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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

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Executive summary

BACKGROUND

This impact assessment (IA) report examines options for achieving substantial reductions in international roaming charges in the EU, and their impact on consumers, users and the industry. National regulatory authorities (NRAs), Member States, the European Parliament, consumers and users are concerned that these prices are unjustifiably high. There is little evidence that the market alone can deliver.

Charges for international roaming have been the focus of Commission attention for some time. The Commission is conducting competition investigations under both Article 81 (*ex-officio*) and 82 of the Treaty. The wholesale market for international roaming is covered under the regulatory framework in the Commission's Recommendation on relevant markets. The Commission urged NRAs to hasten the process of analysing this market in October 2004. A subsequent common position by the European Regulators' Group (ERG) indicated that high retail charges appeared to result from high wholesale charges and high retail mark-ups, with little pass-through of reductions in wholesale charges. In December 2005 the ERG alerted the Commission to the difficulties of applying the regulatory framework to resolve this case of consumer detriment.

The Commission has also drawn attention to high roaming prices on a number of occasions and has published a website showing unjustifiably high prices across the EU.

Consultation

In the first round of consultation on this issue the Commission's focus on international roaming was broadly welcomed by Ministries, NRAs, consumer and user associations and some smaller mobile operators. Operator groups and most individual operators were opposed to regulatory intervention, and stressed the effective competitiveness of roaming markets.

The second round of consultation introduced a concrete concept for regulation (the 'home pricing principle') involving 'pegging' retail roaming prices to the customer's home prices for comparable domestic mobile services. The customer would not pay for receiving a call. Most market players in the second round were against any form of regulation. However, six operators favoured wholesale regulation. The ERG supported the Commission's objectives but was against the approach as set out in the consultation document. It favoured wholesale regulation, with a 'wait and see' approach to retail regulation. The 10 Member States that responded took the same line as the ERG.

The nature of the problem

Prices for EU-wide roaming at both wholesale and retail levels are not justified by the underlying costs of providing the service. This is compounded by a lack of retail price transparency and cannot be solved using existing regulatory tools. The EU market for international roaming is estimated at around €8.5 billion, which is 5.7% of total mobile industry revenues estimated at around €150 billion.

Roaming prices have an impact on at least 147 million EU citizens, of whom 110 million are business customers, while 37 million are travelling for leisure purposes. Consumer groups believe that the benefits of lower roaming charges would be welcomed by a very wide cross-section of consumers, including SMEs.

International roaming services differ from other telecoms services in that the customer buys the services of an operator in one Member State but is connected to the network of a foreign operator when roaming abroad. The latter bills the home operator for this 'wholesale' service. Most operators claim that competition in the wholesale market is working and is helping to bring down prices. However, at €1.15 per minute, the average retail charge for a roamed call (residential) is more than five times higher than the actual cost of providing wholesale service and 50% higher than the average IOT. Retail roaming charges are roughly four times higher than domestic tariffs.

Transparency is still a significant problem. Furthermore, many consumers are not aware of the high charges for receiving calls which are probably at least four times the average cost to the operator.

Technological and market evolution

A number of technological developments could have an impact on roaming prices, including voice over IP. However, IP mobile telephony is set to become a reality only in the medium term. Traffic direction which enables operators to direct consumers to their chosen networks while roaming for around 80% of roamed calls has had some effect but wholesale charges remain high.

The case for EU action (subsidiarity test)

NRAs are not fully equipped to deal with this issue at national level. Moreover, attempts to enhance price transparency have not had the effect of lowering prices. In these circumstances there is pressure for Member States to take measures to address roaming charges. However, any such measures could create divergent results and be ineffective, given the particular cross-border characteristics of the services concerned. Consequently, the regulatory framework needs to be amended to ensure a harmonised approach.

OBJECTIVES

The objective of EU action is to promote the development of the single market for EU-wide roaming services so that the prices paid for roaming when travelling within the Community are not unjustifiably higher than the charges payable for calls within the consumer's home country.

POLICY OPTIONS AND ANALYSIS

No policy change

If no new policy were introduced, there would be continued reliance on existing tools for regulatory intervention, political pressure could be maintained and market and technological developments would take their course.

Remaining with existing policy is unlikely to lead to substantial reductions in roaming charges. Despite recent activity by operators, consumers are still faced with unjustified prices. NRAs have already stated that they believe existing regulatory tools to be insufficient to address this problem. Furthermore, Commission decisions under EU competition rules are only applicable to their addressees and have no direct legal effect on other operators who may behave in a similar way.

Self regulation

Self-regulation in the context of roaming is the possibility for operators or associations to adopt amongst themselves common guidelines at European level (particularly codes of practice).

The Commission services have not received any general industry proposals for self-regulation. Moreover, any such approach would have to meet competition law requirements. Self-regulation would have to deliver guaranteed substantial price reductions across the board, most likely at wholesale and retail levels. This seems to be difficult to achieve given the fact that many operators do not acknowledge that there is a problem with roaming charges.

Co-regulation

This approach implies regulation in which an overall framework is set out and the role of operators and other actors determined. In the context of international roaming, targets for price reductions could be set by regulation.

Under this approach, regulation at wholesale level could be combined with robust retail price transparency. However, price transparency is problematic, and could be easy for operators to by-pass. Moreover, arriving at an agreement which could form the basis of a co-regulatory approach could give rise to competition concerns.

Soft law

The Commission could issue a recommendation on the appropriate prices to be charged for international roaming, possibly based on benchmarked best practice prices.

While soft law approaches in the form of benchmarking have proved effective in the past, lengthy processes are involved, supervision by NRAs is required, and the fact that they are non-binding means they do not provide certainty of outcome.

Targeted regulation

Regulation could be used to tackle wholesale prices, retail prices or both. Wholesale regulation could be based on cost orientation or a price cap. From a retail perspective, there are a number of options, such as prices linked to home pricing, visited country pricing or a cap on retail prices (based on regulated wholesale rates).

Regulatory intervention could also take the form of measures to stimulate further competition, using a concept similar to pre-selection in fixed networks.

Wholesale regulation only

This is the approach suggested by the ERG, which believes wholesale roaming charges should be controlled by means of a uniform European price cap. An index of retail charges would show whether wholesale price reductions were being passed through to retail customers. A form of retail price control could be necessary at a later stage.

The Commission services believe that a modified approach to that of ERG, but which is still based on the use of MTRs as a benchmark, may be required at wholesale level. They also believe that including a trigger mechanism for retail regulation if benefits are not passed through to consumers would be highly complex and raise significant procedural and legal problems.

In their responses to the consultation some EU operators expressed concern that they could be required under the GATS to offer wholesale roaming tariffs to non EC-based operators at a level not exceeding the regulated level. Pursuant to the GATS, national treatment has to be accorded to like services and service suppliers.

Retail regulation only

This option depends on whether wholesale prices are in effect low and whether retail margins are such that retail-only regulation would bring about a decrease in retail prices without creating price squeeze for certain operators.

Intervening only at a retail level could mean that some operators might be forced to offer roaming services below cost. Retail-only regulation is likely to benefit larger operators which already enjoy lower-than-average IOTs, and would not address the problems faced by smaller players.

Wholesale and retail regulation

ERG recognises that if market forces proved insufficient to guarantee substantial pass-through of wholesale gains to the retail level, retail price control might be needed. There is evidence that pass-through of wholesale price reductions to consumers is not automatic. Despite some gains at wholesale level average retail charges have remained high, with margins well above 200% for calls originated while roaming.

Operators have also been making retail margins of close to 300% or 400% for received calls while roaming, even though they could have decreased the prices without the need for wholesale regulation. Economic theory confirms that players do not necessarily have an

incentive to use monopoly profits made at wholesale level to compete for the acquisition and retention of domestic retail customers.

There is therefore a serious risk that if applied at wholesale level only, the ultimate aim of regulation would not be achieved.

Home pricing principle

Retail roaming prices would be 'pegged' to the customer's home prices for comparable domestic mobile services. Parallel action would be needed at wholesale level in the form of cost-orientation obligations or a capping mechanism, otherwise market distortions could ensue.

The home pricing principle was the starting point for the Commission for the second phase of consultation. Given the fact that around 80% of the calls go back home, under this principle such calls would equate to international calls. The impact on operators should therefore not be huge given the fact that there is not a large gap between the price of international calls and of international roaming calls. On the other hand gains to consumers are limited for the same reason. The home pricing principle also poses a number of implementation difficulties.

Visited country approach

Consumers would be charged the actual domestic rate for making a call within the visited country and an international rate equivalent to what a subscriber in that country would normally pay to make an international call.

While this option has advantages, it presents a number of problems in terms of enforceability and transparency.

European home market approach

In order to take account of comments received and of practical implementation issues a development of home pricing, the European home market approach, could be envisaged which would mean EU-wide roaming at rates comparable to those paid at home.

Maximum wholesale prices would be set by reference to a benchmark based on multiples of the average EU mobile termination rates (MTR) as set for operators with significant market power. As ERG has pointed out, the MTR provides an excellent starting point as a benchmark for wholesale prices as it provides transparency, simplicity and certainty.

At retail level a ceiling would be set at a 30% margin above the wholesale rate, to ensure that savings are passed on to consumers. Such a margin is reasonable while at the same time guaranteeing price reductions. Operators would be free to compete at lower margins than these levels. A transitional period of 6 months would be provided to enable operators to adapt. A maximum safeguard price would be set for receiving calls at the level of the MTR plus a margin of 30%.

This approach overcomes the implementation difficulties identified with the home pricing principle and provides greater consumer benefits.

Transparency

Transparency of charges remains a very important issue for consumers. While recent initiatives by the Commission and NRAs have been positive, more needs to be done. These measures could be supplemented by a requirement on mobile operators to provide access free of charge by either short message service (SMS) or a mobile call to personalised information on international roaming tariffs while they are roaming.

Economic impact

Focussing principally on consumer surplus, the retail and wholesale regulation policy option, (different elasticity effects notwithstanding), delivers the greatest benefits. Indicative figures suggest that consumer surplus could be between €5.28 and €5.96 billion, compared to between €2.2 and €2.3 billion and €1.50 and €1.55 billion under the ‘wholesale only’ and ‘no policy change’ options respectively. **Broader impacts**

Dynamic impacts

To the extent that overall mobile revenues would come down as a result of regulation under some of the policy options, it is reasonable to assume *some* reduction of investment following a reduction in roaming charges. However, it is also reasonable to assume targeted cut-backs rather than across-the-board reductions.

Spill-over effects

Some submissions to the consultation suggested that in response to a reduction in roaming revenues, operators could be expected to raise prices for other services. It is reasonable to assume that while at the margin *some* rebalancing of tariffs will occur, a general increase in the price level for other services, given intense competition in major markets, is highly unlikely.

Redistributive issues

The customer segment benefiting most from a reduction in roaming charges will be high-frequency roamers. Other things being equal, business customers who currently are not on large-scale competitive contracts (as would be the case for most SMEs), high-frequency leisure travellers and people living in border regions would profit most from a reduction in roaming charges.

Firm-level effects and consolidation

The impact of regulated price changes at firm level will vary according, first, to any particular firm’s exposure to roaming revenues, and second, to the precise nature of the regulatory approach taken.

ASSESSMENT OF ADMINISTRATIVE BURDENS

All regulatory options presented in this Impact Assessment include some administrative costs, but their significance varies. Wholesale regulation based on a price-cap, as proposed by the ERG, would require regular monitoring of wholesale and retail roaming charges, to ascertain

the pass-through of wholesale reductions to the retail level. This would imply administrative costs for operators and NRAs, not however significantly different from the current situation. Wholesale and retail regulation in the form of price caps would imply a similar administrative burden.

EVALUATION AND MONITORING

If regulatory intervention is required, NRAs will have to monitor and supervise compliance. The principal indicator for monitoring the implementation of the proposal is tariffs at retail level. NRAs should monitor retail roaming charges for voice calls, SMS and multi-media message services (MMS) and should report findings to the Commission on request. One year prior to the review of the functioning of any regulation the Commission could prepare an evaluation report assessing the impact of the measure on markets and consumers.

CONCLUSION

The proposed regulatory option of combining wholesale and retail regulation under what the Commission's services term the 'European home market approach' ultimately results in the greatest benefit to consumers. Each of the other assessed options has specific merits – from being minimally intrusive to offering maximum flexibility to industry. However, only regulation under the 'European home market approach' makes certain that consumers - no matter where they physically are in the EU – have the same experience of using their mobile phone as if at home.

1. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

1.1. Background

This impact assessment (IA) report examines options for achieving substantial reductions in the level of international roaming charges in the EU, and their impact on consumers, users and the industry.

For several years now, there has been growing concern that consumer prices for EU-wide roaming are unjustifiably high. National regulatory authorities, Member States, the European Parliament, consumer groups and users of mobile services have complained about high roaming prices. There is, furthermore, little evidence that the market alone is working to bring prices down. Indeed, over the past months, even mobile operators themselves have in many cases acknowledged that prices are high and that something has to be done. Recent announcements by players in the market of price cuts, to take effect now and over the coming year, have clearly been driven by the threat of regulatory action.

For consumers, continued high prices run counter to their experience in other telecommunications markets. A series of reports¹ on the implementation of the electronic communications framework shows that, while consumers have benefited from increasing choice and lower prices across a wide range of fixed and mobile voice services, they have yet to experience lower prices for roaming within the EU.

From its recent consultation on this issue, the Commission services note that there is widespread support for the goal of reducing international roaming charges. Regulatory authorities at national level have indicated that the problem cannot be addressed using existing regulatory tools, considering its cross-border dimension, and have called on the Commission to propose a single market solution. The European Parliament has also highlighted the issue on a number of occasions, and has called for action at EU level. The European Council in its conclusions in March 2006 noted the importance for competitiveness of reducing roaming charges.

The Commission has published a consumer-oriented website aimed at improving the transparency of these charges. The site not only corroborates the fact that roaming charges are in many cases manifestly excessive, but shows a range of prices across the EU that cannot be justified in a competitive market for calls with identical characteristics in terms of quality, time of day and duration.

¹ Most recently, European Electronic Communications Regulation and Markets 2005 (11th Implementation Report) - COM(2006) 68.

1.2. Chronology of events and current policy framework

1.2.1. EU competition rules

In mid-1999, the Commission decided to carry out a sector inquiry covering *inter alia* national and international roaming services. Based on the results of this enquiry², the Commission carried out unannounced inspections on the premises of all UK and German mobile telephone operators. As a result of this in-depth investigation, in July 2004 statements of objections were sent to O₂ UK and Vodafone UK and in February 2005 to T-Mobile and Vodafone Germany.

The statements of objections set out the Commission's preliminary position, according to which these operators had infringed Article 82 of the EC Treaty. According to the Commission's findings these operators enjoyed a dominant position on each of their monopolistic national wholesale markets for international roaming services since it was necessary for home operators to conclude roaming agreements with all operators in the visited country from 1997 until 2003. All operators in the visited country therefore enjoyed market power *vis-à-vis* home operators. During this period their wholesale tariffs exceeded by far the prices applied by these operators when selling airtime to independent service providers; furthermore, they yielded profits several times higher than other comparable services supplied by mobile network operators³. The new traffic direction technology makes it difficult to maintain from 2004 that each of these operators enjoys a dominant position on the wholesale market for international roaming services. However, since tariffs have remained high, the Competition DG has continued to monitor the market.

Following hearings held in June and July 2005 and a further exchange of views with the parties involved, the Competition DG plans to finalise its investigation in the second half of 2006, possibly with the adoption of formal decisions by the Commission.

1.2.2. Telecoms Regulatory Framework

Concurrently, international roaming was already an issue at the time of the adoption of the new regulatory framework to the extent that the Commission's Recommendation on relevant markets⁴ included the wholesale market for international roaming on public mobile networks (market 17).

² See working document on the initial findings of the Sector enquiry into mobile roaming charges of 13.12.2000 at: http://ec.europa.eu/comm/competition/antitrust/others/sector_inquiries/roaming/

³ For further details see IP/04/94 and IP/05/161.

⁴ Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services - C(2003) 497 (OJ L 114, 8.5.2003, p.45).

Given the urgency of tackling the issue, the Commission urged the NRAs to hasten the process of market analysis in October 2004 following discussions with the ERG. This resulted in the development of a common position by the ERG which was launched for consultation in June 2005. ERG noted that:

- Retail charges were very high without clear justification.
- This appears to result both from high wholesale charges levied by the foreign host network operator and also, in many cases, from high retail mark-ups charged by the customer's own network operator
- Reductions in wholesale charges are often not passed through to the retail customer
- Consumers often lack clear information on the charges for roaming
- There are strong linkages between the markets in the different Member States.

The Commission has drawn attention to these high prices on a number of occasions. For example at the GSM Association World Congress in Cannes in February 2005 Commissioner Viviane Reding told mobile operator CEOs that she was particularly concerned about international roaming charges and that she wanted to see progress.

In March 2005 a hearing on international roaming was organized by the ITRE Committee of the European Parliament, at which representatives of NRAs and market players were invited to speak.

In October 2005 the Commission drew attention to the problem of high international roaming charges and the lack of price transparency by publishing a consumer-oriented website⁵. The site not only corroborated the fact that these charges are in many cases manifestly excessive, but shows a range of prices across the EU that could not be justified in a competitive market for calls with identical characteristics in terms of quality, time of day, and duration. The latest version of the site, made available on 28 March 2006, confirmed that little progress had been made on these charges. Indeed most prices had remained stable and in fact some prices had even increased since the site was first published in October 2005.

The European Parliament, in a resolution on 1 December 2005 on European electronic communications regulation and markets 2004, welcomed the Commission's initiative on transparency in the international roaming sector and called on the Commission to develop new initiatives in order to reduce the high costs of cross-border mobile telephone traffic, so that a real internal market for consumers could be realized.

In December 2005, 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 framework.

⁵ http://ec.europa.eu/information_society/activities/roaming/index_en.htm

Concurrently, at the end of 2005, the DG Competition opened an *ex officio* investigation in Member States under Article 81 EC Treaty in order to ascertain whether exclusive dealings between mobile network operators existed, and why mobile network operators are not necessarily buying roaming minutes from the mobile network operator which sells them at the lowest price. This investigation is still under way.

On 8 February 2006, at the ERG plenary in Paris, Commissioner Reding noted that despite warnings, operators had not acted to bring about a decrease in consumer prices for roaming, and stated that determined action was required.

In March 2006 the European Council noted in its conclusions the importance for competitiveness of reducing roaming charges.

On 4 May 2006, a mini hearing on 'International Roaming – Its Economic Implications' was organized by the European Parliament's Committee on Industry, Research and Energy (ITRE) and the Committee on the Internal Market and Consumer Protection (IMCO). At the meeting, DG Information Society, a regulator (French regulator ARCEP on behalf of ERG), operators (Telia Sonera, Vodafone, T-Mobile) and consumer organization BEUC gave their views on the issue. During question time, MEPs in general reiterated their support for decreases in roaming prices.

The recent consultations conducted by the Commission (see below) on a regulation for international roaming charges confirmed that there is widespread support among Member States, NRAs, consumer groups and even some operators for the Commission's goal of reducing roaming charges. While many operators argue that the market is competitive and that prices are falling, some have proposed either self-regulation or some other form of regulation.

1.3. Consultation

In the first round, from 20 February to 22 March 2006, general feedback on wide-ranging principles to tackle the unjustifiably high prices for roaming was sought. The Commission services launched a second round of consultation, from 3 April to 12 May, on the basis of a specific concept referred to as the 'home pricing principle'. The second phase consultation was placed on the 'Your voice in Europe' website. 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.

The Commission services have kept an open-door policy 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 European Regulators Group (ERG), which established a special project team to provide input to the Commission, have continued during the process of drafting this impact assessment report. In all, from the launch of the first consultation phase, 40 meetings have taken place between the Commission services and interested parties, including 34 bilateral or multilateral meetings with operators, two with the GSMA and four with the ERG.

1.3.1. First-phase consultation

In the first round of consultation⁶, to which a total of 51 responses was received, the Commission called for comment on three questions as follows:

- What form should a regulation of international roaming charges take i.e. should it be targeted at wholesale level charges or retail level or both?
- What regulatory and pricing mechanism (or control) would achieve the desired objectives of such a regulation in the most effective and simple manner?
- What is your view on the impacts, positive and negative, that regulation of international roaming charges at EU level could have
 - In general economic and social terms?
 - On industry players?
 - On consumers?

A synthesis of the responses was published when launching the second consultation on 3 April 2006. Copies of all non-confidential submissions are available on-line⁷.

Broad response

During this phase of consultation, the Commission's initiative to focus attention on the issue of international roaming was broadly welcomed by those national Ministries which responded, by the NRAs – by means of the submission from the ERG, by consumer and user associations (INTUG – International Telecommunications Users Group, BEUC – Bureau européen des unions de consommateurs, and German Telecom e.V.), by members of the public and by some smaller mobile operators who saw themselves disadvantaged by reason of their restricted bargaining power at wholesale level (due to their limited size and independence from the major pan-European operators or alliances).

On the other hand, the associations representing operators, principally the GSMA, ETNO (European Telecommunications Network Operators' Association, Bitkom (German e-communications and new media association) and VAT (Austrian Alternative Telecoms Operators' Association) were opposed to regulatory intervention, as were the large majority of individual operators who responded.

Policy options

Referring to a possible approach to regulation and what form this could take, different views were expressed. A few respondents expressed the wish to see regulation at both wholesale and retail level (Irish Ministry, INTUG, Telecom e.V. and one small operator). The great majority of respondents who addressed this issue favoured wholesale regulation only, although the large majority of these did so only on the hypothesis that some form of regulation was inevitable. The CMT indicated a preference for retail regulation at European level, but only as a last resort.

⁶ http://ec.europa.eu/information_society/activities/roaming/internal_market/first_phase/index_en.htm

⁷ http://ec.europa.eu/information_society/activities/roaming/internal_market/first_phase/index_en.htm

There were suggestions as to other approaches that could be taken. The national Ministries from the United Kingdom and Finland indicated a preference for alternative solutions to the problem of high roaming prices, at least in the first instance. The Finnish Ministry favoured an approach based on an SMP analysis of a cross-border market for international roaming services, while the UK Department of Trade and Industry favoured voluntary or co-regulatory solutions focused on robust arrangements for price transparency. The CMT (Spanish NRA) favoured action under the existing regulatory framework involving market analysis of the wholesale national market for international roaming (market 17 in the Commission's Recommendation on relevant markets) or the definition of a new national or trans-national relevant market.

The operators' associations GSMA and ETNO and a large number of operators recommended the completion of the NRA reviews of market 17 currently under way. Bitkom also referred to the possibility of defining a transnational market under the existing regulatory framework.

Some operators also recommended action under the competition rules, where appropriate, to address anti-competitive or discriminatory behaviour in the international roaming market.

Much emphasis was placed by operators opposed to regulation on the effective competitiveness of the roaming markets at wholesale and retail levels, evidenced in their view by the results to date of market analyses by NRAs, price reductions and the introduction of new tariff packages aimed at roaming customers, traffic direction and volume discounts at wholesale level, as well as the challenges from new technologies such as WiFi and VoIP.

One or two respondents referred to the possibility of mandating some form of wholesale access to the visited network for other operators as an alternative to regulating international roaming prices themselves. One market player argued that price regulation could stifle the MVNO business model and make new market entry more difficult.

Received calls

As for received calls, most of the responses did not explicitly address the issue of the treatment of charges levied on a roaming customer for receiving calls. INTUG was clear that such charges should be abolished. However, two of the operators who responded said that abolishing charges did not take account of the costs (transit and termination) involved and would therefore be inequitable. They noted that abolishing charges would be disproportionate and illegal, since it would require the home operator to provide a service below cost. It could also involve large losses in revenue and cause unpredictable changes in calling patterns.

1.3.2. Second-phase consultation

The second round of consultation introduced the home pricing principle as a possible option for regulation⁸. A total of 101 responses was received from a wide range of stakeholders (operators, NRAs, Member States, trade and users' associations and others, including members of the public). Copies of all non-confidential submissions are available on-line⁹.

⁸

http://ec.europa.eu/information_society/activities/roaming/internal_market/consultation/index_en.htm

⁹

http://ec.europa.eu/information_society/activities/roaming/internal_market/consultation/index_en.htm

Home pricing concept

In line with principles of transparency, comprehensibility for the consumer and parallelism with home-country prices, comment was invited on a concept for ‘pegging’ retail roaming prices to the customer’s home prices for comparable domestic mobile services. Under this ‘home pricing’ approach, a Belgian customer, for example, roaming in Spain and making a local call (i.e. a call to a Spanish number) would be charged a rate not exceeding the rate (as charged by his or her home network) for a local call in Belgium. The same customer roaming in Spain and making a call home to Belgium (i.e. a call to a Belgian number) would be charged a rate not exceeding the rate (as charged by his or her home network) for an international call to Spain from Belgium. The customer would not pay for receiving a call.

Broad response

The responses followed the pattern set in the first phase. In general, most market players were against any form of regulation, and among their arguments they noted the recent market developments as evidence of progress in the market. The argument against wholesale regulation was mainly that this was unwarranted and would create market distortions.

However, there were a few operators (six) who were in favour of wholesale regulation. Given that all of these operators have marked their submissions as confidential, they are not identified here. The possible approaches advocated vary.

One operator suggested a wholesale price cap of €0.25, another that wholesale regulation should apply only to operators with market power, and another that asymmetric regulation should be allowed. Two operators suggested that a formula of 2 x mobile termination rate (MTR) should be applied in order to set the wholesale rate, although one favoured the European average MTR, the other the highest MTRs. One operator also stated that there should be an obligation on every mobile network operator to keep supplying wholesale international roaming services to every requesting operator within the EU, or at least to those with whom roaming agreements are currently in place.

Three operators¹⁰ also suggested different forms of self-regulation as an efficient way of tackling the problem.

The home pricing principle was criticised by all market players, who were evidently against any form of retail regulation. Moreover, many operators also questioned the legal basis for any intervention.

The ERG (24 out of 25 NRAs, CMT again demurring) supported the Commission’s objectives but were against the approach as set out in the consultation document. They reiterated their view in favour of wholesale regulation based on the 75th percentile of average MTRs, with a ‘wait and see’ approach to assess whether retail regulation was necessary. CMT again submitted a separate response noting that it favoured adherence to market analysis but supporting retail regulation in the last resort.

¹⁰ As above, given that these operators have requested that their submission be treated as confidential, these are not being identified for the purpose of this Impact Assessment.

In general, the 10 Member States that responded to the second phase consultation took the same line as the ERG, supporting the Commission's overall objective but showing preference for wholesale regulation only in the first instance. However, together with the ERG they acknowledged that the need for retail regulation could arise if benefits were not passed through to end customers.

1.4. Additional information

In order to assess the broad impact of the policy options set out in this report, the Commission services have used a model which is explained in section 4.2 and further detailed in the annex. To assist in obtaining data for the model, the Commission services requested specific data from the GSMA and from 16 EU operators, selected so as to provide a representative split between large and small players, those with a preponderance of inbound roaming traffic, those providing mainly retail service, and those with a larger service footprint as a result of network roll-out or membership of an alliance as opposed to 'non-aligned' market players.

The GSMA has provided the standard inter-operator tariffs (IOTs) of the majority of mobile operators in the EU 25. On the other hand, while excellent data has been provided by some players, not all have been forthcoming with the specific data requested.

Data sources for the impact assessment included:

- NRAs
- Mobile operators
- Commercial research (investment banks and consultancy reports)
- Commission sources.

The data extracted from these sources allow for reasonable estimates of key assumptions with regard to overall mobile price levels, wholesale and retail roaming prices, business vs. residential demand relationships, and call patterns (outgoing/incoming; destinations)

2. PROBLEM DEFINITION

The core problem is that prices for EU-wide roaming at both wholesale and retail levels stand in no meaningful relationship to the underlying costs of providing the service. This problem is compounded by a lack of transparency of prices at retail level which means it is extremely difficult for consumers to understand what they will actually pay. The Commission and some national regulatory authorities have attempted to address the transparency problem by creating websites for roaming prices but these initiatives have not led to sufficient improvements.

Unlike most other problems in the telecommunications market this issue cannot be solved using existing regulatory tools. Having studied this market carefully, national regulatory authorities have alerted the Commission services to the fact that they believe the problem is 'non-trivial' and requires action at EU level. A key issue is the cross-border nature of this service whereby no one national regulatory authority can solve the problem.

At this point the problem is defined as relating to international roaming voice services. During the consultation process some respondents identified similar issues of unjustifiably high prices with data services such as SMS and MMS. However, the basis for this initiative is not only that the charges at wholesale and retail levels are unjustifiably high but also that the problem cannot be addressed effectively national level. National regulatory authorities have not to date identified similar issues when it comes to SMS services and consequently have not called on the Commission to address the problem at EU level.

In relation to MMS services it remains difficult at this stage to foresee how such data services and access to Internet will develop. At this stage of their development there are clearly significant risks of applying inappropriate regulation which could hinder the development of this market.

The remainder of this section provides more detail on the background and nature of this problem.

2.1. Background

The EU regulatory framework for telecommunications services is designed to ensure that competition drives the provision of quality services, choice and lower prices to consumers. A series of reports¹¹ on the implementation of the framework shows that consumers are indeed benefiting from lower prices for fixed and mobile voice services, with one notable exception, international roaming. There is a further anomaly in that travellers face excessive charges for *receiving* mobile calls while they are abroad.

The dynamics of roaming differ depending on the type of operator, its geographical location and its position in the market. Some operators are preponderant recipients of wholesale revenues. Other operators make high profits by relying principally not on wholesale revenues but on very high margins at retail level. The relationship between wholesale charges and retail charges is complex and not amenable to simple explanation. However, it is true that from an operator's point of view high input prices (wholesale inter-operator tariffs IOTs) are not much of a commercial problem if (1) everyone else is paying high input prices, too, and (2) input prices can easily be recovered from one's own retail customers, as is presently the case¹².

It is also interesting to note 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 versa¹³. 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, because operators would seek to

¹¹ Most recently, the 11th Implementation Report - COM(2006) 68.

¹² Indeed, the argument could be made that from an operator's perspective a high IOTs can be a good thing, as they serve to justify high retail prices for its own customers: For a given margin that is applied on top of IOTs, higher IOTs will lead to higher profits. The argument holds true as long as the relative (i.e. between firms) level of payable IOTs remains unchanged.

¹³ Note that input prices for active calls (IOTs) are completely unrelated to input prices for passive calls (MTRs).

preserve the current price ratio between active and passive calls. This casts some doubt on the possibility of pass-through which is considered in more detail later.

2.2. The nature of the problem

2.2.1. The economic and commercial context

International roaming is a significant issue for both operators and consumers. In revenue terms the GSMA estimates the market for international roaming to be worth around €5.5 billion for operators in the EU. Total value of the mobile industry in the EU is estimated to be around €150 billion, according to analysts' and industry estimates. Roaming constitutes around 5.7% of all revenues. In terms of profitability measures such as EBITDA¹⁴, roaming is very significant.

The commercial importance of roaming varies according to types of operators. For countries that have a positive traffic flow of tourists/business travellers, high-margin wholesale roaming revenue may constitute a higher percentage of overall revenues.

The GSMA has estimated that 45% of EU citizens travel outside their own country within a period of one year. According to analysis by A.T. Kearney, a consultant retained by GSMA and quoted by the latter in its submission in response to the second-phase consultation, out of 439 million mobile subscribers, 66% or 293 million never roam. Taking the estimates provided by the GSMA, it can be seen that roaming prices have a direct effect on at least 147 million EU citizens. It can also be seen, of course, that with such low figures for roaming penetration (roughly half of all customers travel abroad but only a third uses roaming services) retail roaming prices must be at extremely high levels. After all, penetration rates for the use of standard domestic mobile services are significantly higher than 80% - mainly as a result of decreasing prices over the past years.

The GSMA goes on to say that, out of 147 million roamers, 110 million are business customers while 37 million are travelling for leisure purposes. Roamers can also be segmented by usage: 116 million or 26% of mobile subscribers are heavy roamers, 22 million or 5% of mobile subscribers are medium roamers and 10 million or 2% of mobile subscribers can be considered light roamers¹⁵.

Operators have argued that their customers do not all use roaming. For example Vodafone, in the ITRE hearing in the European Parliament on 4 May 2006, noted that 35 million of its 100 million European customers travel each year, and that of these, 30 million are roamers.

The GSMA suggests that analysis of different roaming customers reveals that the major beneficiaries from lower prices would be business customers and more affluent leisure customers who roam frequently, at the expense of consumers who roam less often. However, the GSMA does not substantiate why this should be the case. Indeed in general, corporate customers already have significantly lower rates than residential customers according to the submissions by most operators.

¹⁴ Earnings before interest, tax, depreciation and amortisation.

¹⁵ However, no definition is provided as to what makes a heavy roamer, a medium roamer or a light roamer, nor are minutes generated by each profile provided.

In fact, input from consumer representative groups, including the International Telecommunications Users Group (INTUG), suggests that the benefits of lower roaming charges would be welcomed by a very wide cross-section of consumers.

It is therefore evident that while large corporate clients have been able to benefit from cheaper roaming rates, small and medium enterprises (SMEs), which are crucial for Europe’s competitiveness, are not reaping the same benefits.

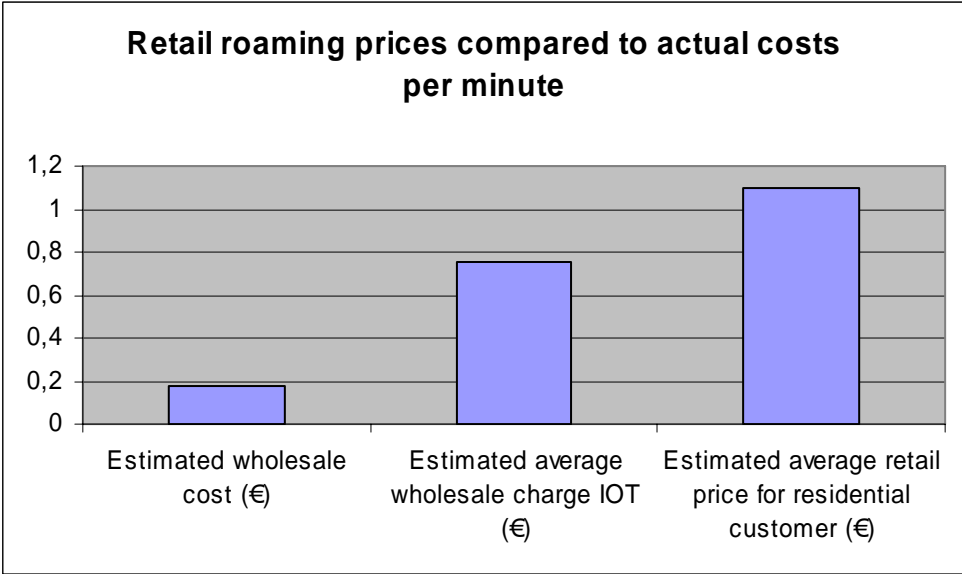
2.2.2. Wholesale charges – Inter-operator tariffs (IOTs)

International roaming services differ from all other telecoms services in one respect: the customer buys the services of an operator in one Member State; however, when the customer travels abroad, he or she is connected to the network of a foreign operator, which provides facilities for making and receiving calls and bills the home operator for this ‘wholesale’ service. The level of these charges does not appear to be justified by the underlying costs and there appears to be insufficient competitive pressure on operators to bring prices down.

IOTs can take different forms in that many operators distinguish between peak and off-peak tariffs, phoning in the visited country or in different international zones including the home country. There are also IOTs for data and SMS.

Operators bill for IOTs in different ways. Some use a flat-rate tariff structure while others opt for destination-specific charges. In addition some operators use per-second billing, while others charge in intervals varying between 15 seconds and 30 seconds for example. More recently, operators charge different IOTs for on-net and off-net calls within the visited country.

In their presentations and responses to the consultation, operators claim that competition in the wholesale market is working and is helping to bring down wholesale prices (IOTs) considerably. They claim that traffic steering i.e. the ability to direct traffic to a specific operator enables them to guarantee volumes to their wholesale partners for which they can negotiate better wholesale prices.

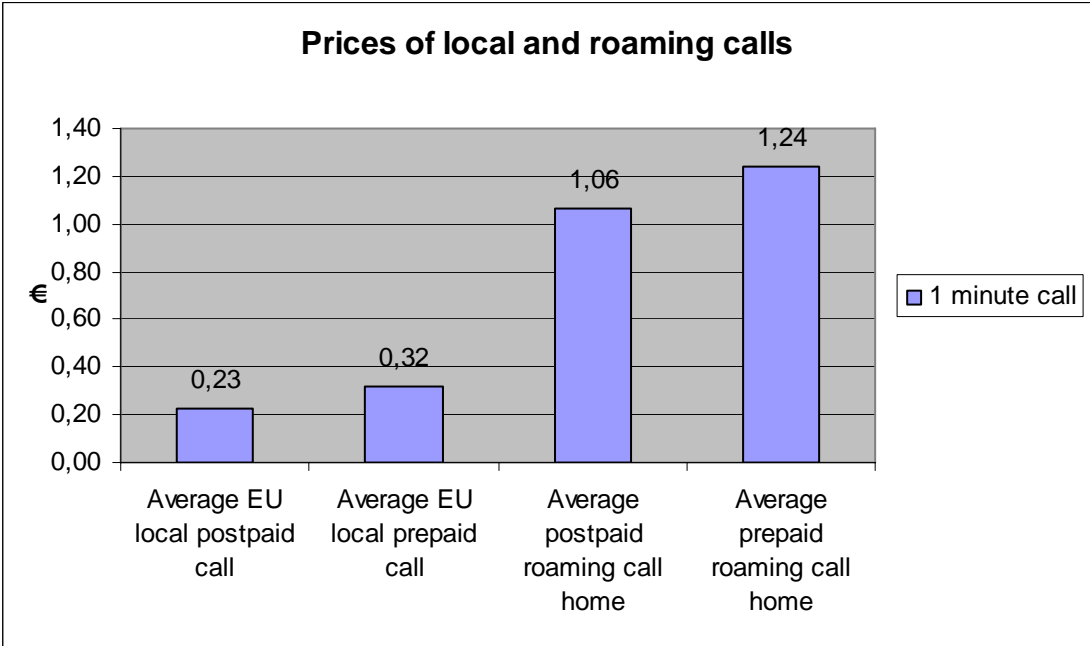


The table above illustrates the difference between the actual estimated cost (includes a margin and is based on confidential industry input), the IOT charged and the average price the end customer has to pay for a roaming service. As can be seen from the above the level of IOT charged is almost 4 times the cost. Despite the fact that there are signs of wholesale prices coming down for some operators, the level of the wholesale IOT charge suggests that wholesale prices are still significantly above costs and that not all operators are benefiting from reductions.

Nominal IOTs¹⁶ should be the starting point of the analysis since they give an indication of how the system works. Most operators – though not all - obtain better rates through volume discounts, and will therefore have different agreements in place than the standard tariffs. Wholesale input costs – taken here as IOTs - clearly are one aspect of our discussion in this impact assessment of persistently high retail prices. However, there are others (demand characteristics for roaming services, for instance), and it is to these that one must turn for a better understanding of the problem.

2.2.3. Retail prices and transparency

Average retail roaming charges are roughly 4 times higher than the equivalent prices for domestic calls. The graph below, based on Commission estimates¹⁷ illustrates the difference in the average price of a domestic and a roamed call of a one-minute duration.



¹⁶ Nominal IOTs are the rates operators would get if they did not have the buying power to negotiate discounts. Such IOTs are placed on a GSMA database and are available on a confidential basis to operators. The GSMA has provided the Commission with copies of the IOTs following a request for this information.

¹⁷ The Commission has calculated the average retail domestic and roaming prices for standard tariffs in 12 Member States as of April 2006.

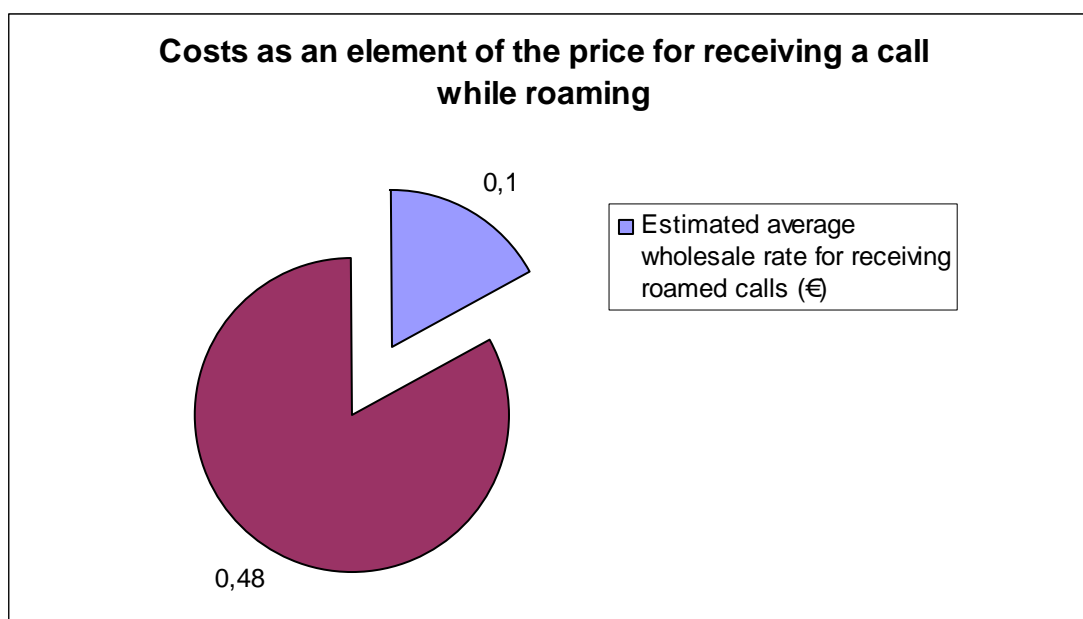
The domestic and roaming tariffs shown above are standard tariffs, so that like is being compared with like. In general, typical retail charges for a post-paid customer range from around €0.80 per minute to around €1.30 per minute on average, while charges for pre-paid roaming are around 25% higher.

While some of the difference between retail roaming charges and domestic charges can be explained by unjustifiably high wholesale charges for roaming it is also clear that in many cases the retail prices for roaming seem to be set without reference to the wholesale charge. For example, even where wholesale charges differ significantly, the home operator will often charge the same rate for roaming on each network. Leaving recent moves by operators aside (which are clearly a response to the threat of regulation) it seems that there has been relatively little movement in retail prices over recent years despite some reductions at wholesale level. Confidential data provided to the Commission suggests that operators have benefited from higher margins as a result of reductions in prices at wholesale level.

The unjustifiably high level of roaming charges is evident from the differences in prices that apply for apparently similar calls. For example, a typical price for a local call in Poland is around €0.19. A German customer who crosses the border to Poland can pay from €0.34 to €2.56 per minute for making the same local call i.e. from more than 3 to 9 times the price for the Polish customer. These differences cannot be explained by cost differences.

A French customer roaming in Italy will have a similar experience. The price of a typical local call for an Italian customer can be around €0.10. However, if a French customer crosses the border to Italy he/she will pay from €0.50 €1.18 per minute for making the same local call. Once again these differences cannot be explained by costs. As to transparency, consumers may face difficulties in determining the cost of international roaming in view of a number of factors. It is a problem that has also been acknowledged by the industry. Part of the problem is the sheer volume of tariffs a consumer faces as well as complexity. To know the exact price of a call may prove to be impossible, since call-set up charges could apply and operators may charge on a per minute or a per second basis.

High retail prices charged for receiving calls are not commensurate with the costs incurred by the operator; one reason could be the fact that receiving a call is treated as a substitute for making a call and is priced accordingly.



The above chart shows the estimated underlying costs incurred by an operator when a customer receives a call while roaming, as a proportion of the overall average charge to the consumer of €0.58. The operator will have to pay a termination rate to the mobile operator in the visited network, together with a transit charge. However, the home operator will have either received a termination charge from the originating network or a retail on-net tariff from the caller. In fact the actual net real cost to operators may be less than €0.10 on average.

The price for receiving a call is clearly an area where operators could act immediately without the need for any movement on wholesale rates. However, operators have an incentive to keep prices for receiving calls high, as otherwise consumers would prefer to receive calls rather than to initiate them.

Transparency of these charges is also a major issue. For example, some operators have a strategy of charging different rates depending on the network used when roaming, while others have flat rates for calls originated within a given country or even a flat-rate tariff for Europe, making it extremely difficult for consumers to determine the exact price for a roaming call.

As indicated above, the Commission, through the launch and updating of its website on international roaming charges, and the NRAs through similar initiatives at national level, have responded to the need for greater transparency. The Commission's initiative was very successful as a means of placing the spotlight on the level of these charges. However, despite this attention the mobile industry did not respond with significant reductions in charges. Therefore, while improved transparency is important, such measures alone are clearly not sufficient to resolve the problem of high charges. At the same time more could be done by the industry to improve the current levels of transparency. A proposal for improving transparency of roaming charges is outlined later in this paper.

2.3. Technological and market evolution

Voice over IP

Voice over IP (internet protocol) has to a certain extent revolutionized 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. Given that the early adopters of such handsets are likely to be business users which can negotiate special roaming packages, such a development is unlikely to bring about significant market change for the majority of consumers in the short-to-medium term.

Traffic direction or steering

On the other hand, as a result of technological developments and smart SIM cards, operators can now direct consumers to their preferred networks while roaming for around 80% of roamed calls. This is done using technologies which are known as traffic steering¹⁸. This has enabled operators to negotiate volume discounts.

However, it seems that retail customers are not yet seeing the benefits of such discounts at wholesale level. In fact operators often offer the same retail tariffs for roaming irrespective of the network on which their customer is roaming. In other words, even though the operator may benefit from a better wholesale deal, the end-customer is charged the same retail price. This obviously means that pass-through of savings is not automatic although some operators claim that they adopt this strategy for transparency reasons. Furthermore, there is no guarantee that an operator will direct traffic to the cheapest wholesale provider, particularly if it has special economic links with an operator in another Member State.

Gateways

A further possible technical development involves 'gateways'. Gateway operators could offer parallel interconnection of networks, and would generate revenues by using cheap local calls on source and destination networks and routing these calls on through their own interconnection network. In terms of business model, this compares to the call-back services of the early 1990s. Technically, they involve a battery of GSMs making calls on both the originating and destination networks and an interconnection infrastructure (leased lines or high-speed IP connections).

The use of gateways appears to be legal in some Member States but illegal in others. There are currently court cases for example in the United Kingdom relating to the use of this technology, where the NRA has declared such reselling to be illegal. The use of gateways could have an effect on international tariffs and hence on roaming charges. However, given the uncertain legal situation across Europe and the likelihood that this would be a marginal

¹⁸ Traffic steering is the ability of an operator to use different technologies that enable them to actually determine the network on which a consumer roams.

business opportunity that would disappear as prices came closer to cost, the chances that it will have a big impact on international roaming prices are small.

2.4. The case for EU action (subsidiarity test)

The Commission has been aware for some time of the specific characteristics of the international roaming market and the potentially damaging impact of unjustifiably high prices on consumer welfare. Many of the issues connected with roaming have accordingly been aired extensively, in connection both with specific cases examined by the Commission under its Treaty powers and, more pertinently, in the process leading to the adoption of the 2002 e-communications regulatory package¹⁹. As a result of specific concerns relating to the roaming market arising in that context, and following lengthy consultation, the national market for international roaming services was specifically included in the annex to the Framework Directive as a market to be included in the Commission Recommendation on relevant markets. This resulted in the inclusion in the Recommendation of the wholesale national market for international roaming on public mobile networks (Market 17).

However it has become clear that the subsequent inclusion of this market in the Recommendation did not fully equip national regulatory authorities to deal with this issue. Moreover, the attempt to enhance transparency of prices, through the launch of a European roaming website, has not had the expected effect in terms of lowering prices. Considering this and in the light of calls from the European Parliament²⁰, the Commission services launched two rounds of public consultation which have been summarized above.

This has led to a situation where NRAs on the one hand, acting through the European Regulators' Group, claim not to be in a position to act, and, on the other, have called on the Commission to act by proposing a legal instrument at European level. In the absence of any action to address this problem there will 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.

Consequently, since the tools provided to national regulatory authorities on a harmonised basis by the existing EU regulatory framework have not proved sufficient to enable those authorities to act decisively in the consumers' interest to bring down the level of international roaming charges, it is necessary to amend the regulatory framework and to ensure that legal and administrative measures taken at national level are harmonised, so that obligations imposed are effective on a cross-border basis and that divergent approaches by Member States do not constitute an obstacle to the realisation of the internal market or distort the competitive conditions for international roaming services across the Community.

¹⁹ The five directives of the European Parliament and of the Council establishing a framework for the regulation in the EU of electronic communications services: the Framework, Authorisation, Access, Universal Service and e-Privacy Directives.

²⁰ European Parliament resolution on European electronic communications regulation and markets 2004 (2005/2052(INI)), 1 December 2005, point 28: "The European Parliament ... calls on the Commission and the Member States to analyse which structural changes are needed in order to ensure adequate and transparent roaming charges; furthermore, urges the Council to instruct the Commission to draw up an action plan and timetable that will enable consumers to benefit from international roaming at the best possible cost and as soon as possible, throughout European territory, with continuity of service".

The ERG noted that it has put considerable effort into analysis of roaming services using the tools provided by the current framework. While the ERG believes that the Framework is generally sound, nevertheless in the exceptional case of international roaming markets, the Framework does not provide effective regulatory tools. It added therefore that given the urgent need to resolve the roaming pricing issue, the ERG agreed that an EU initiative to tackle the problem was the only appropriate approach.

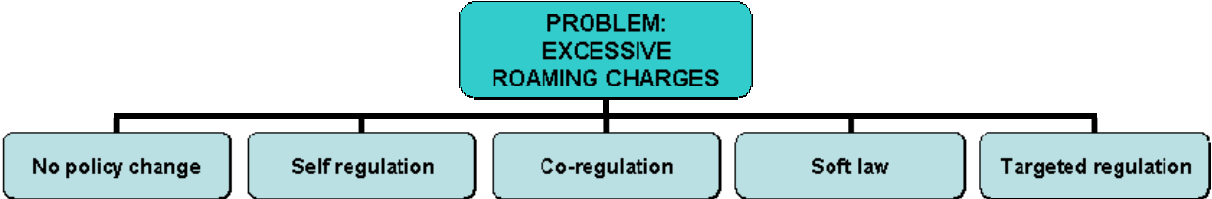
3. OBJECTIVES

The objective of EU action is to promote the 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. This means that the 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 within his home country. The gains for consumers should be significant in terms of immediate price reductions and overall welfare. These would allow for a clear demonstration that Europe can act in the interest of citizens in a case where Member States are not equipped to act. In addition, lower roaming rates would strengthen the competitiveness of European industry, which is a user of roaming services.

4. OPTIONS AND IMPACTS

4.1. Policy options

There are a number of ways in which the problem of excessive roaming charges could potentially be solved. For example, regulation may not be necessary if market or technological forces act in the short term to bring prices down. Equally, regulation could be avoided if acceptable and effective self-regulation is an option. 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. It is necessary therefore to consider the potential impact of regulatory and non-regulatory approaches. The graph illustrates potential strategies or policy options for achieving lower roaming prices. These options and their potential impact are examined below.



Option 1 – No policy change

Before taking action, regulatory or otherwise, to resolve a particular problem the possibility of ‘doing nothing’ should be considered. In other words, is intervention in some form necessary or will the issue resolve itself within an acceptable timeframe? If no action is taken will roaming charges fall? The chronology of events leading up to this initiative clearly indicates that action has already been taken by the Commission and NRAs to attempt to reduce roaming charges. This includes competition law investigations, initiatives aimed at promoting transparency of prices (at EU and national levels), regulatory action under the current telecoms framework and continuous political pressure. The problem has been recognized for some time and a range of action has already been taken. The issue therefore is not to ‘do nothing’ but rather to consider whether a change in policy is required.

Faced with the threat of regulation²¹ a number of major EU operators have announced price cuts in the second quarter of 2006 which could amount to significant reductions when compared to existing tariffs. It would appear that these offers are not a response to the forces of competition but rather to the threat of regulation. In most cases, these packages are offered to customers on an opt-in basis. Political pressure has led operators to act and to announce initiatives that aim to bring about a decrease in the consumer price for roaming.

Some developments have also taken place at a wholesale level with six operators who between them have around 200 million mobile subscribers in the EU announcing that they would be offering wholesale rates of €0.45 as of October 2006 and reducing to €0.36 in October 2007. Another operator had announced a similar wholesale rate of €0.45 as from October 2006 on a reciprocal basis. These developments would need to be analysed throughout their implementation, given the fact that to date cost savings have not always been passed on to consumers.

Smaller operators have argued that wholesale rates need to be lower if they are to be in a position to compete, otherwise they would be squeezed out of the roaming business. Given the dynamic of the mobile industry, further consolidation could take place in the medium to long term giving rise to a small number of pan-European operators. Such a development could also change the way roaming is being delivered to consumers.

From a regulatory perspective, NRAs that have not analysed market 17 for wholesale international roaming would need to continue with their analysis but in many cases would probably be unable to find dominance. Meanwhile, it is also expected that DG Competition will finalise its investigation in the second half of 2006, possibly with the adoption of formal decisions by the Commission. However, given that this is an ex-post investigation involving four operators, it would be unlikely to have an impact on the whole roaming market.

If no new action is taken by regulatory authorities the status quo is preserved i.e. there would be continued reliance on existing tools for regulatory intervention (including the telecoms regulatory framework and competition law remedies), political pressure could be maintained and market and technological developments would take their course in the hope that this would lead to the desired objective.

²¹ Vodafone, T-Mobile, Telefónica O₂ and Orange announced price cuts to their roaming tariffs during the final week of the consultation period.

Despite these developments, and despite the fact that mobile penetration is reaching record levels in the EU, the discrepancy between domestic prices and roaming prices remains high. In many instances it has even increased, as domestic prices have gone down while prices for roaming have remained relatively stable.

Option 2 – 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.

One submission by an operator indicates that the industry is currently considering such a proposal. The operators would draw up a code of conduct in which they would commit themselves to further price reductions. The proposal, which is currently being reviewed by the operator community, calls for a decrease of IOT tariffs to below €0.40.

In the submission, the operator notes that this would mean a significant reduction in today's discounted IOTs and it would also leave room for operators to compete for inbound roaming traffic by agreeing additional discounts to bring the effective IOTs below the cap. The operator is also proposing a retail price index to ensure that these savings are actually passed through to consumers. The operator notes that the code of conduct has the advantage that it could already become effective in the course of this year.

From publicly available information, it is becoming clear that some operators (the larger operators in Europe) are already charging in some cases a wholesale level IOT (with discounts) which is very close to €0.45. Vodafone, in a recent announcement, was also willing to offer a wholesale rate on a reciprocal basis of €0.45 or less. Operators have also indicated that a cap of €0.45 would still allow for competition because operators could offer rates below that and direct volumes through traffic steering.

Another proposal which was suggested by one operator in its response to consultation includes a wholesale cap of €0.45 and a retail average cap of €0.55. This cap would apply to operators who agree to steer 80% of their traffic to that operator. It claims that this would immediately bring about a decrease in IOTs for the smaller operators and allow for competition based on volume discounts for the larger operators. The proposal also suggests that this offer could be made on a reciprocal basis to operators in third countries thus ensuring that WTO/GATS concerns are mitigated.

Option 3 – 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.

Sectoral agreements and means of implementation must be made public in accordance with arrangements that have yet to be defined. The parties concerned must be considered to be representative, organised and responsible by the Commission, Council and European Parliament and according to the IIA they must be ‘recognised in the field’ (such as economic operators, the social partners, non-governmental organisations, or associations). Co-regulation combines the advantages of the binding nature of legislation with a flexible self-regulatory approach to implementation that encourages innovation and draws on the experience of the parties concerned. A drawback is the need to set up monitoring arrangements.

In the context of international roaming, such an approach could mean that a Regulation would set out broad parameters with perhaps targets for price reductions to be achieved. It could also include a regulation at wholesale level with additional co-regulatory elements such as industry agreements to increase transparency or to monitor prices. Clearly any collective industry action or agreements in relation to prices could raise competition concerns. The potential effectiveness of such approaches is considered later in this document.

Option 4 – Soft law

Under this approach, the Commission could issue a Recommendation to Member States or operators, possibly under Article 19 of the Framework Directive, on the appropriate prices that should be charged by operators for international roaming services. These prices could be based on benchmarked best practice prices applicable in the EU. 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’ prices are out of line with best practice prices in the EU.

Option 5 – Targeted regulation

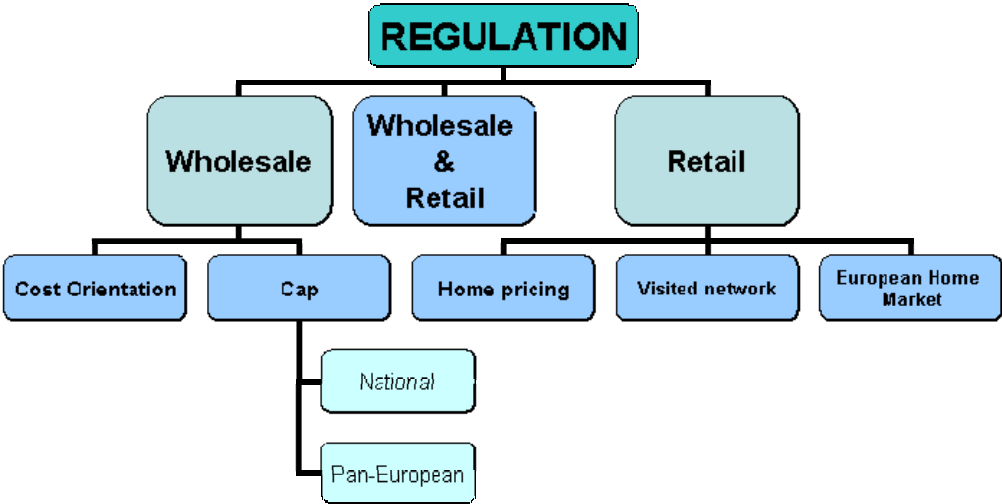
If other options are deemed to be insufficient, then it would become necessary for a regulation to bring about the desired objectives set out in this impact assessment.

Regulatory intervention could take the form of measures designed to stimulate further competition or focus on prices. Currently users are forced to buy roaming service from their operators. Therefore one could consider remedies that would open the roaming market to greater competition, for example, using measures comparable to the preselection concept in fixed networks. Technically that would mean that access to the registers of connected users that are used in GSM to route roaming calls would need to be amended so as to allow for another (roaming) operator to handle the calls of a roaming user. Opening up the core signalling infrastructure is an option, but could require a change in signalling standards and implementation in the signalling software of all operators. Whilst not impossible, this would

take time (probably in terms of years) and such measures could well be overtaken by other technological developments. In that context, if regulation is required, it would appear that it would be more effective if directed at the obstacles to the internal market.

A number of options would therefore need to be considered. In the context of international roaming the first question that needs to be addressed is whether any regulation would tackle wholesale prices, retail prices or both. If wholesale regulation is necessary it would then have to be decided whether to opt for a wholesale regulation based on cost orientation or a price cap. From a retail perspective, there are again a number of options that could be used. For example prices linked to home pricing, visited country pricing or a cap on retail prices (based on the regulated wholesale rates).

These options are illustrated in the graph below:



In the second phase consultation the Commission proposed a possible option for discussion called the ‘home pricing principle’. This approach includes regulation at both wholesale and retail levels.

Option 5.1 – Wholesale regulation only

In its submission, the ERG said it believed that wholesale roaming charges (inter-operator tariffs for handling roaming calls) paid by one mobile network operator (MNO) to another should be controlled by means of a uniform European price cap.

The cap, under the ERG proposal, would be set at twice the level of the 75th percentile of the national average rates for mobile termination. The current rate would be about €0.30 per minute. ERG has chosen this benchmark as it considers that it is an effective proxy for the cost of provision of wholesale international roaming services.

ERG also proposed the construction of a robust and authoritative index of retail international roaming charges so as to allow movements in average charges to be monitored over time. In particular, this would permit transparency as to whether wholesale price reductions were being passed through to reductions in retail roaming prices.

The ERG noted that market forces may prove insufficient to guarantee a substantial pass-through of wholesale reductions to the retail level within a relatively short period. Therefore, a form of retail price control could eventually be necessary at a later stage. The ERG proposal is a price cap per minute on every roaming call, set at different levels for making and receiving calls. The ERG proposes that NRAs should then be given discretionary powers to impose a lower cap on their national MNOs in accordance with national circumstances.

Option 5.2 – Retail regulation only

The impact assessment will analyse whether such regulation at the retail level could bring about decreases in prices for consumers and whether this could be a workable solution. The impact assessment therefore needs to analyse whether wholesale prices are in effect low and whether the retail margins of operators are such that retail-only regulation would bring about a decrease in retail prices without creating price squeeze for certain operators.

Option 5.3 – Wholesale and retail regulation

Assuming that regulation at wholesale level only or retail level only are not sufficient to achieve the objectives set, then it will be necessary to consider regulation at both levels. This Impact Assessment analyses three different approaches to wholesale and retail regulation, namely the home pricing principle, the visited country approach and the European home market approach.

Home Pricing Principle

The home pricing approach was proposed as an option for a regulation on roaming calls, in line with objectives of transparency, comprehensibility for the consumer and parallelism with home-country prices. The proposal was that of ‘pegging’ retail roaming prices to the customer’s home prices for comparable domestic mobile services.

Under this ‘home pricing’ approach, a Belgian customer, for example, roaming in Spain and making a local call (i.e. a call to a Spanish number) would be charged a rate not exceeding the rate (as charged by his or her home network) for a local call in Belgium. The same customer roaming in Spain and making a call home to Belgium (i.e. a call to a Belgian number) would be charged a rate not exceeding the rate (as charged by his or her home network) for an international call to Spain from Belgium.

Under this approach to retail regulation, action would need to be taken in parallel to ensure that prices for the services provided by the visited network (‘wholesale’ prices) were also regulated, otherwise market distortions could ensue. It was envisaged that under this approach, wholesale regulation could take the form of cost-orientation obligations, in particular to calls assimilated to local calls in the home country, or a capping mechanism, possibly on a transitional basis until regulatory authorities have developed the cost models and enforcement mechanisms to verify and implement cost orientation.

The approach under the home pricing principle is also that of abolishing charges to consumers for receiving calls while roaming in another EU Member State.

Visited country approach

An alternative to the home pricing principle at retail level could be the visited country option. Under this principle, consumers would be treated as if they were customers in the visited country. This would mean that they would be charged the actual domestic rate for making a call within the visited country and an international rate equivalent to what a subscriber in that country would normally pay to make an international call.

This option has also been proposed by CMT, the Spanish regulator, which sent a separate submission from the ERG. CMT notes that “the best approach would be to apply retail prices as set out in the visited country for services analogous to international roaming services.

For originating calls:

- Home country calls from the visited country
- National calls within the visited country
- Calls to third countries from the visited country

(Maximum international roaming retail price = average retail price in the visited country + margin)”

CMT proposed that this formula implies less distortion than the “home pricing principle”, regarding the non-discrimination and proportionality principles. The price structure proposed by the Spanish regulator is similar to the home pricing principle, although applying the prices of the visited country principle instead of those of the home country.

European Home Market Approach

In order to ensure that European consumers have similar experiences in terms of mobile call costs while at home or abroad a development of home pricing – the European home market approach – could be put in place which would mean EU-wide roaming at rates comparable to those paid at home. In line with the home pricing principle, the starting point of the system would be the national mobile termination rates (MTR.) A system of limits at wholesale and retail level which are reflective of pan-European prices could be put in place in order to fulfil these objectives. Under such a system, ceilings for prices would be set at wholesale and retail level for calling within the visited country and for calling home/within the EU 25.

The Commission services see merit in this principle but believe that an average EU MTR provides a better basis for a pan-European internal market approach. Equally, the Commission Services believe this approach could be further refined by introducing separate wholesale price limits for calls back home/to another EU country and within the visited country. A limit of twice the MTR would be applied to wholesale prices for calls within the visited country and three times the MTR could be used for calling back home/to another EU country. This differentiated approach reflects better the additional costs involved in calling back home and the actual market approach by operators which is to charge different wholesale prices for different call types.

At retail level a ceiling would be set at a 30% margin above the wholesale rate to ensure that savings are passed on to consumers. Such a margin provides operators with a reasonable degree of comfort while at the same time guarantees reasonable price reductions. Operators would of course be free to compete at lower margins than these levels. The use of such a mechanism will not prevent innovative packages such as bundles subject to a ceiling per minute charge calculated in accordance with this formula. This ceiling on active calls could come into effect six months after the Regulation comes into force. There is general agreement among most interested parties (except of course the industry) that with margins of at least 300% to 400% charges for receiving calls are particularly exorbitant. It is therefore clear that these levels of unjustified charging could not continue in the long term. As outlined in section 2.2.3 the real cost to operators for these calls is less than €0.10. In fact, despite the fact that regulated MTR rates have fallen gradually in Europe over the last number of years, there has been little corresponding progress on the retail rates for this service. This fact provides further evidence that charges at retail level stand in no meaningful relationship to the underlying costs. The MTR provides an excellent basis for the key cost component of receiving calls. On this basis it is proposed to set a maximum safeguard limit for the prices that operators may charge for receiving calls. This safeguard limit could be calculated as one MTR plus a margin of 30%. Such a formula will enable operators to recover their costs and receive a healthy profit margin. It will also mean very significant reductions in prices for consumers for this service.

From maximum wholesale charges to maximum retail charges

Wholesale level

The ceilings set at wholesale level can be seen as a generous proxy for the underlying costs of service provision. Maximum wholesale level prices would therefore be set by reference to a benchmark based on multiples of the average EU mobile termination rate (MTR) for operators with significant market power. As ERG has pointed out the MTR provides an excellent starting point as a benchmark for wholesale prices. The use of the MTR as a benchmark for wholesale prices is also supported by some industry players.

In the case of mobile termination costs, NRAs have developed sophisticated economic modelling tools for calculating firms' underlying cost structures and for establishing MTR estimates. By and large, it is possible to build on these models for purposes of the present analysis and use these as a proxy for establishing the costs of roaming services.

The MTR is already regulated in the majority of Member States for operators with significant market power which provides additional transparency, simplicity and certainty. In addition further gains can be expected as the downward trend of MTRs continues. It is proposed to use the EU weighted average MTR for operators with significant market power (SMP). For illustrative purposes, in October 2005 this was 12.64 cents compared to 13.81 cents for non-SMP operators. The average MTR for all operators in the EU was 12.96 cents.

Thus, for the case of roamed calls made back to the home country, to another EU country or within the visited country, industry costs may be approximated by using a multiple of an EU average MTR for modelling origination costs, termination costs, transit costs, attributable network and common costs, and costs of capital²². The two principle legs of a mobile call are origination and termination. It is generally accepted that the termination cost acts as a good proxy for origination. In that case we can assume that the regulated MTR provides a sound benchmark for both origination and termination. It is therefore proposed to set a maximum wholesale price level for calling within the visited country at two times the average EU MTR.

In order to reflect some additional costs such as higher transit, as well current commercial practice whereby rates are differentiated between, inter-alia, calling home and making a local call, it is proposed to allow a higher rate of three times the MTR as a benchmark ceiling for the price of a call home or within the EU.

Retail level

Regulation at retail level under the European home market approach proceeds on the basis of this analysis and establishes safeguard limits by granting a commercial margin on top of the MTR multiples used for the wholesale level²³.

The value of the price caps is computed by granting firms a margin that is in accordance with the general philosophy of the European home market approach – namely that consumers, no matter where they geographically are in the European Union, have the same experience as at home – and with the commercial reality of the mobile industry. In a competitive equilibrium setting, the demand for roaming services for a variety of reasons (for instance transparency or consumer preferences) is likely to be less price-elastic than the demand for other mobile services such as on-net calls²⁴. This would suggest that in a competitive setting the retail margin for roaming services would be slightly higher than the average retail margin for all mobile services. Similarly, seasonality effects and network bottlenecks for roaming services would suggest slightly higher retail margins than apply to services where these factors are absent.

The average EBIT margin for the European mobile industry can be estimated at 26.8% for the year 2005²⁵. Adjusting this accounting measure for capital costs in order to compare it to the wholesale cost-base defined by the regulation as a multiple of MTRs, this yields an average retail margin of 23.1% on top of the cost-base for all mobile services.

²² While marketing and network costs attributable to roaming are clearly very low, they can also be taken as correctly approximated by a sound MTR multiple.

²³ It is thus basing its retail price regulation on an approximated industry cost function model, rather than simply on out-of-pockets costs such as payable IOTs.

²⁴ This is not to say that price elasticity is generally lower for roaming services. Clearly, in a hypothetical monopoly setting, the monopolist would maximise profits by setting prices for roaming services at marginal revenue and thus at the *elastic* part of the demand curve.

²⁵ Commission estimates.

Based on MTR figures from the 11th Implementation report, the retail cap of 32.9 and 49.3 eurocents for the two kinds of active calls respectively and 16.4 eurocents for passive (receiving) calls, arrived at by using the European home market approach, allows a higher retail margin than a mobile operator could expect to make for an average mobile service and thus strikes a reasonable balance between the consumer demands of the Single Market and sound commercial principle.

As described in section 2.2.3 lack of transparency of roaming charges has been a significant aspect of the overall problem for some time. As a supplement to the pricing proposals described under the European home market approach, additional measures to ensure improved transparency and consumer awareness of charges would be very beneficial for consumers. Operators could be required to provide their subscribers with access, free of charge to personalised international roaming tariff information while the customer is roaming. The consumer could choose to request and receive this information by means of an SMS or mobile call.

4.2. Analysis of impacts

This section presents a general evaluation of the options presented above in terms of the likelihood that each will achieve the desired goal of lower roaming charges. The tables in section 8 summarise the overall impacts under several criteria. The economic impact of various policy options may be evaluated by using an economic model full details of which are set out in the Annex attached. In the course of such analysis, the Commission's services have focussed on three options in particular: First, the 'no policy change / self-regulation' option; second, the 'wholesale regulation only' option; and third the 'wholesale and retail regulation' option. The following section provides an overview of the key features of this economic model. Impacts which are less amenable to quantification are assessed analytically. Efforts have also been made to assess, qualitatively, the potential administrative burdens incurred by enterprises, public authorities, voluntary organisations and citizens in meeting the legal obligations to provide information under each of the options as required under the Commissions' Impact Assessment Guidelines. Most options outlined in this Impact Assessment would imply some administrative burden on public authorities and/or business.

4.2.1. The economic model

Evaluating the options by means of an economic model

The model used by the Commission's services is based on a comparative static approach and focuses on the impact of price changes on the aggregate EU market for mobile roaming services. While it is true that roaming services are offered as part of a bundle that also includes other services such as domestic voice services and data, for present analytical purposes the model seeks to isolate these effects and look at roaming services as a separate market. However, the following concise description of its basic characteristics and assumptions should be kept in mind when studying results contained in this chapter.

- First, the overall purpose of the model is to analyse the economic impact of each policy option by producing estimates for the resulting changes in total economic welfare, consumer surplus and producer surplus²⁶.
- Second, the model takes as its point of departure aggregate EU retail revenues from mobile roaming services which according to the GSM Association can be estimated to have reached € 8.53 billion in 2005. It also uses an estimate of aggregate EU per minute wholesale and retail prices, which is based on data provided for the purposes of this impact assessment by various MNOs and NRAs.
- Third, the model estimates the underlying cost and demand functions for roaming services by linear approximation.
- Fourth, it estimates expected retail price changes resulting from the adoption of individual policy options for three different categories of retail roaming services: active calls made within the visited country; active calls made back to the home country and passive (or received) calls.
- Fifth, for each of the policy options, the model yields results for three different elasticity scenarios, thus being able to incorporate in its analysis the effect of price changes on the demand for roaming services. The elasticity scenarios have been selected to depict a range from pessimistic to optimistic outcomes.
- Sixth, the model also takes account of substitution effects between the different categories of calls as a result of price changes.

4.2.2. *Impacts*

Impact of Option 1 – No policy change

Most interested parties would agree doing nothing at all is unlikely to lead to substantial reductions in roaming charges. In fact, as explained above, there has already been considerable activity aimed at achieving this goal, but with only very limited success. Therefore it is clear that at the very least existing measures such as those focused on transparency should continue. The more relevant question is whether new measures are necessary or whether there should be no policy change. This is considered below.

Technological and market forces

‘No policy change’ includes no new initiatives, which in turn includes relying on market and technological developments to solve the problem. Will competition and forthcoming technological developments such as VoIP be enough to have a positive impact on consumers in terms of prices? The offers that have been launched by the largest mobile operators in Europe over the past months are clearly a step in the right direction, but are they enough to bring about a real change in roaming prices?

²⁶ Consumer surplus for the purposes of the model shall be the standard definition as the difference between consumer aggregate willingness to pay for roaming services (estimated by the demand function) and prices actually obtaining in the market. Producer surplus for the purposes of the model shall be defined as profits, i.e. revenues minus costs (estimated by the cost function).

The industry has taken considerable time to respond to threats of regulation with packages which aim to bring about decreases in roaming prices. Vodafone, T-Mobile, Telefónica Móviles España, O₂, Orange and TIM have all announced different packages aimed at introducing key benefits to consumers. These include wholesale and retail offers, offering inbound and outbound fixed fees across all EU territories.

The issue of wholesale prices is still not addressed by most operators and while the large groups have been able to offer better prices to consumers, there is still no evidence that wholesale IOTs for the smaller operators have actually gone down.

The current movement in prices announced by operators will bring benefits to their subscribers. Some still require an opt-in while others have been offered to all subscribers. However, there could be a risk of a price squeeze given that the smaller operators might not be in a position to offer better prices in view of their failure to negotiate better wholesale tariffs. Under this scenario, it will be difficult to ensure that benefits are passed through to all consumers and especially those of smaller operators. Indeed, the impact on different consumer segments will probably be differentiated. Average price reductions do not necessarily imply lower retail charges for all segments. While benefiting from some reductions, individual consumers are likely to fare less well than business customers. In short, the recent offers in the market are not sufficient because:

- They do not go far enough in terms of providing consumers with a similar experience to that which they get at national level
- Where wholesale offers are made there is often no guarantee of pass-through at retail level
- They lack specificity i.e. they generally refer to target average prices which means some consumers will continue to be offered high rates
- They are a response to the threat of regulation as opposed to genuine forces of competition which could indicate that in the absence of such a threat there would eventually be a return to higher prices.

Extrapolating current market developments and assuming significant political pressure is maintained, wholesale prices for the purposes of the model may be estimated to decrease gradually over time²⁷. For this policy option, the Commission's economic model suggests (see annex) that as a direct result of the threat of regulation, consumer welfare could be increased by approximately €1.5 billion. The precise change would depend on the elasticity scenario regarded as the most realistic one. Indicative figures for producer surplus – or industry profits – suggest this would be decreased by €0.6 to €1.0 billion, again depending on the elasticity scenario selected. Finally, total economic welfare gains could be estimated to lie somewhere between €0.5 and €0.9 billion²⁸.

²⁷ The reductions could of course differ from these estimates depending on the precise regulatory and commercial environment; the present analysis assumes that at least some recent operator announcements will be implemented as a result of the mere *threat* of regulation. Assuming less significant price reductions, the impact would be more modest.

²⁸ For this policy option, retail prices may be estimated to decrease to a weighted 72 cents (for all active calls) and a weighted 48.5 cents (for all passive calls). This constitutes a weighted 10-20% reduction of call prices (depending on the specific call category).

It is also not clear whether technological developments would be sufficient in the short to medium term. There are signs that handset manufacturers are already introducing Wi-fi mobile phones which will be able to support VoIP. Operators, however, do not expect this to have a significant impact given the fact that they are in control of charging for data. Moreover, some mobile operators have also invested in operating Wi-fi hotspots; they could therefore be in a position to minimize the possible impacts on their bottom lines.

In terms of potential impact on internal market, this option does not contribute substantially to its strengthening. The absence of a pan-European approach could lead to diverse national approaches which could have negative internal market consequences. As suggested above, some roaming charges (particularly for individual consumers and/or SMEs) can remain relatively high. Given the fact that business and social interactions have increasingly cross-border dimension and mobile communication plays a key enabling role there, international roaming tariffs do influence competitiveness of EU businesses. The no policy change option could produce some positive effects in this respect, however, it is unlikely to have a substantially beneficial impact on competitiveness (also because of no guarantee of substantial price reductions for all consumer segments and business customers).

Competition law remedies

EU competition rules allow any anti-competitive behaviour by specific operators to be tackled and the Commission may adopt decisions forcing them to cease their anti-competitive behaviours and, where appropriate, imposing heavy sanctions for having breached the rules. However, these decisions are only applicable to their addressees and have no direct legal effect on other operators who may behave in a similar way. In view of the complexity of the relevant procedures it may not be practicable to challenge the behaviour of all operators active in a certain sector such as the mobile telephony sector, where at least 78 operators provide service throughout the EU. In this regard, competition rules and regulatory measures should be seen as complementary rather than as substitutes.

Ex ante regulation

As described in the problem definition section, national regulatory authorities have already stated that they believe existing regulatory tools to be insufficient to address this problem.

Administrative burdens

It is important to note that even « no policy change » option would entail administrative costs for NRAs, the Commission and market players, namely those related to the standard process of market reviews and notification procedures set in the regulatory framework for electronic communications. More concretely, market players are obliged to provide information and data to NRAs for the purpose of market analysis (in this case, market 17 – wholesale international roaming market as listed in the Commission Recommendation on Relevant Markets²⁹). NRAs have the obligation to collect data, to conduct market analysis and to notify the Commission, all of which entail administrative costs. Finally, the Commission must analyse the notifications and respond to them within the given period.

²⁹ OJ L 114, 8.5.2003.

Impacts of Option 2 – Self regulation

The Commission services have not yet received any general industry proposals for self-regulation. Moreover, in principle any such approach would have to meet competition law requirements. Self-regulation would have to deliver guaranteed substantial price reductions across the board, most likely at wholesale and retail levels. Thus far, the industry has not delivered sufficient consumer benefits and this must place serious question marks over any possible self-regulatory approach.

These reductions can only happen if (1) operators acknowledge that there is a problem with roaming charges both at wholesale and retail levels and (2) operators are able to agree on common positions and solutions applicable across the whole sector. Results of the public consultation suggest that there are diverse interests of large and small operators as well as operators from North and South of Europe, which means that achieving consensus on an effective approach to self-regulation is a real challenge for the industry.

Unless self-regulation is based on broad industry consensus, the risk of patchy success exists, potentially leading to diverse approaches to regulation with some negative consequences on the internal market for mobile roaming services. Improvements in the competitive position of EU businesses (SMEs in particular) will again depend on the effectiveness of self-regulation and the degree of price reductions.

In such a scenario larger operators will obviously seek to maintain any competitive advantage gained through economies of scale and a pan-European presence. In contrast, smaller operators with relatively weaker negotiating positions will wish to avoid being squeezed by large players.

In terms of impact on consumers, business customers are again likely to get better deals. Similarly to Option 1 (no policy change), significant price reductions across all consumer segments are not likely to occur. Thus far, the industry has not delivered sufficient consumer benefits and this must place serious question marks over any possible self-regulatory approach.

It is also important to point out that success of self-regulation would depend on how effective the industry can be in ensuring compliance by individual operators. The complexity of 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.

Administrative burdens

Clearly, self regulation as a non legislative measure does not incur additional ‘administrative costs’ of meeting legal obligations to provide information, although in practice it does require the Commission and NRAs to follow and analyse the developments of roaming tariffs very closely. Existing administrative burdens for NRAs and the industry are already significant and - unless the requirements under the Regulatory Framework are changed in respect of market 17 for wholesale roaming - administrative costs could be expected at best to equal or indeed, exceed the current levels. Reliance on general competition law in this case also implies additional administrative burden of providing information where a particular company or

group of companies are investigated by the relevant national or European competition authority.

Impact of Option 3 – Co-regulation

In the context of international roaming, such an approach could take various forms such as a Communication, Directive or a Regulation setting out broad parameters with targets for price reductions to be achieved or as mentioned earlier, wholesale regulation only backed up by transparency initiatives at retail level. These could reflect differential conditions in pricing for roaming in Member States. It would therefore require the establishment of a mechanism or forum of the parties concerned to ensure its implementation.

The complexity of international roaming prices suggests that, if this kind of regulation is necessary, to be effective it would have to be constructed in as simple and straightforward a manner as possible. This implies for example that specific prices would not be set and possibly a degree of flexibility allowed within defined limits. On the other hand regulation would need to ensure that, for example, exorbitant charges are eliminated and that generally charges should approximate to national prices.

One approach suggested in the responses to the consultation is that regulation at wholesale level could be combined with ‘robust’ retail price transparency. The difficulty here is that price transparency is difficult to organize, in the light of the large number of prices inherent in roaming between 25 Member States. Furthermore, if a simplified system of baskets were used it could be relatively easy for operators to adjust their prices in order to influence the prices in the basket without having a real overall impact on the level of retail prices. The risk also remains that simple transparency will not of itself drive prices down, and that recourse has after all to be had to regulatory approaches. In fact the Commission’s own transparency initiative in the form of its website launch and subsequent update, while successful in raising consumer awareness, had little impact on the levels of retail prices. So, clearly, while transparency is important, on its own, it would not seem to be sufficient to achieve substantial price reductions.

Co-regulation is not normally applicable in situations where the rules must be applied in a uniform fashion in all Member States. In the case of international roaming, given that the problem is of a cross-border nature and regulators have not been able to find a solution at a national level, co-regulation is unlikely to provide an effective solution.

For co-regulation to be effective, some form of agreement or consensus among industry players would be required. However, in light of the potential competition concerns that such an approach could cause and given the many different perspectives on this issue among operators, arriving at an agreement which could form the basis of a co-regulatory approach is likely to prove very challenging. As pointed out in the case of self-regulation, many operators do not acknowledge that there is a problem with roaming charges in the first place. Therefore, given that the essential viability of the co-regulation option depends on the degree to which the parties could agree on common positions and solutions, such an approach seems unlikely to deliver the desired objectives.

Even if these obstacles are overcome, setting out just the broad parameters might lead to positive results in one area (for example wholesale prices) but could still leave part of the problem (retail charges) unaddressed. This could create regulatory uncertainty given that the parties will not be in a position to determine the outcome of such an approach.

Overall with co-regulation there is a risk that, for example, while average charges might fall, some consumers could be left with extremely high charges which could undermine the overall objective.

Administrative Burdens

All the options presented in this Impact Assessment include some administrative costs but their significance varies according to the regulatory approach. In general, the more complex the regulatory approach, the more significant will be the administrative burden imposed on operators and national administrations and Commission Services. In this case, the administrative costs would be high if the measures included wholesale regulation and requirements to monitor retail prices. In practice, all co-regulatory approaches would imply some increases in current legal obligations to supply information.

Impact of Option 4 – Soft law

Soft law approaches have been used by the Commission under the previous ex ante regulatory framework for example to benchmark call termination prices in the fixed network. They have in this context proved an effective tool for bringing wholesale prices down, pending the introduction by NRAs of costing methodologies to enforce cost-orientation principles as laid down in the directives.

However, a number of disadvantages are evident. First, the adoption of Commission recommendations under Article 19 of the Framework Directive involves comitology procedures and can accordingly be a lengthy process. Second, the implementation of recommendations requires supervision by national regulatory authorities and can also require considerable amounts of time and effort. Thus in terms of administrative costs, Recommendations in practice lead to additional burdens. Finally, given that they are not binding on the addressees, recommendations do not provide certainty of outcome, and can indeed lead to differing approaches in the Member States that cannot be sanctioned by the Commission under Article 226 of the Treaty.

Thus, there is a risk that soft law, i.e. a recommendation on optimum pricing levels, will not produce the desired results. There is no guarantee that the ‘moral suasion’ effect of a recommendation will enhance competition in the mobile roaming market. It also entails a high risk of diverse approaches across the EU. It could bring about greater transparency of prices but it is likely to have low impact on consumers in general, given its likely relative ineffectiveness.

Impact of Option 5 – Targeted regulation

Regulatory intervention could take the form of measures designed to stimulate further competition or focus on prices. Currently users are forced to buy roaming service from their operators. Therefore one could consider remedies that would open the roaming market to greater competition, for example, using measures comparable to the preselection concept in

fixed networks. Technically that would mean that access to the registers of connected users that are used in GSM to route roaming calls would need to be amended so as to allow for another (roaming) operator to handle the calls of a roaming user. Opening up the core signalling infrastructure is an option, but could require a change in signalling standards and implementation in the signalling software of all operators. Whilst not impossible, this would take time (probably in terms of years) and such measures could well be overtaken by other technological developments. In that context, if regulation is required, it would appear that it would be more effective if directed at the obstacles to the internal market.

In their two submissions, the ERG proposed a wholesale pan-European cap of 30 cents based on a formula of twice the 75th percentile mobile termination rate. At least one operator indicated in its response that this figure was too low and would not allow for competition at the wholesale level. While most operators were against the concept of wholesale regulation, stating that it was unwarranted and would distort the market, six operators supported wholesale regulation in their responses.

Twenty four NRAs have signed up to the ERG submission; the Spanish regulator (CMT) took a different approach in view of a disagreement in principle on the way regulation should work. CMT were of the opinion that the approach at a wholesale level should be to allow NRAs to carry out market analysis as part of market 17 of the Recommendation on relevant markets. In addition, CMT are in favour of regulation of retail prices to ensure benefits for final users. The CMT, unlike the other regulators, was also in favour of abolishing charges for incoming calls.

Support for regulation at the retail level was less emphatic. The same operators who were supportive of wholesale regulation believed that the market would then deliver the benefits to consumers in terms of lower prices. Clearly all other operators that were against regulation at wholesale level also opposed retail regulation.

While the ERG was in favour of wholesale regulation they supported a 'wait and see' approach to assess whether retail regulation was necessary. It suggested that a robust retail index could be put in place to measure the extent to which the benefits would have been passed through to consumers. If consumers would be deemed not to have benefited sufficiently from the wholesale regulation, then retail regulation would be triggered.

Member States took the same line as the ERG in supporting the overall objective but had a preference for wholesale regulation only in the first instance. The main exponents of retail regulation were consumer groups which favour regulation both at wholesale and retail level. NRAs and Ministries have however acknowledged the fact that there may still be a need for retail regulation if the benefits are not passed through to consumers. ERG proposed a pan-European retail cap of 75 cents with the possibility for NRAs to set lower caps at the national level.

As has been seen in the problem definition, the evidence suggests that even when wholesale rates fall, pass-through to consumers in terms of standard retail levels is still not evident. The excessive margins being made both at wholesale level in terms of IOTs and at the retail end (particularly for received calls) are indicative that the market alone will not solve the issue of retail prices.

The Commission services are of the view that the retail approach proposed by the ERG in the form of a ‘sunrise’ clause whereby a regulation would automatically cut in if prices are not low for consumers is tantamount to postponed retail regulation that would entail the political risk of not delivering benefits for European consumers over an appropriate time horizon.

Impact of option 5.1 – Wholesale regulation

Would a price cap at wholesale level be effective in bringing about a decrease in retail prices? This is effectively the solution suggested by ERG as described above.

The ERG is of the opinion that wholesale regulation in the form of cost-orientation would not be effective in view of the fact that this cannot be implemented and enforced quickly and with sufficient certainty and would thus risk creating disruptions in the market and may prove ineffective in achieving the main regulatory goal of a reduction in retail prices paid by end-users.

On the retail side, the ERG proposed the construction of a robust and authoritative index of retail international roaming charges so as to allow movements in average charges to be monitored over time. This would permit transparency as to whether wholesale price reductions were being passed through to reductions in retail roaming prices. The ERG said that it would be necessary to require MNOs to supply data regularly to the respective NRAs so as to allow monitoring of the index mentioned above.

The regulators believe that these measures and further pressure from authorities would be sufficient to persuade the mobile operators to pass through the bulk of wholesale cost savings to the retail level in the form of substantially reduced retail roaming prices. It therefore suggested that retail price regulation should not be applied from the outset. As an example, it quoted recent announcements from some mobile operators of retail price reductions even though the ERG said that this was not yet sufficient to remove the need for appropriate regulation.

The need for wholesale regulation is not disputed by most regulators in the Member States, by the Member States, by consumer and user groups and by a few operators.

The Commission services see merit in the approach by ERG at wholesale level but do not share ERG’s view as to the prospects for pass-through of benefits to the retail level. The reasons why retail regulation may be required are described below. At wholesale level a modified approach to that of ERG, but which is still based on the use of MTR as a benchmark, may be required in order to ensure the objectives set are met.

As mentioned above, the ERG suggested that retail regulation should only be imposed if sufficient reductions in retail roaming charges are not observed following wholesale reductions and that a form of ‘sunrise’ mechanism should be identified that would achieve this objective. However, they also state that stipulation of a mechanistic process may risk failing to take account of significant differences in the extent of competition and pricing structure of the retail market in different Member States, and they therefore express a preference for ‘a process which incorporates appropriate judgment of developments in the relevant retail market’.

The Commission services share the reservations of the ERG about the practicability of establishing in the Regulation a mechanism that would automatically trigger the imposition of regulatory obligations across the Community on a specified date in the future, in the event that reductions in retail prices were deemed insufficient.

Firstly, to devise a mechanism based on some form of index of retail roaming prices throughout the Community would be highly complex, given the diversity and complexity of existing and possible future retail pricing packages across the EU.

Such a mechanism would also raise significant procedural and legal problems. First, how to construct an index that accurately, transparently and fairly measures price trends for all relevant categories of roaming call in all Member States on a real time basis? Secondly, how to provide a process which activates the trigger for retail regulation in a manner which would not create legal uncertainty and give rise to legal challenge? Given the consequences for mobile operators of its implementation, the detailed parameters and operation of such an index are highly likely to be contested. There could also be a risk that some market players could act to manipulate the results of the index in order to achieve their aims.

Furthermore, if this ‘sunrise’ mechanism were to trigger generally applicable legal obligations on the basis of insufficient average price reductions across the EU (regardless of the level of an individual operator’s retail prices), this would mean that the behaviour of the worst performing operators would have adverse consequences for others who had achieved greater than average price reductions. Conversely, if retail regulation was not triggered at the prescribed moment, because of reductions in average retail charges on the part of some but not other operators, then those operators with retail prices significantly above the average would benefit undeservedly from the action of other operators who had lowered retail prices below the average. As a result there would still be roaming customers who did not have the benefit of lower retail prices and were deprived of a regulatory safeguard because other roaming customers, for example in another Member State, had benefited. This would clearly not provide the sort of pan-European protection that the EU citizen has a right to expect.

It therefore seems clear that, if a ‘wait and see’ approach were taken to retail regulation, it would be more appropriate for the decision whether to impose retail regulation to be made on an operator-by-operator basis, so that all mobile subscribers could be confident that if they did not benefit from sufficient voluntary pass-through of wholesale savings, regulatory action would be taken to ensure the desired outcome. This could be done on a mechanistic basis or by the application of discretion on the part of the NRA concerned. In the case of an automatic or mechanistic trigger for retail regulation, the practical effect would be identical to including retail level obligations in the Regulation itself, except for the administrative burden of implementing the trigger mechanism, the uncertainty surrounding the possibility of legal challenge, and the likely delaying effect on retail price reductions. In either case, all the complexities, administrative burden and scope for legal challenge referred to above would still arise. There would also be a risk that the task would be completed at different speeds in different Member States and that the final result for roaming customers would vary significantly across the EU, undermining the single market objective.

If on the other hand one were simply to omit any provision for retail regulation from the proposed instrument, and leave this issue for a second Commission proposal - to be presented in a year or so, if and when it was considered that pass through of the benefits of lower wholesale prices had not taken place, this would convey an unclear message to the market and leave a significant degree of legal uncertainty, for mobile consumers and market players alike.

When comparing the above scenarios with the simplicity and ease of implementation of a coordinated introduction of wholesale and retail safeguard price limits, and its immediate benefits for consumers, the Commission services believe that the combined approach will achieve the defined objectives in the most proportionate and effective manner³⁰. Indeed, when assessing the proportionality of two different approaches, one must first assess which is the most appropriate for achieving the desired objective³¹. For the reasons set out above, it is fair to conclude that only the approach of combining retail and wholesale safeguard limits within the regulatory instrument chosen will be effective in this respect.

To summarize, the main disadvantage of this option – apart from the legal and procedural difficulties of a trigger mechanism for retail regulation – is the risk of negligible pass through of price reductions from wholesale level to retail level. The impacts on EU competitiveness, internal market, competition and, indeed, individual consumers as well as business customers can be very positive, however, depending entirely on the issue of significant pass through. While it may be argued that it is difficult to predict any future behaviour of market players in the new circumstances, past evidence and economic reasoning based on rational behaviour of profit-maximising firms (explored further in the section on Impacts of Option 5.3 - Wholesale and Retail Regulation) raises serious doubts about significant reductions in retail prices as a result of implementing this option.

For the option of wholesale regulation only, the Commission's economic model assumes that wholesale prices would be capped at 30 cents. This would be a single price cap regardless of whether the call was terminated within the visited country or in another EU country. A further assumption is that there would be some (but by no means complete) pass-through of these price changes to retail level³².

For this option, the model suggests that as a direct result of regulation consumer welfare could be increased by approximately €2.1 to €2.3 billion. The precise change would depend on the elasticity scenario regarded as the most realistic one. Producer surplus – or industry profits – would be decreased by €1 to €1.5 billion, again depending on the elasticity scenario selected. Finally, total economic welfare gains could be estimated to lie somewhere between €0.6 and €1.3 billion³³.

³⁰ Case C-434/02 *Arnold André* [2004] ECR I-11825, paragraph 54.

³¹ Case C-265/87 *Schraeder* [1989] ECR- 2237, paragraphs 21ff.

³² On the issue of pass-through, see section on impact of option 5.3.

³³ For this policy option, retail prices may be estimated to decrease to a weighted 66.5 cents (for all active calls) and a weighted 44 cents (for all passive calls). This constitutes a weighted 18-25% reduction of call prices (depending on the specific call category).

International trade issues

Questions were raised by respondents to the public consultation as to the compatibility of regulation of wholesale international roaming tariffs with Article XVII of the GATS and paragraph 5 of the GATS Annex on Telecommunications. Some respondent EU operators also expressed concern that as a result of GATS obligations they could be required to offer wholesale roaming tariffs to non EC-based operators at a level not exceeding the regulated level, while at the same time such operators could charge EC-based operators higher, unregulated, wholesale prices.

Pursuant to Article XVII of the GATS national treatment has to be accorded to like services and service suppliers. Paragraph 5 of the GATS Annex on Telecommunications contains a further non-discrimination obligation which requires the application of terms and conditions no less favourable than those accorded to any other user of like public telecommunications transport networks or services under like circumstances.

Impact of Option 5.2 - Retail regulation only

Can the desired outcome be achieved by applying only retail regulation, without intervention at a wholesale level? One of the major concerns of intervening only at a retail level is that some operators may be forced to offer roaming services below cost, especially if wholesale rates are not brought down to the same extent as retail rates.

To take this approach, it would need to be argued that the market is functioning effectively at the wholesale level and that operators are making super-normal profits from retail mark-ups. There is no evidence to support this claim. Despite developments at the wholesale level, smaller operators who cannot guarantee volumes in view of their country size or position in the market are still charged very high IOTs.

Retail regulation alone would therefore create significant problems for such operators, since they would either have to cease offering the service or possibly provide it at a loss. Retail-only regulation is therefore likely to create benefits to larger operators who can already benefit from lower-than-average IOTs, and would therefore only address part of the problem.

Thus, effects on competition could be positive in the short term, however, from a long-term perspective, retail regulation could result in industry consolidation which could be damaging. Smaller operators might not be able to compete without wholesale reductions and may be driven out of the market with potentially some negative impact on employment in the mobile industry.

Concerning consumer benefits, it is clear that retail regulation only would bring immediate reductions of roaming charges for consumers and therefore positive short-term effects. However, as pointed out above, retail regulation only can - in the medium to long term – lead to reduction in number of operators providing roaming services because the problem of high wholesale roaming charges identified in Section 2.2.2 of this IA remains unsolved.

In terms of administrative costs, the present provisions for market reviews cover wholesale roaming prices. NRAs are currently at liberty to collect data on retail roaming prices but clearly any regulatory requirement to do so would incur some additional costs though not significant ones relative to the status quo.

Impact of Option 5.3 – Regulation at wholesale and retail level

In its response to the public consultation, the ERG recognised that if market forces proved insufficient to guarantee substantial pass-through of wholesale gains to the retail level within a relatively short period (it considered six months to be adequate), a form of retail price control might be needed. In fact ERG had already stated in June 2005 that reductions in wholesale charges are often not passed through to the retail customer

There seems to be evidence that pass-through of savings to consumers is not automatic. Despite claims by operators that wholesale charges are decreasing in view of increased competition, evidence of pass-through to consumers is still not visible, even though there have been encouraging signs over the past months as operators have introduced offers as the threat of regulation loomed closer.

Larger operators have been able to negotiate lower wholesale rates in view of traffic steering and pan-European operators/alliances. However, their average retail charges have remained high, with margins well above 100% for calls originated while roaming (this according to figures that they have provided in confidence during the consultation stage). The figures they have provided indicate that the average IOT they pay is at least 38% lower than the one they charge to operators not within their group. It is therefore clear that they are not passing the benefits of the lower wholesale tariffs to many of their customers, who continue to pay very high prices well in excess of € per minute for international roaming.

Operators have been making retail margins of close to 300% or 400% for received calls while roaming even though they could have decreased the prices without the need to change anything *vis-à-vis* wholesale rates since the IOT regime does not apply for received calls. This has not been done and is indeed evidence of the necessity to regulate at a retail level, otherwise pass-through would not occur. The actual costs incurred by an operator are termination and transit, which in many cases could be less than €0.10.

While there are smaller operators which claim to operate at very low retail margins (at times even 7 per cent), from confidential figures submitted by operators, it can be stated that the larger operators make considerably higher margins at retail level, since they are able to push prices for IOTs down. However, their price, based on volumes, for wholesale is also considerably higher than what they have to pay, which means that they also maximise returns from wholesale revenue.

The need for retail regulation

As explained above, the disconnect between the underlying costs of the provision of roaming services and the current levels of wholesale and retail prices is at the heart of the problem this impact assessment seeks to address. The purpose of this box is to ask whether in these circumstances wholesale regulation alone would be sufficient to bring about a lasting decrease in retail prices.

Clearly, in a competitive environment, a sudden price decrease in one of the central input factors (for example kerosene) for the provision of a particular retail service (for example air travel) can be expected over time to result in lower retail prices. This is usually the case because competition will force companies to bring their lowered production costs in line with demand. Does this relationship hold with regard to roaming services? Some argue that it

might, and that lower input prices or savings in the level of payable IOTs will over time be passed through to the consumer³⁴.

It is fair to say that the full benefits of developments at wholesale level in the past – such as (1) slight decreases in IOTs as a result of more competition brought about by traffic steering technologies and (2) increased internalisation of wholesale costs through sector consolidation – have not been passed through to consumers, and retail prices have remained at elevated levels for a number of years.

The reason for this, suggested by economic theory, is that a firm does not necessarily have an incentive to use monopoly profits made at wholesale level to compete for the acquisition and retention of domestic retail customers. After all, no matter what the firm does at domestic retail level, profits from the provision of wholesale roaming services are likely to remain unchanged³⁵. This is so because the volume of incoming roaming traffic depends on the demand for roaming calls of *another firm's customers*. Lower roaming prices at retail level for one's own customers therefore will not result in greater wholesale roaming gains, giving the firm an incentive simply to hold onto its monopoly profits³⁶.

Furthermore, with regard to the issue of incoming roaming calls, it is clear that current retail price levels do not seem to be informed *at all* by underlying cost structures³⁷. This situation has persisted for a number of years, despite the fact that regulated MTR levels (an important input cost for this type of call) have decreased significantly. There is thus no ground for assuming that future further decreases in input costs will have any appreciable effect on retail prices.

To sum up, combining past evidence with economic reasoning, the above analysis suggests that in order to make sure consumers will reap all the benefits from regulated reductions in wholesale prices (bringing them closer in line with costs), opting for retail regulation in addition to wholesale regulation is the more prudent course to take. The dynamics of roaming markets are clearly complex and evolving, and pass-through of reductions to retail customers cannot be entirely excluded. However, to the extent to which regulation is focussed primarily on consumer benefit, there is a case for adopting carefully targeted retail regulation.

In view of the above, there is a serious risk that if applied at wholesale level only, the ultimate aim of the regulation i.e. that of bringing about a substantial reduction in retail prices for

³⁴ Various submissions in response to the second consultation phase have taken the view that wholesale regulation alone will lead to lower retail prices. Equally, the European Regulators Group (ERG) – while voicing considerable doubts as to the workings of the competitive mechanism in the present case – pleads for wholesale regulation only, followed by a period of monitoring that could eventually result in retail regulation. The ERG thus does not exclude retail regulation *per se*.

³⁵ It is interesting to compare this with the dynamics of domestic mobile termination revenues. Here, because the overall number of domestic customers determines the size of the network and thus the number of off-net calls received onto the network, the firm does have an incentive to maximize network size. In this scenario, wholesale termination profits will at least partially be competed away at retail level in the search for new customers. Put another way, the 'waterbed effect' would be effective. The reasoning above suggests that this will not necessarily be the case for wholesale roaming profits.

³⁶ Nor can it be assumed that a rational and otherwise profitable firm would use wholesale roaming profits for lowering prices of other retail services, given the low margins for these.

³⁷ Actual costs have been estimated – most recently by the French regulator ARCEP – to be extremely low. Prices still reach more than 50 cents per minute, yielding astonishing margins.

roaming within Europe, will not be achieved. If a reasonable approach is taken to regulation at retail level, any risks of competitive distortion can be avoided.

Impact of specific approaches to retail and wholesale regulation

Visited country approach

This option has a number of advantages, given that it would base tariffs on actual costs and hence limit any possible distortions that could arise in view of the disparity of tariffs. However, it presents a number of problems in terms of enforceability and transparency. One of the current problems relating to roaming charges is their lack of transparency.

The visited country approach would treat a customer in the same way as one on the visited network. However, a roaming customer does not know the charges incurred by consumers in that particular country, let alone the price of international calls to be able to call home.

Moreover, there are a vast range of tariffs applicable in the visited country, which would create problems for the home operator. What rate would be charged to the roaming customer? Would it be a prepaid tariff, a post-paid tariff; which package would apply? Could a roaming customer use free minutes in a bundle? How would these be deducted? These constitute concrete problems that are probably insurmountable in practical terms

Home pricing principle

The home pricing principle is the starting point for the Commission for the second phase of consultation. Given the fact that around 80% of the calls go back home, under the home pricing principle these calls would equate to international calls. Therefore, in financial terms, the impact on operators should not be huge given the fact that there is not a large discrepancy between international calls and international roaming calls. The rationale behind the home pricing principle is also based on the premise that businesses, especially SMEs, and consumers should not be penalized for crossing borders.

Apart from retail regulation, wholesale regulation would also be necessary based on cost-orientation/capping to ensure that services are not offered above costs. Under the home pricing principle, it is envisaged that a consumer would see reductions of around 20% to 25% of their current bills when roaming.

The overwhelming number of mobile customers subscribe to an operator established in their respective country of residence. In response to the second consultation phase it was argued in some submissions that under the Home Pricing Principle – which would seek to tie retail prices for roaming calls to the individual subscriber’s prices for domestic calls – customers would have an incentive to subscribe to a foreign operator located outside their country of residence whose retail local and international domestic prices are lower than those that are available at home. For instance, a UK customer based in London could have an incentive to purchase pre-paid SIM cards from low-cost Finnish or Austrian operators (where per minute prices for domestic calls can be as low as 9-10 cents) with the intention of “roaming” (i.e. using them for domestic calls on a permanent basis) in London.

While this kind of arbitrage opportunity under the Home Pricing approach exists, it would clearly be limited by operators’ ability to set new terms and conditions for the use of SIM cards, and to monitor technically any unintended use. Clearly, operators would also have an

incentive to block unintended use, as payable IOTs in many cases would be higher than prevailing domestic rates, thus turning arbitrage-driven roaming in high-tariff countries into a permanent loss-making proposition. The European Home Market Approach – using price caps - is designed specifically to exclude any such perverse effects resulting from regulation. In terms of the headline financial impact of home pricing, the GSMA predicts a loss of revenue of €4.3 billion and a drop in EBITDA of €2.3 billion and a €500 million decline in investment. One operator predicted a 66% drop in retail roaming revenues and a 50% drop in wholesale revenue under this option.

In conclusion, while the home pricing concept provides a solid foundation for an approach to regulation, account needs to be taken of comments received in the course of the public consultation and of the extensive dialogue with stakeholders referred to above. In particular, a number of practical implementation issues described above need to be taken account of to enhance its added value for the consumer, the margin for effective competition and the impact on the internal market.

European home market approach

The European home market approach combines the advantages of guaranteed price reductions both at wholesale and retail level with relatively easy and straightforward implementation. Price reductions for all consumer segments including businesses will not only bring substantial savings but also increase social benefits for consumers in terms of easier and more affordable cross-border communication possibilities. Mobile communication has an enormous social value for consumers in their home country and this value could be now extended EU-wide. It can be therefore expected that more individual consumers as well as business customers (in particular SMEs) will use mobile roaming services.

The use of a safeguard capping mechanism delivers greater consumer benefits than the direct tying of roaming call prices to national prices in the majority of cases. For example, under the Home Pricing Principle, the majority of roaming prices are linked to the prevailing level of IDD prices (international direct dial – prices for international calls). This could undermine effectiveness as typically IDD prices are close to current roaming price levels. Consumers might be even less price-sensitive with regard to IDD prices (the volume of IDD calls is typically lower than volume of roaming calls), so operators might in all likelihood be able to raise IDD prices above the level of current roaming prices.

One of the big advantages of the European home market approach over other regulatory approaches – e.g. the Home Pricing or Visited country approach – is the relatively easy monitoring and implementation. Although it entails compliance costs for mobile operators, these are not significantly higher than in the case of other options.

Concerning competitiveness of EU businesses, guaranteed price reductions at both levels could contribute to more competitiveness. It is clear that SMEs in particular could realize substantial savings in their communications bills. Moreover, even if operators claim that some business customers are already getting very good rates, it is likely that businesses in general would benefit in view of lower wholesale rates.

As described in the previous sections, competition in the mobile roaming market is limited. Capping at wholesale and retail level represents a relatively less intrusive regulatory approach since it does not restrict competition below levels of pan-European prices. Operators do not

have to follow the maximum price levels set by regulation and can still offer better deals to their customers (as it is currently the case in some countries or for some consumer segments). Allowing a transitional period of six months before the retail provisions on making calls come into effect would allow operators time to redefine pricing structures for active roaming calls. This form of regulation clearly has an internal market dimension. Pan-European ceilings (caps) are positive for internal market as they guarantee all consumers across the EU similar experience when roaming abroad. Setting a maximum safeguard cap for charges for receiving calls not only brings consumer benefits but also strengthens the internal market and offers consumers reasonable rates for this service.

Substantial price reductions for consumers obviously mean a decline in industry profits. This in turn will have an impact on investment. The magnitude of this impact is not easy to determine, however, it can be argued that reduction in profits from roaming charges (both wholesale and retail) will not have a substantially negative impact on the overall level of investment in the whole mobile industry. Section 4.3.1 on dynamic impacts provides more background for this argument. In any case, it should be borne in mind that all forms of regulation actually involve reducing super-normal profits.

It is also acknowledged that retail regulation in particular somewhat limits the freedom of operators to set prices, introduce innovative price packages for consumers, etc. Nevertheless, price packages offered by operators do not necessarily offer the same experience to all consumer segments; they usually favour frequent roamers and are often not as transparent as reductions in per minute calls.

Bearing in mind that roaming services are offered as part of a bundle together with other mobile services by the same operators, one has to take into account broader impacts than just those described above and those captured by the economic model. These impacts, e.g. effects on neighbouring markets (spill-over effects), dynamic effects or redistributive effects, are considered in Section 4.3 of this Impact Assessment.

For the European home market approach, the Commission's economic model assumes that wholesale prices would be capped at 2*MTR or 25.28 cents (IOT for calls made within then visited country) and at 3*MTR or 37.92 cents (IOT for calls made back to the home country or to another EU country)³⁸. It is further assumed that retail price caps for these two kinds of active calls shall be set at 32.9 cents and 49.3 cents respectively. Finally, it is assumed that the retail charge for received roaming calls will be set at 130% of the MTR, i.e. at 16.4 cents.

For this option, the Commission's economic model suggests that as a direct result of regulation consumer welfare could be increased by approximately €5.3 and to €5.9 billion. The precise change would depend on the elasticity scenario regarded as the most realistic one. Producer surplus – or industry profits – would be decreased by €3.8 to €4.2 billion, again depending on the elasticity scenario selected. Finally, total economic welfare gains could be estimated to range from €1.1 to €2.1 billion.

³⁸ For illustrative purposes. Based on data from the 11th Implementation Report.

4.3. Broader impacts

4.3.1. Dynamic impacts

Investment in ICTs is an important driver of overall economic growth and competitiveness. Will investment in mobile technologies be affected by a reduction of roaming charges? Historically, investment-to-revenue ratios for the European mobile industry have been approximately 11-12%. The 11th Implementation Report cited a figure of €45 billion in 2005 for the sector as a whole; the corresponding figure for the EU mobile industry can be estimated at €7-18 billion. To the extent that overall revenues of the mobile industry would come down as a result of regulation under some of the policy options, and to the extent that the revenue streams affected would be particularly high-margin ones, other things being equal it is reasonable to assume *some* reduction of investment³⁹. However, it is more reasonable to assume targeted cut-backs rather than across-the-board reductions. Thus, capital expenditure on roaming-specific infrastructure under some policy options might be expected to be negatively impacted. On the other hand, arguably, capital expenditure on research and the development of next-generation services might not be affected at all, as the pressure for operators to go for top-line growth would become even greater at this stage of the investment cycle.

4.3.2. Spill-over effects

It is often argued that roaming services are supplied as part of a larger bundle that also includes other mobile services such as domestic voice services and data. For the above analytical purposes of the model this was bracketed off and roaming services were looked at as a separate market. If this assumption is changed, could it be true – as suggested by some submissions to the second consultation phase – that in response to a reduction in roaming revenues operators should be expected to raise prices for other services offered as part of the same bundle?

In part, the answer to this depends on the level of competition operators are facing for the provision of these other services in a particular market. Clearly, the less market power a firm has the more it will be constrained in its ability to recoup lost revenues from roaming services by charging higher prices for, say, domestic on-net calls or text messaging.

A rigorous quantitative analysis of this is beyond the confines of the above model. However, it is reasonable to assume that while at the margin *some* rebalancing of tariffs will occur, a general increase in the price level for other services compensating operators for the loss of revenues from roaming – given intense competition in major markets such as the UK or Germany – is highly unlikely. To illustrate, in Germany since mid-2005 the mobile price index has come down by approximately 10% as a result of new market entry by MVNOs who have adopted strategies centred typically on heavy price discounts. This places clear limits on the ability of any one operator to raise its domestic prices in response to changes in the strategic parameters elsewhere in its business⁴⁰.

³⁹ In its submission to the second consultation phase, the GSMA estimates that investment might decrease by up to €500 million. However, the GSMA has not shared with the Commission either the methodology underlying this estimate or provided other supporting materials for this figure.

⁴⁰ This is not to say operators will not try to exercise market power hitherto exercised on roaming services in connection with other services that are part of the same bundle. The question is how much

This being said, operators will have an incentive – particularly in cases where the firm is currently just breaking even – to rebalance prices within the mobile bundle offered. In such a case, services other than roaming that are least price-sensitive – for instance international direct dials - should be expected to become more expensive at the margin. Alternatively, under some policy options, operators also would have an incentive to bring upward pressure on the level of regulated MTRs, arguing that current cost methodologies do not take sufficient account of the changed regulatory environment. Finally, operators could attempt to increase charges for neighbouring roaming services such as text messaging or mobile data. In particular with regard to this latter point, regulatory and competition authorities would have to monitor prices carefully for abusive practices or compensatory moves following the entry into force of a potential regulation on voice roaming services.

4.3.3. *Redistributive issues*

Mobile services are consumed by many different types of customers. As a result of regulation, will some groups be made better off than others? Obviously, the customer segment benefiting most from a reduction in roaming charges will be high-frequency roamers. With many customers rarely or never consuming roaming services (66% of all mobile customers never roam according to A.T. Kearney), the welfare gains of high-frequency roamers would be substantial, as they would be able to reap the overwhelming part of the resulting changes in consumer surplus (see analysis of preceding sections)⁴¹. Other things being equal, it is to be expected that business customers who currently are not on large-scale competitive contracts (as would be the case for most SMEs), high-frequency leisure travellers and people living in border regions would profit most from a reduction in roaming charges.

4.3.4. *Firm-level effects and consolidation*

The above analysis has taken an aggregate approach and has assessed outcomes with respect to the overall EU market⁴². The impact of enforced wholesale or retail price changes at firm level will of course vary according, first, to any particular firm's exposure to roaming revenues, and second, to the precise nature of the regulatory approach taken.

To illustrate, an approach that would seek to combine high wholesale price ceilings with low retail price ceilings would increase pressure on small operators either to enter into an alliance or to position themselves as take-over targets for larger groups. While it remains outside of the scope of the model to analyse which policy option would be more likely to lead to sector consolidation, it is safe to assume that the larger the transfer from industry to consumers, the higher the incentives for marginal operators to merge. It should be noted that such sector consolidation could have welfare-enhancing effects, as the economies of scale and scope that are possible as a result of the internal market could much gain stronger traction.

transferability there is of this market power in the light of the constraint explained in the above paragraph.

⁴¹ To the extent that meaningful rebalancing of prices would occur – the preceding section has given reason for why this need not be the case – non-roamers would be made worse off and certain policy options would have regressive effects.

⁴² Using a bottom-up approach starting at firm level rather than the top-down approach taken here is impossible for reasons of data availability.

Administrative burdens

Wholesale and retail regulation in the form of price caps would imply relatively insignificant increases compared to the status quo. Alternative approaches to wholesale and retail regulation, such as the visited country approach or the home pricing principle (especially combined with cost-orientation at the wholesale level) are likely to lead to an increase of administrative burdens imposed on NRAs and operators, as their implementation is more complex. Cost orientation is generally perceived as a relatively expensive measure to implement since it involves development of a cost model by the regulatory authorities, very close monitoring and reporting and regular assessment of costs by operators.

5. EVALUATION AND MONITORING

If regulatory intervention is required, National Regulatory Authorities will be required to monitor and supervise compliance and will need to be empowered to collect relevant information from industry. They will also need to be required to provide information to the European Commission on European mobile termination rates.

The NRAs have in place the necessary basic tools to gather and analyse information: market data is already assembled under Article 5 of the Framework Directive.

Clearly the principal indicator for monitoring the implementation of the proposal is tariffs at retail level. In order to monitor potential wider impacts NRAs should be required to monitor developments in retail and wholesale prices voice calls, the sending and receipt of SMS (Short Message Service), MMS (Multimedia Message Service) and other data messages by mobile customers when roaming in the Community.

Monitoring data at Member State level can be supplemented by regular commissioned surveys of mobile roaming charges and tariffs across the EU, covering a range of parameters such as charging systems, different contract conditions, business and consumer tariffs for the main market operator(s) and for a sample of small service providers. Commission services conduct similar exercises for the main telecommunications services as part of their regular monitoring of the implementation of the Regulatory Framework. The data is assembled using the OECD basket methodology which ensures a sound comparative basis and commonly defined baseline datasets. These 'baskets' presently do not include mobile roaming and would first need to be defined by the OECD methodological systems.

Monitoring data will contribute to an interim evaluation of the policy. One year prior to the review of the functioning of a regulation the Commission could prepare an evaluation report assessing the impact of the measure on markets and consumers and on its continued relevance, efficiency, effectiveness and utility.

6. CONCLUSION

This impact assessment has examined several policy options for achieving substantial reductions in the level of mobile roaming charges in the EU. Throughout its analysis, it has focused on the impact first and foremost on consumers, and on the industry.

It has emerged from the preceding chapters that the problem of high and persisting charges in the past was not amenable to solution by existing policy and regulatory tools. Both competition policy remedies and regulatory instruments at national and EU levels have proved ineffective in the face of persisting pricing and transparency problems.

Because of its importance for the Single Market and ultimately because of the benefits consumers would receive from price reductions, the Commission's services have examined several specific policy options designed to bring about change.

The economic analysis has focussed in particular on three options, seeking to describe their most important parameters and quantifying their economic impact on consumers and on industry. In the course of this analysis it emerged that the proposed regulatory option of combining wholesale and retail regulation under what the Commission's services term the 'European home market approach' ultimately results in the greatest benefit to consumers. This impact assessment has shown that each of the other assessed options have specific merits – for instance from being minimally intrusive to offering maximum flexibility to industry. However, only regulation under the 'European home market approach' makes certain that consumers - no matter where they physically are in the EU – shall have the same experience of using their mobile phone as if at home. Therefore, in order to promote the internal market for electronic communications services, the 'European home market approach' should be adopted as the preferred option.

Summary tables on main impacts arising from the policy options

Non-regulatory options			Regulatory options
IMPACT ON:	OPTION 1 <i>(No policy change)</i>	OPTION 2 <i>(Self-regulation)</i>	OPTION 3 <i>(Co-regulation)</i>
EU competitiveness	High roaming charges are negative for EU business and relative competitiveness. This option (i.e. effectively leaving the problem to market forces) could produce some positive effects but is unlikely to have as beneficial an impact on competitiveness as other approaches.	Assuming self-regulation leads to lower charges on a sustainable basis then this option could be positive for competitiveness.	As with options 1 and 2 on the basis that there are significant real reductions in roaming charges then co-regulation would be beneficial to competitiveness. However there are risks that this approach may not result in substantially lower charges.
Internal market	Absence of a pan-European approach could lead to diverse national approaches which could have negative internal market consequences.	Unless self-regulation is based on broad industry consensus the risk of patchy success exists potentially leading to diverse approaches to regulation.	While the broad parameters may be defined the specific approach is left to industry players. Co-regulation may therefore lead to a degree of harmonisation but could be less effective than other options.
Compliance cost for businesses	Leaving the problem to the market could mean lower costs of compliance on the one hand but on the other may mean a greater need for transparency initiatives which could be costly.	Effective self-regulation is likely to involve significant supervision, monitoring and compliance costs for the industry. Arguably this option could be more costly for the industry.	Likely to be more costly than a ‘no policy change’ but less costly than more direct forms of intervention or self-regulation.
Competition	Recent moves by operators are more likely to be driven by fear of regulation than genuine competition. This option will not significantly enhance existing levels of competition.	Industry agreements on approaches to pricing can raise concerns under competition law. Any such moves by the industry would need to be examined closely.	Competition in the roaming market is limited. However the flexibility to define pricing packages within broadly-defined limits could be beneficial.

Non-regulatory options			Regulatory options
IMPACT ON:	OPTION 1 <i>(No policy change)</i>	OPTION 2 <i>(Self-regulation)</i>	OPTION 3 <i>(Co-regulation)</i>
Innovation and investment	As a consequence of relatively lower financial impact there may be less negative impact on investment than other options.	It is likely that under self-regulation the industry will seek to minimise negative impact on investment and innovation.	Flexibility to design specific approaches could be positive however the requirement to achieve substantial reductions in prices with the consequential reduction in revenues (or super-normal profits) could negatively impact on existing investment levels.
Big operators, alliances	Recent announcements by large operators demonstrate the room for manoeuvre that exists in this segment. This option would favour large operators who have relatively greater control over costs, can benefit from greater on-net effects. Limited movement on IOTs could squeeze smaller operators, leading to industry consolidation.	Diverse interests of large and small operators as well as North/South means that achieving consensus on an effective approach to self-regulation is a real challenge for the industry. In such a scenario larger operators will obviously seek to maintain any competitive advantage gained through economies of scale and a pan-European presence.	Flexibility is likely to favour larger operators. If co-regulation did not define limits at wholesale and retail levels then this option could have similar effects to option 1 i.e. relatively high wholesale rates could squeeze smaller operators.
Small operators	These are likely to be more vulnerable. Possibly less able to respond at retail level given relatively lower control over input costs i.e. IOTs.	In contrast smaller operators with relatively weaker negotiating positions will wish to avoid being squeezed by larger players.	Vulnerable but less so than under options 1 and 2. Position could be safeguarded with an effective approach to wholesale regulation.
Consumers & households	While benefiting from some reductions, consumers are likely to fare less well than business consumers. 'Average' price reductions do not necessarily imply lower retail charges for all segments. Consumer welfare is relatively lower under this option than others.	Self regulation, if effective, should lead to benefits for consumers but care would be needed to ensure that real price reductions have taken place.	Regulation will guarantee some consumer benefits however if overall limits are broadly defined then market players are likely to target greatest reductions towards the business segment.

Non-regulatory options			Regulatory options
IMPACT ON:	OPTION 1 <i>(No policy change)</i>	OPTION 2 <i>(Self-regulation)</i>	OPTION 3 <i>(Co-regulation)</i>
Business customers, SMEs	Will fare relatively better than consumers and households.	As with no policy change, business customers are likely to fare better. Large corporates that already benefit from more attractive packages may be relatively unaffected. However this is the position under most options.	For reasons above this option could be relatively more beneficial.
Administrative burden for national administrations and operators	This option already entails administrative costs for NRAs and operators related to the process of market reviews and notification procedures.	Given that self-regulation is industry led the cost burden for administrations should be relatively lighter than under other options. However costs will nevertheless arise given that administrations will wish to monitor overall effectiveness.	Given less need to monitor detailed compliance then this option is relatively positive in terms of administration costs. However overall compliance with broadly defined parameters will involve costs.
Employment and labour markets	Possibly positive impact on wider economy (and consequently employment) as a result of lower input costs and greater benefits for the internal market. Relatively less impact than other options.	Similar effect to option 1.	Similar effect to option 1.
Social inclusion	Limited impact although reductions more likely to focus on business users at the expense of consumers.	As with option 1.	Similar effect to option 1.

Non-regulatory options			Regulatory options
IMPACT ON:	OPTION 1 <i>(No policy change)</i>	OPTION 2 <i>(Self-regulation)</i>	OPTION 3 <i>(Co-regulation)</i>
Implementation	As pan – European regulation is not involved, effectiveness of implementation is not an issue. However extensive monitoring at EU level is likely to be necessary to ensure market led approaches produce positive results.	Success of self-regulation would depend on how effective the industry can be in ensuring compliance by members. The complexity of 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.	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.
Achievement of objectives	Some positive movement on retail and wholesale roaming prices. However other options could have more impact.	While self-regulation has merits it may not lead to the consumer gains that could accrue under other options. Equally securing broad industry consensus and ensuring ongoing compliance would present very real challenges.	Likely to secure overall average reductions but difficult to ensure that all consumer groups benefit.

Regulatory options continued				
IMPACT ON:	OPTION 4 <i>(Soft law)</i>	OPTION 5.1 <i>(Wholesale regulation only)</i>	OPTION 5.2 <i>(Retail regulation only)</i>	OPTION 5.3 <i>(European home market approach)</i>
EU competitiveness	There is a risk that soft law i.e. a Recommendation on optimum pricing levels will not produce the desired results.	Can contribute to competitiveness if savings achieved at wholesale level are passed through to retail level for the benefits of consumers.	Gains at retail level could be positive but longer term effects on competition as a result of possible industry consolidation could be damaging.	Guaranteed price reductions at both levels could contribute to competitiveness.
Internal market	Still a high risk of diverse approaches.	Positive for internal market at wholesale level but there remains a risk of diversity of approach at retail level.	Positive at retail level but risks because wholesale level is not addressed.	Ceiling pan-European prices are positive for internal market.
Compliance cost for businesses	Relatively low although there is likely to be a need for increased transparency measures.	Relatively low as regulation is targeted at wholesale level only.	Relatively positive. Focus on retail prices only.	Capping approach means that compliance should be relatively easier to monitor. Compliance cost for business is relatively low.
Competition	Competition is limited and there is no guarantee that 'moral suasion' effect of a Recommendation will enhance competition.	Possibly provides flexibility for competition below ceiling at wholesale level. Could provide scope for greater competition at retail level if pass-through occurs. However there remain serious doubts that pass-through will occur.	Gains at retail level could be positive but longer term effects on competition as a result of possible industry consolidation could be damaging. Smaller operators might not be able to compete without wholesale reductions.	Positive. Does not restrict competition below levels of pan-European prices.

Regulatory options continued				
IMPACT ON:	OPTION 4 <i>(Soft law)</i>	OPTION 5.1 <i>(Wholesale regulation only)</i>	OPTION 5.2 <i>(Retail regulation only)</i>	OPTION 5.3 <i>(European home market approach)</i>
Innovation and investment	Because of relative lack of effectiveness on price reductions, financial impact will be lower.	Reduced wholesale and retail rates will have a negative impact on profitability and consequently possibly on investment. This option may have less effect in the short term because regulation is focused on wholesale levels only. However even ERG indicate that unless pass-through occurs retail regulation will be necessary. It should also be borne in mind that all of these options involve reducing super-normal profits.	Setting a cap only at retail level could have a significant impact on smaller operators who might find themselves in a position of either ceasing to offer roaming services or else have to offer such services below cost. This would have an impact on investment and innovation. It should also be borne in mind that like option 5.1 and 5.3, this option involves reducing super-normal profits.	Setting a cap at wholesale and retail would reduce profitability levels and consequently have an impact on investment. Like Option 5.1 and 5.2, it should also be borne in mind that all of these options involve reducing super-normal profits.

Regulatory options continued				
IMPACT ON:	OPTION 4 <i>(Soft law)</i>	OPTION 5.1 <i>(Wholesale regulation only)</i>	OPTION 5.2 <i>(Retail regulation only)</i>	OPTION 5.3 <i>(European Home Market Principle)</i>
Big operators, alliances	A recommendation could bring about greater transparency of prices but is likely to have less impact of all groups given its likely relative ineffectiveness.	Operators are likely to experience decline in profits (especially those who make profits from high wholesale charges) but will be able to recuperate those losses in the retail market	Substantially negative effect on small operators who are charged high wholesale rates (due to price squeeze). Big operators would experience reduction in profits.	The big and small operators were not in favour of regulation at retail level therefore they would not favour capping at wholesale and retail levels. This option will bring reduction in profits, particularly for those operators who keep their roaming charges artificially high. However, it will still allow a reasonable profit margin as wholesale prices will go down as well.
Small operators				
Consumers & households		Wholesale regulation only does not guarantee any consumer benefits. There are very real risks that savings at wholesale level will not be passed through to retail level thus undermining the entire purpose of this initiative. There is a high possibility (even a probability) of a need for subsequent regulation at retail level or a complicated sunrise mechanism would have to be built in.	Same as for Option 5.3. However, there are risks in the long-term perspective (e.g. cessation of service)	
Business customers, SMEs				

Regulatory options continued				
IMPACT ON:	OPTION 4 <i>(Soft law)</i>	OPTION 5.1 <i>(Wholesale regulation only)</i>	OPTION 5.2 <i>(Retail regulation only)</i>	OPTION 5.3 <i>(European Home Market Principle)</i>
Administrative burden for national administrations and operators	Lower costs of compliance.	The need for a complex monitoring mechanism at retail level suggests a relatively high cost burden for national administrations.	This option will require monitoring by national administrations. However this is relatively less costly than option 5.1.	This option will require monitoring by national administrations. However this is relatively less costly than option 5.1.
Employment and labour markets	Less impact than other options.	Potentially less effective than regulatory options focused on the retail level.	Relatively positive because of the focus on lower retail prices with guaranteed minimum for all consumer groups. However, may be risky in terms of risk that retail only regulation might lead to cessation of service.	Relatively positive because of the focus on lower retail prices with guaranteed minimum benefits for all consumer groups.
Social inclusion				
Implementation	Relatively easy to implement but low effectiveness.	Potentially straightforward at wholesale level but monitoring at retail level is more complex.	Capping mechanisms should be relatively easy to monitor.	Capping mechanisms should be relatively easy to monitor.
Achievement of objectives	Less likely to achieve real price reductions.	Effective at wholesale level but serious risks of failure to achieve objectives at retail level.	Will provide benefits at retail level but runs the risks of provoking industry consolidation because of failure to address wholesale level.	Should guarantee minimum reductions for all consumer segments; positive for internal market and offers the possibility of preserving existing levels of competition below the levels of caps.

ANNEX

Model – Welfare Impacts of International Roaming Regulation

The purpose of the model is to provide a quantitative analysis of the economic impact of the “Regulation on international roaming”. The model focuses on the static welfare impact of the regulation, 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.

As a second goal of the analysis, dynamic welfare effects of the regulation and distribution effects are considered. Furthermore, points such as possible spillover-effects on other markets and their welfare implications are considered (including the “waterbed” effect). Some of the more important dynamic effects stem from redistributive impacts of the regulation and their possible long term effects on industry structure and investment.

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 analysis a number of representative operators and European NRAs were asked to provide detailed information on roaming prices, costs and volumes. 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. Three policy options are considered here:

1. No policy change
2. Wholesale capping
3. European Home Market Approach

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: calls home, received calls in the foreign country, roamed calls to numbers in the foreign country. Unfortunately, there are no valid scientific results on the demand elasticity of these services. 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 statements and reactions by the industry offering dramatic price changes to their customers. It cannot be assumed that these new offers would be considered by profit maximizing companies, unless they were increasing profits.⁴³ This in turn means that the underlying estimated reaction of customers may be rather elastic, contrary to industry statements made in their submissions to the consultation. Accordingly, such as scenario is forms *one* part of the model.

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

Table 1

€ per minute, aggregate EU level (estimates, 2005)	Business	Residential
Active calls made back to the home country / other EU country – Retail	0,85	1,10
Received calls – Retail	0,52	0,58
Active calls made within the visited country - Retail	0,60	0,85
Active calls made back to the home country / other EU country - IOT	0,75	0,75
Active calls made within the visited country – IOT	0,60	0,60

Table 2

Price Elasticities	Scenario 1		Scenario 2		Scenario 3	
	Business	Residential	Business	Residential	Business	Residential
EPS _{x1p1}	-0,55	-0,55	-1,00	-1,00	-1,00	-1,20
EPS _{x1p2}	-1,20	-1,20	-1,20	-1,20	-1,20	-1,50
EPS _{x2p2}	-0,55	-0,55	-1,00	-1,00	-1,00	-1,20
EPS _{x3p3}	-0,55	-0,55	-1,00	-1,00	-1,00	-1,20
EPS _{x3p1}	-0,20	-0,20	-0,20	-0,30	-0,20	-0,30

⁴³ The pursuit of volume-based market share with no importance attached to profits is no sustainable long-term competitive strategy.

Table 3

Ratio Business vs. Residential Customers	0,70
Ratio Active vs. Passive Calls	0,66
Ratio Active Calls made back to another EU country vs. within the visited country	0,83

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.

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 “calls home” (roamed calls to the country where the caller is registered with his mobile operator within the EU)
2. Market for “local roaming calls” (roamed calls within the visited country in the EU)
3. Market for “received calls” (market for calls received from callers located in an EU country, while roaming within the EU)
4. Roamed calls to other than EU countries
5. Roamed calls to other EU countries but not the home country
6. Received calls from non EU countries
7. Active and received calls of roamers from outside the EU.

Of particular interest are the first three markets, because they constitute most of the roamed calls in the EU. Markets 4, 6 and 7 are not of significant interest here and are accordingly not further considered. Market 5: Roamed calls to other EU countries, but not to the home country, can be dealt with within market 1, because the resource consumption is similar to calls home.

The demand model used for the impact assessment attempts to model direct (“own”) price effects, cross price effects and possible effects on demand introduced by arbitrage opportunities for end users and created by the regulation. The demand model explicitly takes into account the demand for “calls home (x_1)”, “received calls (x_2)”, and “roamed local calls (x_3)”. The demand model is disaggregated into business and residential customers.

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 on calls home and received call 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 procedure, 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 calls home, can be described by the following demand function:

$$(1) \quad x_1 = \begin{cases} \alpha_0 + \alpha_1 p_1 + \alpha_2 (p_1 - p_2) + A' y & \text{if } |p_1 - p_2| < \varepsilon \\ \alpha_0 + \alpha_1 p_1 + A' y & \text{else} \end{cases},$$

where p_1 and p_2 are the prices for calls home and received calls, respectively; 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 etc., A' is the vector of parameters calibrating the influence of variables contained in y . The demand functions for the different components of international roaming are assumed to be linear, 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.

Partial derivatives with respect to prices can be 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.

$$(2) \quad \frac{\partial x_1}{\partial p_1} = \begin{cases} \alpha_1 < 0 & \text{if } |p_1 - p_2| < \varepsilon \\ (\alpha_1 + \alpha_2) < 0 & \text{else} \end{cases}; \quad \frac{\partial x_1}{\partial p_2} = -\alpha_2; \alpha_2 < 0$$

The partial derivative α_1 of x_1 with respect to its own price p_1 describes the behaviour of customers whenever prices of roamed and received calls do not differ to an unacceptable degree. It is assumed to be negative, which is the normal reaction of consumers to price increases. The term ε describes the sensitivity threshold for price differences between calls

home and received roaming calls, which is perceived by customers as acceptable. If the prices differ too much ($|p_1 - p_2| \geq \varepsilon$), the reaction of customers is assumed to be stronger, which means that $|\alpha_1 + \alpha_2| > |\alpha_1|$. This means that customers will substitute received calls by active calls and vice versa. This means in graphical terms that we can observe two different demand functions for calls home. One describes the reactions of customers under the hypothesis $|p_1 - p_2| < \varepsilon$, the other their reactions under the hypothesis of too large price differences. These two demand curves intersect at the starting point of the analysis with given values for p_1 and p_2 and $|p_1 - p_2| < \varepsilon$.

The demand for received calls is described by the following demand function:

$$(3) \quad x_2 = \begin{cases} \alpha_0 + \beta_1 p_2 + \beta_2 (p_2 - p_1) + B' y & \text{if } |p_1 - p_2| < \varepsilon \\ \beta_0 + \beta_1 p_2 + B' y & \text{else} \end{cases}$$

Again the behaviour of customers can be described by the partial derivatives of the demand function for received calls:

$$(4) \quad \frac{\partial x_2}{\partial p_2} = \begin{cases} \beta_1 < 0 & \text{if} \\ (\beta_1 + \beta_2) < 0 & \text{else} \end{cases}; \quad \frac{\partial x_2}{\partial p_1} = -\beta_2; \beta_2 < 0$$

The demand for local calls can be expressed as:

$$(5) \quad x_3 = \gamma_0 + \gamma_1 p_3 + \gamma_2 p_1,$$

where the intercept γ_0 can be interpreted to include all other factors influencing the demand for local roamed calls.

Consumer reactions to price changes can again be described by the partial derivatives:

$$(6) \quad \frac{\partial x_3}{\partial p_1} = \gamma_2 < 0; \quad \frac{\partial x_3}{\partial p_3} = \gamma_1 < 0;$$

The negative sign of the derivative of the demand for local calls with respect to prices of calls home means that local calls and calls home are treated as complements, although in an asymmetric way. The lower the price for calls home the higher will be the demand for local calls. This reflects the two stage character of the demand model, where calls home and received calls play a strong role in the decision to roam. A decrease in the calls home price would shift the demand function for local calls outward and vice versa. In this model no reaction of local calls on changes in received calls is expected.

Cost model

Experiences of NRAs with cost models for call termination fees show a wide range of cost factors for this type of service. In addition to these studies, some submissions in the course of the international roaming competition cases of the Commission against certain MNOs shed some light on the principles. Since these legal procedures have not been closed, it is not

possible to refer to this material in an authoritative way. In particular, Vