the administrative burden, the two options above do not vary considerably since both will require changes to wholesale agreements between operators. The first option may result in fewer wholesale agreements needing to be amended than under the second option. However, in this regard, as the ERG said in its submission to the public consultation, wholesale regulation of such services would be largely self-enforcing. In terms of impact on national regulatory authorities, the burden is likely to be limited since data collection of wholesale prices is already one of the regulatory activities arising from the regular ERG Benchmark Data Reports.

7. DURATION

As shown earlier, data exhibits many of the same structural problems as in the case of voice and SMS although with significant differences also apparent. Market and technological developments which might render the need for regulation unnecessary are unlikely to occur in the short to medium term. There is a strong case for aligning the period of regulation with that of voice and SMS. This would ensure certainty for both consumers and market players while allowing sufficient time for real competition to develop over that period. Therefore the Regulation should be amended to include wholesale regulation and transparency measures for data roaming services with effect from 1 July 2009 for a period of four years to 30 June 2013.

8. COMPARISON OF OPTIONS

In summary therefore it is considered that the transparency measures (basic information plus cut-off limits) together with option 2 (safeguard approach) for wholesale regulation is the preferred approach. This is summarised in the table below:

Criteria / Scenario	Effectiveness	Competition	Efficiency	Consistency	Coherence
Option 1 Wholesale cap	+	+	+	+	+
Option 2 Safeguard approach	+	++	+	+	+

CHAPTER 10. EVALUATION AND MONITORING

Extension of the mobile roaming regulation will continue to be monitored very closely both by the NRAs and the Commission. Already under the current roaming regulation, NRAs were required to collect data not only on retail and wholesale voice tariffs but also on SMS charges and data roaming charges. The data collection exercise went smoothly and did not create any significant additional administrative burden compared to the situation before the regulatory intervention. This was due to the fact that NRAs had already in place the necessary basic tools to gather and analyse information since market data on roaming was already assembled under Article 5 of the Framework Directive. Data collected by the NRAs and the Commission and presented collectively by the ERG provided a very useful and timely input for evaluation of the effectiveness of the current regulation and for assessment of the policy options for its possible extension.

The Commission services therefore consider that data collection of similar scope and frequency should continue to be carried out also during the time span of the proposed extension. NRAs will be asked to collect data on retail and wholesale voice, SMS and data roaming services every six months. They will also regularly report to the Commission on the progress of implementation of the extended roaming regulation in individual Member States. The Commission can supplement the national regulators' data collection by its own ad hoc studies or surveys on main market and technical developments, charging systems, contract conditions, business vs. residential customers tariffs, etc. in order to get a more complete picture of the actual impact of the extended regulation once it is implemented. At the same time, the Commission will continue to monitor the entire mobile market as such, as part of its regular monitoring of the implementation of the regulatory framework for electronic communications. This monitoring exercise as well as various studies on specific issues in electronic communications markets commissioned regularly by DG INFSO will provide a sufficiently broad overview of the context in which the roaming regulation operates and will also inform other Commission services in the next review exercise.

In relation to enforcement and compliance it is envisaged that, as in the case of the current Regulation, NRAs will continue to be charged with the tasks of monitoring and supervising compliance and may intervene on their own initiative to ensure compliance in accordance with the terms of the amended Regulation.

With respect to evaluation of the extended roaming regulation, it is considered that a similar approach to the current regulation can be adopted, i.e. evaluation of the effectiveness, efficiency and relevance of the roaming regulation will be carried out towards the end of its three-year duration as part of the review exercise. An interim evaluation does not seem practical due to a relatively short overall duration of the regulation and lack of up-to-date information and data in the middle of its implementation.

CHAPTER 11. CONCLUSIONS – OVERALL IMPACTS OF THE PREFERRED OPTIONS

This impact assessment has identified and assessed different policy options for strengthening the single market for mobile roaming services. In particular, it examined the question of whether the current roaming regulation should be extended in time and in scope. Based on a careful assessment of the available data and evidence, the impact assessment has concluded that extension of the roaming regulation both in time and in scope is necessary because the underlying causes of the problem of insufficient competitive pressure in the mobile roaming market still remain valid.

The impact assessment focuses on four key problem areas: voice roaming, voice billing unitisation, SMS roaming and data roaming services. In each case, a variety of different regulatory and non-regulatory approaches have been considered and the most important, mainly economic impacts have been assessed. Qualitative argumentation and assessment has been supported and enhanced by quantitative economic modelling for the detailed regulatory options related to voice roaming and SMS roaming services, focussing in particular on consumer impact, industry impact and the overall social welfare. Finally, options in each problem area have been assessed against evaluation criteria such as effectiveness, efficiency or coherence in order to provide a straightforward link to the main objectives of this initiative.

Based on the detailed qualitative and quantitative assessment of the alternative approaches to regulation, this impact assessment has identified an overall preferred option which consists of: wholesale and retail regulation for voice with wider gap between wholesale and retail ceilings, wholesale and retail regulation for SMS with retail price ceiling at 11 cents, modified per second billing unitisation and a wholesale safeguard cap plus transparency measures for data roaming services. While the impact analysis focused on each individual problem area and the corresponding set of options separately, it can be demonstrated that the policy mix will provide for a balanced overall outcome.

The individual options for voice, SMS and data are complementary and mutually supportive, as they all contribute to the general objective of lower roaming prices and stronger single market in mobile communications. The estimated overall social welfare of this policy mix would be the highest, compared to the other alternatives, with relatively low impact on industry profits. As for data roaming regulation, a cautious approach of setting a safeguard wholesale cap coupled with transparency measures would allow market forces to play while providing sufficient information and guarantees for the consumer.

With respect to the specific objectives outlined in Chapter 4 of this impact assessment, the preferred policy mix has emerged from the analysis as the most effective one. The extension of the voice roaming regulation will ensure that there is no return to excessive retail and wholesale voice roaming prices. The specific regulatory solutions ensure furthermore that prices for roaming services (voice, SMS or data) are not significantly higher than domestic prices and that transparency of those prices will improve. On the operator's side, regulation at the wholesale level should provide sufficient safeguards for operators to compete at retail level and avoid margin squeeze for small operators in particular.

The billing unitisation regulation will ensure that customers do not pay for more than they consume while allowing operators to cover the cost of setting up the call. The impact on industry profits (the extent of which very much depends on the demand elasticity for the roaming services) can have some negative effect on investment but taking into account the size of the mobile market as a whole, the effect is expected to be limited. In terms of administrative burdens, the preferred option does not add significantly higher administrative costs on public authorities and operators, as it does not create additional information obligations. Finally, the preferred policy mix provides for a consistent and harmonised approach across Member States and is fully in line with internal market principles.

ANNEX I

1. INTRODUCTION

This annex provides some details of the Commission's data collection exercise, which was undertaken in preparation of this impact assessment and the Commission's regulatory proposal. The sections below focus on the derivation of key parameters (such as market size and unit prices) for the voice, SMS and data roaming segments.

Complementing the work undertaken by the European Group of Regulators (ERG)[55], the European Commission on the 19th March 2008 invited national regulatory authorities (NRA) to submit detailed operator-specific roaming data on a confidential basis. Following this request, data were collected from 27 NRAs, comprising more than 120 operators (including MVNOs).

This impact assessment is based on comprehensive data sets for Q2:2007, Q3:2007, Q4:2007 and Q1:2008. As the (Eurotariff) retail price caps set by Regulation (EC) No 717/2007 came into force on 30 September 2007, the Commission's data collection exercise yields 'clean' price and volume information (i.e. not yet directly influenced by regulatory intervention) for Q2 and Q3:2007.

The task at hand in the context of this impact assessment was then to estimate 'clean' values for Q1:2007 and Q4:2007 in order to derive hypothetical figures for the whole of 2007 (i.e. figures on an *as-if-basis*, showing what key parameters such as market size *would have been* in the absence of regulation). The 'clean' values for 2007 were then used as the base case or point of comparison for evaluative purposes in the economic model (see annex 1).

2. VOICE – MARKET SIZE AND OTHER KEY PARAMETERS

2.1. Estimation of volumes

Outgoing roaming calls

The starting point for estimating the corrected values for Q1:2007 and Q4:2007 (corrected for the impact of regulation) was the annual distributional pattern of tourist and business travel

[55] ERG (07) 85 - International Roaming Report http://www.erg.eu.int/doc/publications/erg_07_85_intl_roaming_rep.pdf and ERG (08) 36, available at http://www.erg.eu.int/doc/publications/erg_08_36_intern_roam_rep_080812.pdf

flows in the EU, as approximated by the percentage distribution by quarter of total 'nights spent by non-residents' within the EU27 (table below).[56]

	Q1:2007	Q2:2007	Q3:2007	Q4:2007
Percentage of Nights spent by non-residents by Quarter	19%	26%	37%	18%

As can be seen, the peak of EU-wide tourist and business-travel-related activity (and by extension of EU-wide roaming activity) occurs in the third quarter. By taking the available roaming data for Q2:2007 and Q3:2007 to represent 26% and 37% of the annual total, the two missing quarters can be estimated and, for the sake of plausibility, compared to the actual figures (though 'contaminated' by regulation) of Q4:2007 and Q1:2008. The resulting data for 2007 are as follows.

Actual volumes for outgoing roaming calls in the EU for Q2:2007 and Q3:2007 were, respectively, 1.296 and 1.751 billion minutes (based on operator-specific information submitted by NRAs), yielding a total of 3.047 billion minutes for the two quarters, and 63% of the annual traffic. Hence, total volume for outgoing calls made in 2007 would have been around 4.836 billion minutes in the absence of regulation (with quarterly figures for Q1:2007 and Q4:2007 of 0.920 billion and 0.871 billion minutes respectively).

Incoming roaming calls

Actual volumes for incoming roaming calls in the EU for Q2:2007 and Q3:2007 were, respectively, 0.908 and 1.282 billion minutes. Accordingly, total volume for incoming calls made in 2007 would have been around 3.477 billion minutes in the absence of regulation.

2.2. Estimation of revenues

For the estimation of total revenues, it was assumed that average prices for both outgoing and incoming roaming calls would not have changed throughout 2007 in the absence of regulation.

According to EC data, the average EU price per minute in Q2:2007 was €0.7692 for an outgoing roaming call and €0.4179 for an incoming roaming call.[57] Combining this with the assumption of unchanged pricing practices throughout 2007, total revenues for outgoing calls

[56] Source: Eurostat. Nights spent by non-residents - world geographical breakdown - monthly data http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46870091&_dad=portal&_schema=PORTAL&p_product_code=TOUR_OCC_NINRMW

[57] It should be noted that the EC economic model looks at *actual* volumes rather than to *billed* volumes, since this will allow a more precise calculation of price elasticities in future reports. Thus, the average price as derived in this impact assessment cannot be directly compared to the average price as estimated by ERG in its reports of January and August 2008, in which average prices were derived based on *billed* volumes.

would have been around €3.72 billion[58] if the absence of regulation. The equivalent figure for incoming calls would have been about €1.45 billion[59].

3. SMS - MARKET SIZE AND OTHER KEY PARAMETERS

3.1. Estimation of volumes

As SMS roaming prices are not currently regulated, the EC data collection exercise yields 'clean' figures for three quarters of 2007 (Q2:2007 to Q4:2007). This can be complemented by the collected figures for Q1:2008 to derive the whole of 2007. However, the Q1:2008 figures would need to be corrected for the annual growth rate of SMS services of approximately 6%.

According to the EC data collection, the number of roaming SMS sent was as follows:

	Q2:2007	Q3:2007	Q4:2007	Q1:2008
SMS (million)	594.4	888.3	541.8	611.62

Combining these figures (and the assumed growth rate) with the seasonality pattern of roaming services in the EU (explained in section 2 above), about 577 million roaming SMS can assumed to have been sent in Q1:2007 (yielding a total for 2007 of 2.6 billion).

3.2. Estimation of revenues

As for an estimation of SMS revenues, it was assumed that the average price of a roaming SMS was unchanged from Q1:2007 to Q2:2007. Total revenues for roaming SMS in the EU were thus approximately €0.8 billion in 2007.

4. DATA SERVICES

4.1. Estimation of volumes

The EC data collection exercise also provided actual price and volume information for EU data roaming for the period from Q2:2007 to Q1:2008.

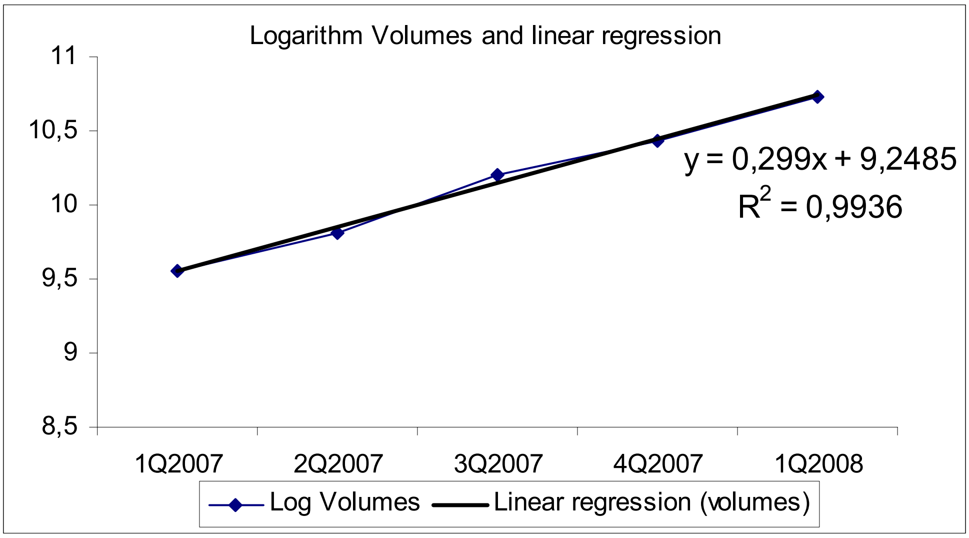
Thus, analogous to the method used in section 3 above, there was a need to estimate the values for Q1:2007. However, unlike SMS, demand for data roaming services is growing very dynamically. For this reason, Q1:2007 was estimated using a backwards forecasting method (i.e. backwards extrapolation). Extrapolation was based on four sequential observations at known points in time (Q2:2007 to Q1:2008). Inspection of the data shows a clear linear trend in the logarithms of the volume data i.e. a stable growth rate with only very small seasonal deviations.

[58] 4.83624 billion minutes * €0.76.92 per minute

[59] 3.47749 billion minutes * €0.41.79 per minute

	Q2:2007	Q3:2007	Q4:2007	Q1:2008
Volume (1000 MB)	18209.8	27141.9	33815.6	45852.1

The regression of the natural logs of volume data on time (t) give the results as shown in the following graph:



Extrapolation gives a value of 14.010 GB for data roaming volumes for the first quarter 2007.

The table below presents the estimated volumes for 2007:

	Q1:2007	Q2:2007	Q3:2007	Q4:2007
Volume (1000 MB)	14010.2	18209.8	27141.9	33815.6

4.2. Estimation of revenues

The estimation of revenues for Q1:2007 was made using the same methodology as above; the resulting figures were €0.117 billion for Q1:2007 and € 0.559 billion for the year 2007.

ANNEX II

Model – Welfare Impacts of Regulatory Options

1. INTRODUCTION TO THE MODEL

The purpose of the model is to provide a quantitative analysis of the economic impact of the various regulatory options considered in this impact assessment. The model focuses on static welfare impacts, using the standard definition of social welfare as the sum of consumer and producer surplus. It builds on one of the main findings of welfare theory, namely that any deviation from a competitive equilibrium will reduce social welfare in the static sense. Various policy options considered in this impact assessment will be evaluated in accordance with this principle – in other terms, we will ask which policy option results in the greatest overall welfare gains for society (industry profits *and* consumer welfare).

The model enables us to understand the aggregate effects of regulatory intervention on international roaming prices. This means that an analysis of the effects on individual operators is not the primary objective. Clearly for purposes of the impact assessment the aggregate impact on the industry and on their customers as a whole is what matters most. The nature of the problem at hand, involving as it does confidential information on volumes and prices, precludes a disaggregated analysis. In the course of the preparation of this analysis EU mobile operators were asked by the European Commission and the ERG to provide detailed information on roaming prices, costs and volumes.[60] The data received is used by the model *inter alia* for the quantitative description of the status quo.

An impact assessment complying with the internal best practice rules of the European Commission requires an analysis of several policy options. Various policy options are considered in this impact assessment; the quantitative welfare analysis is focussed on the following regulatory options:

1. Voice roaming regulation as proposed by the ERG
2. Voice roaming regulation as proposed by the Commission
3. SMS roaming regulation as proposed by the ERG
2. SMSroaming regulation as proposed by the Commission

One major prerequisite of the welfare analysis of the international roaming regulation is the formulation of a demand model for international roaming services. The model developed for this purpose analyzes the demand for three different international roaming services: active calls from the foreign country, received calls in the foreign country, SMS sent from the visited country.

Unfortunately, there are no valid scientific results on the demand elasticity of these services.

[60] See annex 2 of this impact assessment.

As a consequence, scenario techniques have to be applied to arrive at a more reliable picture of the possible quantitative effects of the regulation. Three different elasticity scenarios for the reaction of customer demand on price changes are developed and will be applied to the three policy options under consideration.

The first scenario – referred to as the "**industry scenario**" (elasticity scenario 1) – reflects opinions of the mobile industry and some financial analysts with regard to demand elasticities. The sources referred to imply that the relevant demand elasticity is rather small, significantly smaller than one (in absolute terms). This would mean a significant decrease of roaming revenues as a reaction to a drastic reduction of end user prices induced (or enforced) by the proposed regulation.

The second scenario is called the "**minus one scenario"** (elasticity scenario 2). As the name of the scenario suggests, a value of minus one for the demand elasticities is assumed for all services. A demand elasticity of minus one implies constant revenues as prices change. This scenario allows a closer look at the redistribution of consumer and producer surplus as a consequence of regulation.

The third elasticity scenario - the "**optimistic scenario"** (elasticity scenario 3) - reflects a more optimistic vision of demand elasticities. In particular it reflects recent experience drawn from the data on the international roaming markets collected by the ERG. Accordingly, such a scenario forms *one* part of the model.

The tables below display the most important parameters and variables as used by the model:

Table 1:

€ million, aggregate EU roaming retail market (estimate for 2007)	
Outgoing roaming calls	3719.90
Incoming roaming calls	1453.39
Roaming SMS	804.32
Roaming data	559.15
Total	6536.76

Table 2:

€, Prices per minute, aggregate EU level (estimate for Q1/Q2:2007)	**Average EU Retail Price**
Outgoing roaming calls	0.77
Incoming roaming calls	0.42
Outgoing roaming SMS	0.31

Table 3:

€, Prices per minute, aggregate EU level (Eurotariff as of Q4:2007)	Average EU Retail Price
Outgoing roaming calls	0.49*
Incoming roaming calls	0.24*
Outgoing roaming SMS	0.31

*to be decreased to 0.46/0.22 and 0.43/0.19 in 2009/2010 respectively

Table 4:

Price elasticities / Scenarios 1-3	Pessimistic	Minus One	Optimistic
EPS_{x1p1}	-0.55	-1.00	-1.20
EPS_{x2p2}	-0.55	-1.00	-1.20
EPS_{x3p3}	-0.55	-1.00	-1.20

The second building-block of the evaluation model is the **cost function**. For the impact assessment it is assumed that unit costs of the services under consideration are constant in the relevant range. In other words, constant total average costs are assumed. The most important cost factors considered are:

- Origination and termination costs
- Transit costs
- Directly attributable costs of international roaming (concluding and maintaining roaming contracts, technical and software provisions for international roaming,end customer and inter-carrier billing.

It should be stressed again that the model is an aggregate model, i.e. it takes a consolidated view of revenues and costs. All inter-carrier payments such as IOTs and MTRs will therefore drop out, and only the underlying factor-consumption and related costs will be considered.

The model itself calculates the relevant wholesale payment flows, but they are only used for a plausibility check of the results.

2. Demand Model

The starting point for the quantitative analysis of the demand side is a system of demand functions for international roaming services, which is appropriately disaggregated to allow the following markets to be separated out:

1. Market for 'outgoing calls' while roaming within the EU
2. Market for 'incoming calls' (market for calls received from callers located in an EU country, while roaming within the EU)
3. Outgoing calls to countries other than EU member states

4. Incoming calls from countries other than EU member states
5. Active and received calls of roamers from outside the EU
6. SMS sent while roaming in the EU to another EU country

Of particular interest are the first two markets, because they constitute the bulk of the roaming market in the EU. Markets 3, 4 and 5 are not of significant interest here and are accordingly not further considered. In addition to international voice roaming, SMS roaming is added as a relevant roaming market.

The demand model used for the impact assessment attempts to model direct ("own") price effects. For the purpose at hand cross price effects and possible effects on demand introduced by arbitrage opportunities for end users and created by the regulation are disregarded. Since we expect mobile operators to know their markets, we can safely assume that their pricing policy would avoid substitution of active calls by received calls and SMS. The demand model explicitly takes into account the demand for 'outgoing calls (x_1)', 'incoming calls (x_2)', and 'SMS sent (x_3)'. Roaming SMS received are not considered here, as – unlike for voice services – they do not constitute a direct revenue source for operators (the price for receiving a SMS while roaming is zero).

Mobile operators indicate that consumers might follow a two-step procedure for making their roaming decision. In the first step they decide whether they want to roam and which conditions they are willing to accept. In the second step they make and receive their roaming calls. The "to roam or not to roam" decision is assumed to depend on the frequency of travelling abroad, and on roaming prices, predominantly o calls home and received calls prices. We can safely assume that a high frequency of journeys abroad will yield a higher propensity of roaming customers to roam, and that high roaming prices will reduce it. For a high-level study, this two step procedure can be simplified and regarded as a one-step decision where the determinants of the basic decision are represented in the respective demand functions.

It is assumed that the demand for x_1, i.e. for outgoing roaming calls, can be described by the following demand function (with similar demand functions for x_2 (incoming) and x_3 (SMS)):

(1) $$x_1 = \alpha_0 p^{\alpha_1} \prod_j y_j^{\phi_j}$$

(2) $$x_2 = \beta_0 p^{\beta_1} \prod_j y_j^{\phi_j}$$

(3) $$x_3 = \gamma_0 p^{\gamma_1} \prod_j y_j^{\phi_j}$$

where p_1, p_2, p_3 are the prices for outgoing roaming calls, incoming roaming calls and sent roaming SMS respectively; $\boldsymbol{y}$ represents a vector of other variables influencing customer behaviour such as income levels, frequency of journeys abroad, prices of international calls on the fixed network, call prices at hotels; parameters Φ express the respective elasticities.

The demand functions for the different components of international roaming are assumed to be linear in logarithms, in order to simplify the process and as a first approximation of the virtually unknown characteristics of the functional form of the demand functions for international roaming. Therefore parameters α_0, β_0 and γ_0 function as scaling parameters. The parameters α_1, β_1 and γ_1 are the direct price elasticities, which are used to describe the reactions of consumers to changes in the relevant roaming prices. Reactions to the variables in y do not affect behaviour in the short run, and are themselves not affected by roaming prices, so they will be assumed to be constant.

Without any scientifically valid results for the roaming demand functions this choice of the functional form allows a direct evaluation of welfare effects for given price elasticities. The available data as collected by the ERG do not yet allow an econometric (panel) analysis of the roaming demand functions, which would support the social welfare analysis by better estimates of elasticities and reasons for the choice of the functional form for demand functions.[61]

3. COST FUNCTION

For the practical purpose of this analysis one can use the experience of the European Commission and many NRAs as regards mobile call termination analysis to gain a better understanding of the costs of international roaming. The costs of mobile call termination in the EU have been analysed in extensive detail over the past decade, and may be taken as a good proxy for modelling the costs of international roaming services. For a start, the costs for originating a mobile call may roughly be equated to the costs of terminating a mobile call. Furthermore, regulated call termination rates in the EU include a whole array of unit cost positions which are relevant in the present context, such as labour costs or costs of capital. To arrive at a complete picture, roaming-specific costs (for instance for the marketing and retailing of roaming services) can then be added to these proxy results.

Costs of three categories of calls will be analysed:

- Incoming calls
- Outgoing calls
- SMS

All other categories will be disregarded for the purpose at hand.

Outgoing calls typically involve the use of network resources for:

- Call origination
- Transit to the home country (if applicable)
- Call termination, which may be on
    - the network of the roaming customer
    - another mobile network

[61] However, the academic literature suggests elasticities for mobile voice services to be significantly greater than the elasticities for long-distance fixed voice services, and perhaps greater than one. See for instance Rahul Telang, *An Empirical Analysis of Cellular Voice and Data Services*, NET Institute Working Paper #04-10, October 2004.

• a fixed network or
• a mobile network in an EU member state other than the home country

In inter-carrier relations, origination costs are compensated by a per-minute payment of IOTs to the host network. The use of network resources for signalling is included in the cost parameters described above.

In addition to these costs there are other directly attributable costs of international roaming, such as costs of contracting, billing, inter-carrier billing, software, attributable marketing expenditure and others, which are integrated as additional cost parameters to the model. Since call origination and call termination as well as transit prices typically cover all cost factors such as energy, labour, depreciation, costs of capital (including a risk premium), frequency use, no mark-ups onto these costs will be made. Using the terminology and concepts of economics rather than the respective concepts of accounting is required to be able to make the required welfare comparisons.

Incoming calls typically consume the following network resources:

• Domestic switching
• International transit (if applicable)
• Call termination on the foreign network of the roaming partner

The calling party pays principle is applied to the calling party, which means that the caller pays call origination and call termination. Therefore the majority of associated costs are already covered by these payments. The costs actually incurred by the home operator will exceed the termination fee of the home network, due to differences in MTRs, transit costs and the other directly attributable cost. This in turn means a small net cost to the home network, which is far below the resale price for received calls in international roaming. In addition to these costs, the other directly attributable costs mentioned above will be integrated as additional cost parameters to the model.

Costs of (international and roaming) SMS have been studied recently by NITA and ARCEP. The very detailed cost study underataken by NITA will be used for this social welfare assessment. NITA arrives at costs per roaming SMS of approximately 3.4 eurocents. This value will be used throughout the study.

The following unit costs were assumed and used for the calculation of the economic effects in all regulatory options and all elasticity scenarios:

Table 5:

Cost type	**Costs per minute (€ cents)**
Termination costs	10.51*
Origination costs	10.51*
Transit costs	2.00
Special roaming costs	1.00
Roaming marketing costs	1.00

*EU average MTR 2007; projected (compound) annual reduction factor until 2013: 19.73%

The assumed values for call origination and call termination are the average termination costs per minute in the EU (as they are projected to develop over the period 2007–2013); the other cost figures are estimates, emerging from several discussions with mobile operators and results of the public consultation.
These figures, which represent the monetary equivalent of the resources used up for international roaming calls, are to be contrasted with the IOTs as intercarrier payments covering parts of the resource consumption in relation to international roaming. In a consolidated view of the EU mobile communication sectors the IOTs will cancel out. The model will use the resource consumption, valued by the cost per minute figures shown above to calculate average costs of international roaming.

The model is not designed to deal with capacity constraints of mobile networks. Changes in demand in general should not be seen as creating difficulties when elasticities are assumed to be low – demand reactions will be small in relation to total call volumes. When elasticities are assumed to be higher, capacity constraints could become an issue at specific points in the network. For present purposes it may safely be assumed, however, that in general intense competition between mobile networks in terms of both prices and quality has led to a situation where there is sufficient overall excess capacity.

To sum up, the model provides a static welfare analysis of three different regulatory options. The model's focus is on aggregate industry and consumer outcomes. The model yields results that enable us to select the policy option that maximizes overall welfare (industry profits *and* consumer welfare).

4. WELFARE IMPACTS OF EC REGULATION 717/2007 (THE VOICE REGULATION)

The voice roaming regulation established wholesale caps and Eurotariff retail caps by means of two different glide paths for the period 2007–2010 as shown in the following table:

Table 6:

Price Caps, € cents		
Retail Voice outgoing	Retail Voice incoming	Wholesale
49	24	30
46	22	28
43	19	26

The impacts of this regulation may be analysed in terms of changes in consumer welfare, industry profits and social welfare compared to the *status quo ante regulation*, i.e. to the performance of the EU voice roaming market in 2007 in the absence of regulation.[62]

The following comparative statics results can be derived from the model:

Table 7:

Pessimistic Scenario			
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**
δ Consumer Welfare	2.265	2.570	2.953
δ Profits	-1.167	-1.074	-1.070
δ Social Welfare	1.098	1.495	1.883

Minus One Scenario			
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**
δ Consumer Welfare	2.578	2.991	3.550
δ Profits	-.621	-.414	-.292
δ Social Welfare	1.958	2.577	3.258

Optimistic Scenario			
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**
δ Consumer Welfare	2.741	3.215	3.879
δ Profits	-.337	-.063	.133
δ Social Welfare	2.404	3.152	4.012

Graphically, these results may be displayed as follows:

Chart 1:

[62] Please refer to annex 2 for a more detailed discussion of this methodological approach and the quantitative derivation of the base case or reference scenario of 2007. All welfare calculations in the sections of this annex are based on such comparison.

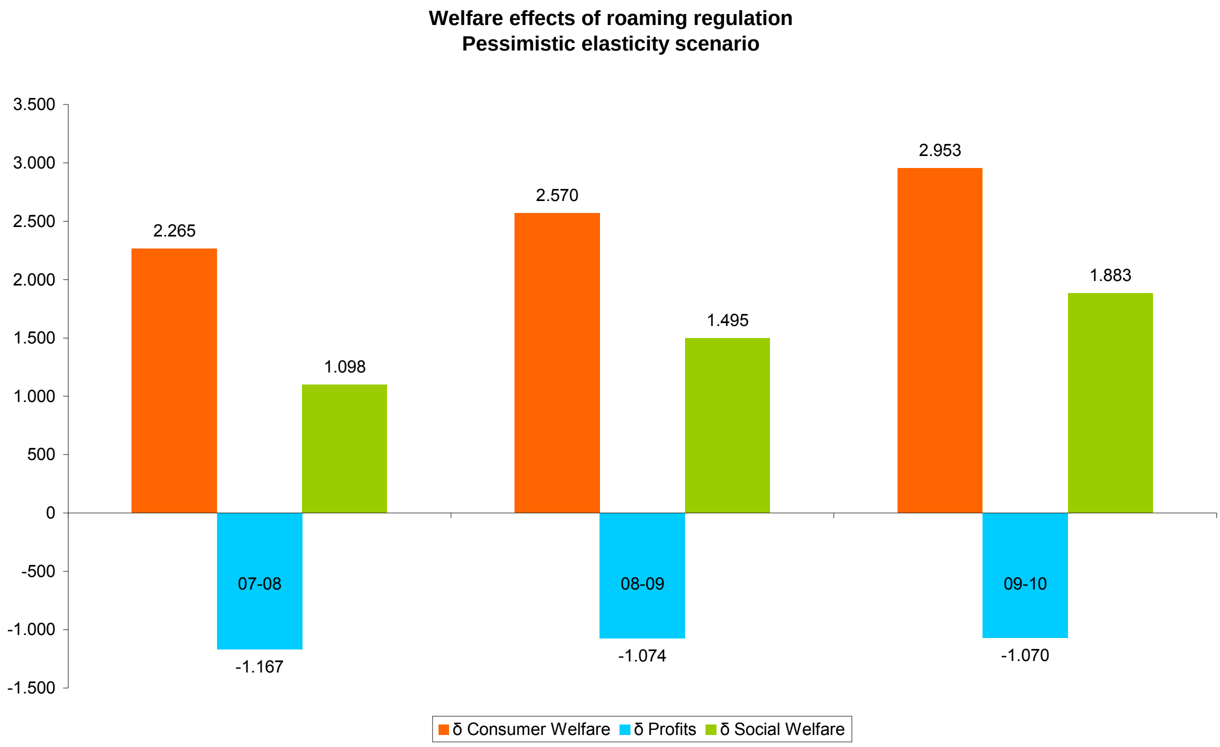
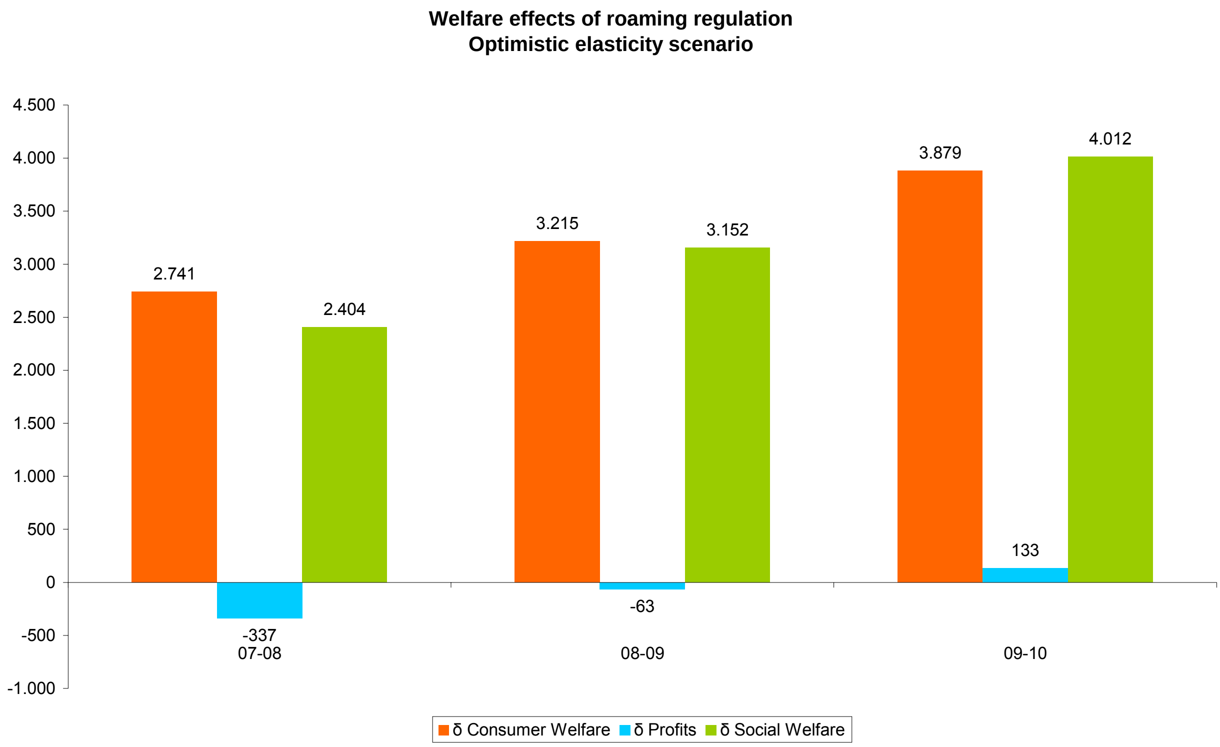


Chart 2:



For the sake of completeness, one can explore the impact of the roaming regulation upon industry in some more detail. In particular, first, one may ask how voice roaming revenues have developed following entry into force of the regulation (viz. are projected to develop over the next years):

Table 8:

billion €	Baseline	2007	Current Regulation 2008	2009
Optimistic	5.173	5.694	5.775	5.880
Pessimistic	5.173	4.169	4.040	3.883

Expressed in percentage terms relative to the baseline scenario, industry revenue changes would be as follows:

Table 9:

% changes	Baseline	2007	Current Regulation 2008	2009
Optimistic	5.173	10.1%	11.6%	13.7%
Pessimistic	5.173	-19.4%	-21.9%	-24.9%

As can be seen from the above, the change in roaming revenues varies according to which regulatory option is selected, and according to which elasticity scenario holds true (although the choice of the preferred option is not based on this).

Depending on these parameters, and compared to the base line, industry could either look forward, for the period 2009-2010, to an increase of 13.7% in voice roaming revenues, or would have to deal with a decrease of 24.9% in voice roaming revenues.

Second, one may also ask how these potential changes in industry voice roaming revenues and profits compare to broader market parameters. The 13th implementation report estimated total EU mobile communications revenues to have reached €137 billion. Thus, a decrease of €1.29 billion in voice roaming revenues in the pessimistic scenario in 2009-2010 (or an increase of €0.71 billion in the optimistic scenario) would correspond to an overall revenue reduction of approximately 0.94% (or an overall increase of 0.52%). Similarly, if one assumes an average EBITDA margin for the EU telecommunications industry of roughly 35%[63], overall profits are approximately €50 billion. The profit impact in 2009-2010 would then lie somewhere between a decrease of 2.14% and an increase of 0.27%. The impacts on industry are thus rather small.

[63] This is a reasonable assumption for instance for the constituents of the Dow Jones SXKP Telecoms Index, a broad measure containing most listed large- and mid-cap European firms which may be taken as a proxy for the sector as a whole (both fixed and mobile). Stand-alone mobile EBITDA is likely to be even higher (further mitigating the impact discussed here).

5. WELFARE IMPACTS OF REGULATORY OPTIONS

5.1. Voice roaming regulation as proposed in Option 1

Under option 1 the proposed price caps are as follows:

Table 10:

Price Caps, € cents		
Retail Voice outgoing	Retail Voice incoming	Wholesale
49	24	30
46	22	28
43	19	26
40	16	24
37	13	22
34	10	20

The model yields the following welfare results for this option in the three different elasticity scenarios (results compared to 2007; results until 2009-10 driven by the existing roaming regulation; thereafter by the regulatory option here analysed):[64]

Table 11:

Pessimistic Scenario						
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
δ Consumer Welfare	2.265	2.570	2.953	3.376	3.856	4.425
δ Profits	-1.167	-1.074	-1.070	-1.116	-1.213	-1.366
δ Social Welfare	1.098	1.495	1.883	2.260	2.644	3.060

Minus One Scenario						
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
δ Consumer Welfare	2.578	2.991	3.550	4.223	5.075	6.241
δ Profits	-.621	-.414	-.292	-.227	-.229	-.327
δ Social Welfare	1.958	2.577	3.258	3.997	4.846	5.914

Optimistic Scenario						
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
δ Consumer Welfare	2.741	3.215	3.879	4.710	5.814	7.420
δ Profits	-.337	-.063	.133	.274	.344	.300
δ Social Welfare	2.404	3.152	4.012	4.984	6.158	7.719

[64] See note 3 above.

Graphically, this may be depicted as follows (for two different elasticity scenarios):

Chart 3:

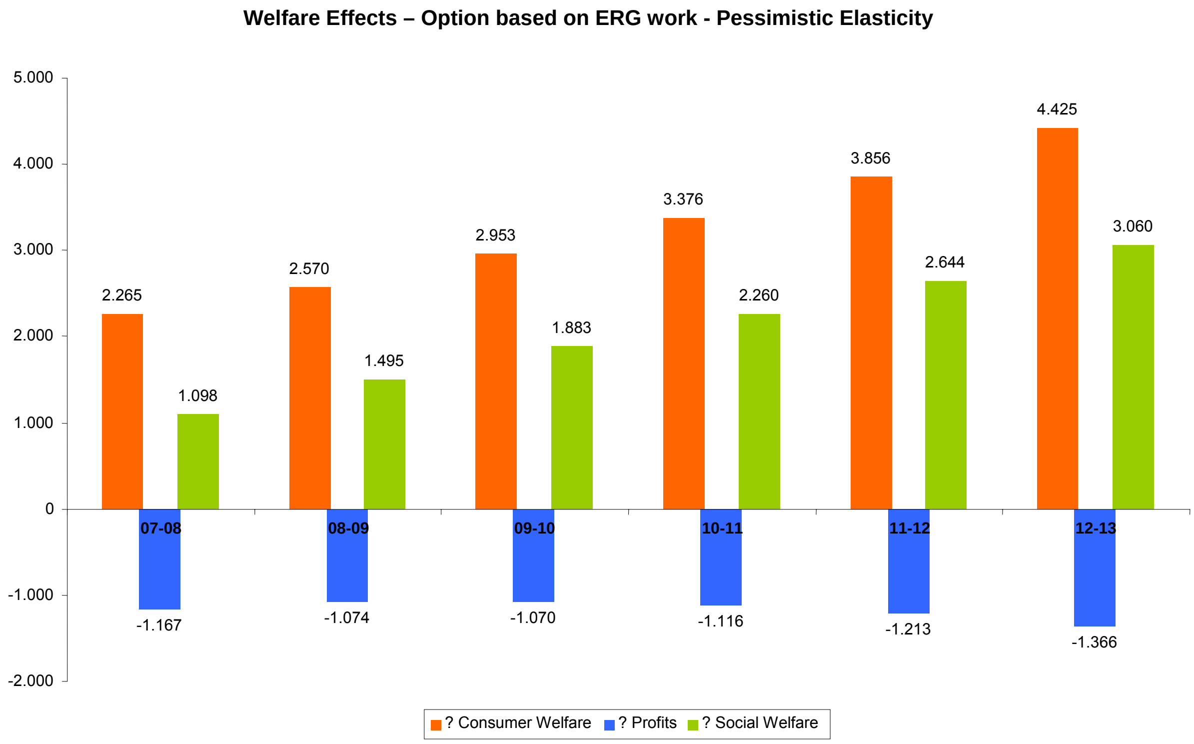
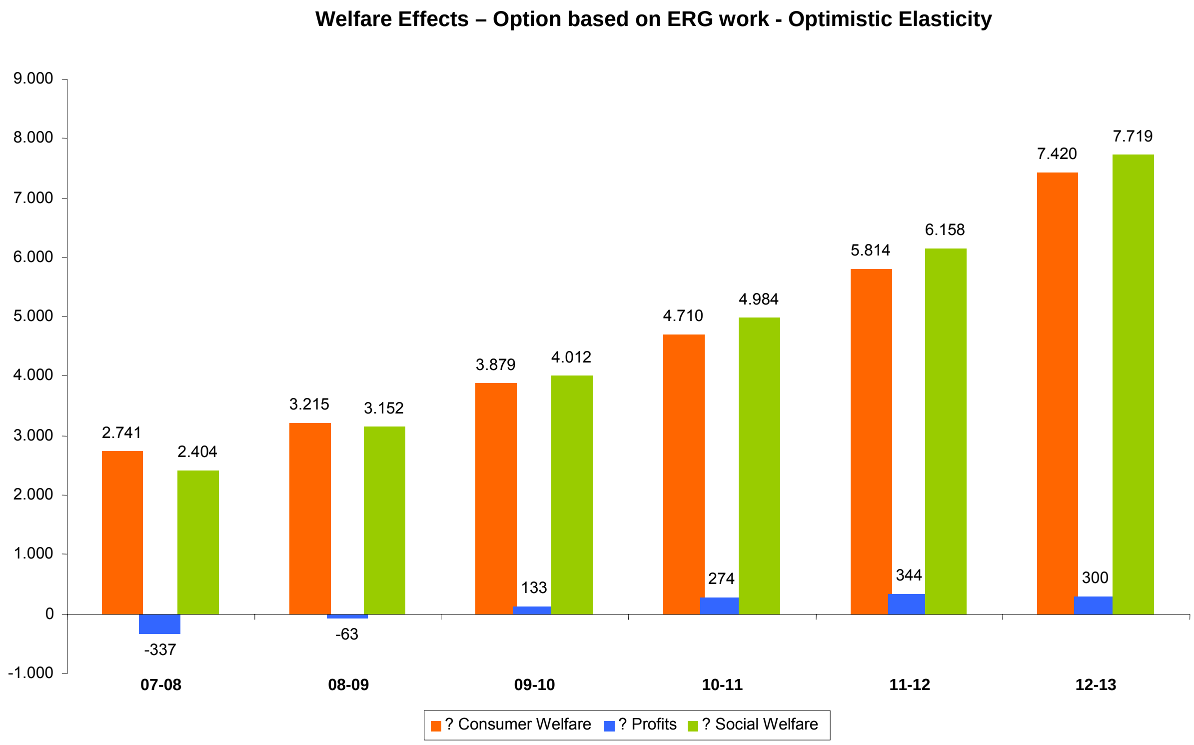


Chart 4:



5.2. Voice roaming regulation as proposed in this impact assessment – Option 2

The regulatory option favoured in this impact assessment proposes to extend the roaming regulation beyond 2009, and to adapt the wholesale and retail glide paths in accordance with changed demand and costs conditions; in particular, the proposal is more stringent at wholesale level. The proposed price caps are as follows:

Table 12:

Price Caps, € cents		
Retail Voice outgoing	Retail Voice incoming	Wholesale
49	24	30
46	22	28
43	19	26
40	16	23
37	13	20
34	10	17

The model yields the following welfare results for this option in the three different elasticity scenarios (results compared to 2007; results until 2009-10 driven by the existing roaming regulation; thereafter by the regulatory option here analysed):[65]

Table 13:

Pessimistic Scenario						
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
δ Consumer Welfare	2.265	2.570	2.953	3.533	4.126	4.800
δ Profits	-1.167	-1.074	-1.070	-1.205	-1.359	-1.559
δ Social Welfare	1.098	1.495	1.883	2.328	2.767	3.241

Minus One Scenario						
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
δ Consumer Welfare	2.578	2.991	3.550	4.460	5.520	6.898
δ Profits	-.621	-.414	-.292	-.289	-.337	-.467
δ Social Welfare	1.958	2.577	3.258	4.171	5.183	6.431

Optimistic Scenario						
€ billion (Delta δ)	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
δ Consumer Welfare	2.741	3.215	3.879	4.996	6.371	8.264
δ Profits	-.337	-.063	.133	.232	.270	.210
δ Social Welfare	2.404	3.152	4.012	5.228	6.641	8.474

Graphically, this may be depicted as follows (for two different elasticity scenarios):

[65] See note 3 above. Owing to the increased retail margin implicitly granted by this option, actual retail price levels of slightly below the Eurotariff price caps have been assumed.

Chart 5:

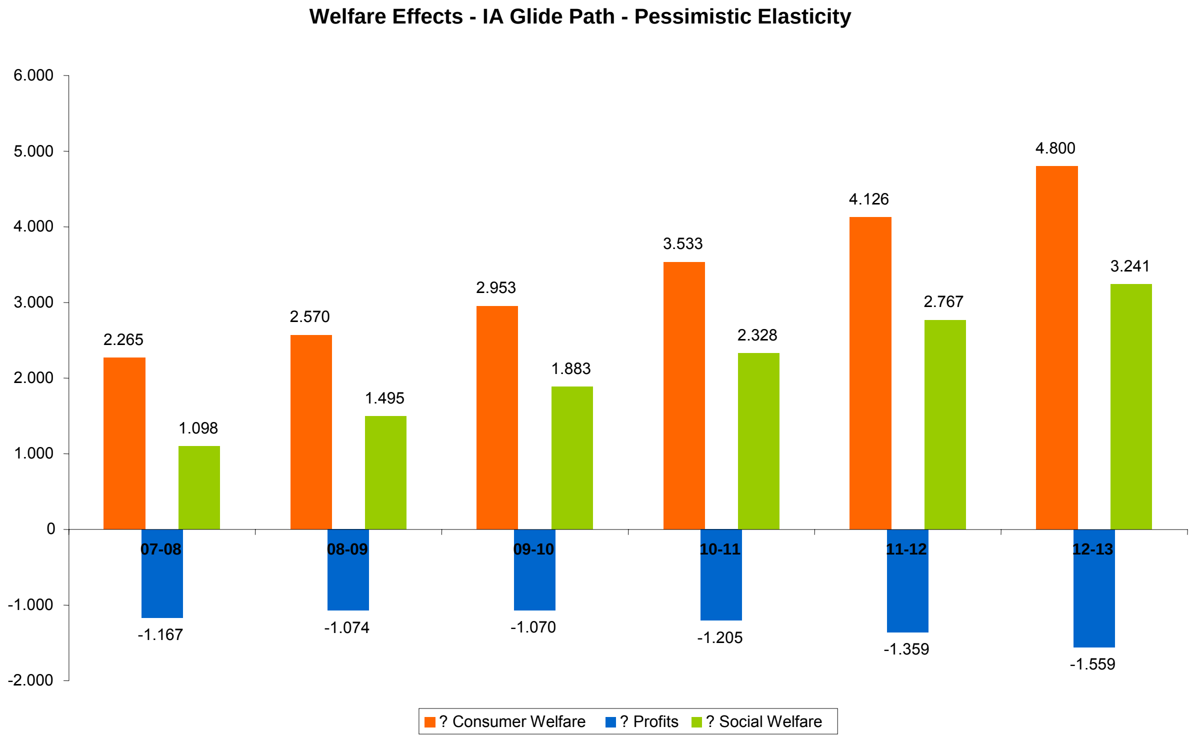
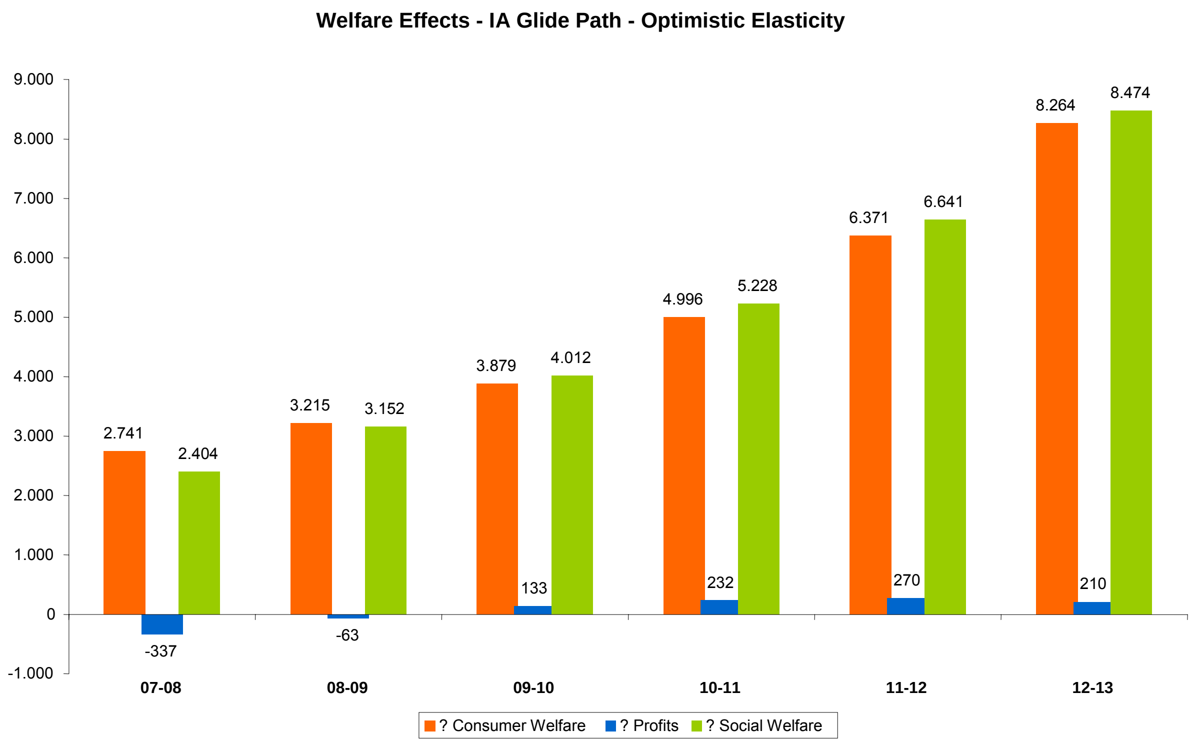


Chart 6:



5.3. SMS roaming regulation as proposed by the ERG

The ERG has proposed to extend the scope of the roaming regulation to include prices for SMS roaming. One of its proposals would set a Eurotariff retail price cap of 15 eurocents combined with a wholesale price cap of 8 eurocents for a period of four years, starting in 2009.

The welfare impacts of this would be as follows for two different elasticity scenarios (calculated as consumer and overall welfare gains as a result of SMS regulation *in addition to the existing voice regulation,* see section 4 above):

Table 14:

Pessimistic Scenario	
€ million (Delta δ)	**2009-10**
δ Consumer Welfare	707
δ Social Welfare	639

Optimistic Scenario	
€ million (Delta δ)	**2009-10**
δ Consumer Welfare	995
δ Social Welfare	1301

The expected drop in industry profits - in the worst-case scenario - would be €68 million, and thus sufficiently outweighed by the expected benefits from regulation.

5.4. SMS roaming regulation as proposed in this impact assessment

This impact assessment proposes to extend the scope of the roaming regulation to include prices for SMS roaming, and to set a Eurotariff retail price cap of 11 eurocents combined with a wholesale price cap of 4 eurocents for a period of four years, starting in 2009.

The welfare impacts of this would be as follows for two different elasticity scenarios (calculated as consumer and overall welfare gains as a result of SMS regulation *in addition to the existing voice regulation*, see section 4 above):

Table 15:

Pessimistic Scenario	
€ million (Delta δ)	**2009-10**
δ Consumer Welfare	884
δ Social Welfare	716

Optimistic Scenario	
€ million (Delta δ)	**2009-10**
δ Consumer Welfare	1243
δ Social Welfare	1514

The expected drop in industry profits – in the worst-case scenario - would be €168 million, and thus sufficiently outweighed by the expected benefits from regulation.

A comparison with the ERG proposal shows that for SMS both consumer welfare and social welfare gains are more pronounced in the regulatory option favoured by this impact assessment.

Chart 7:

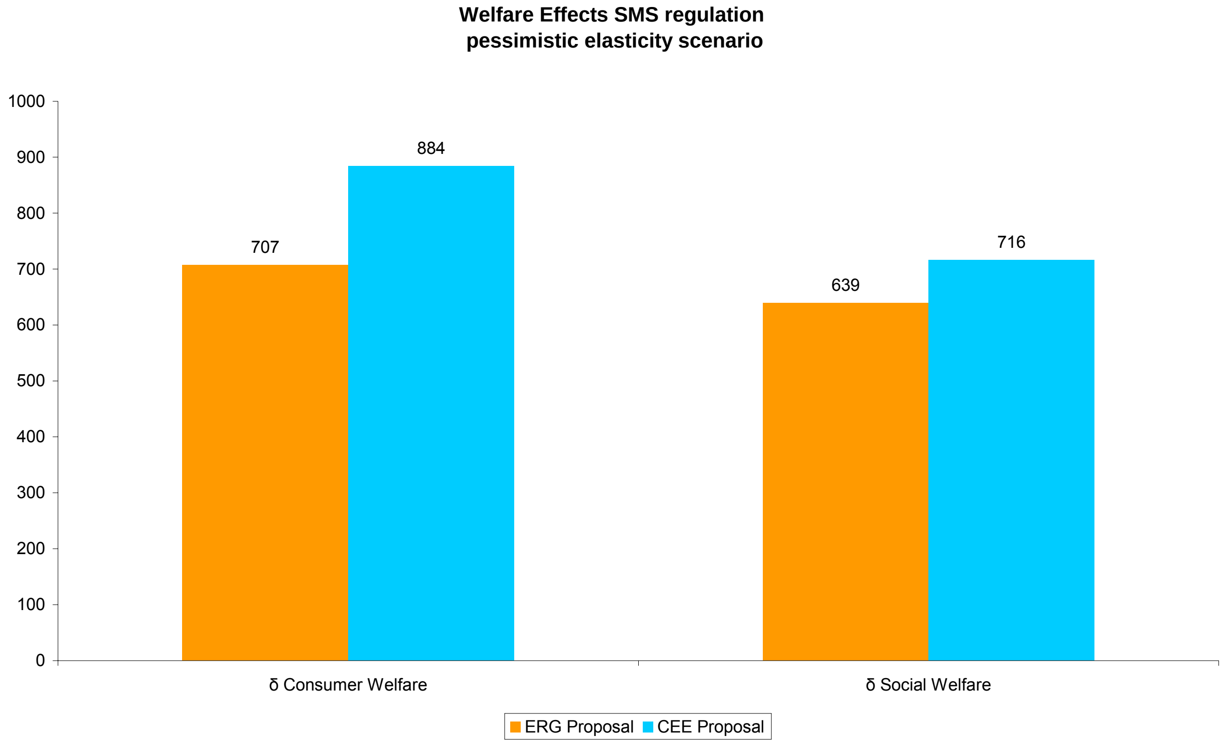


Chart 8: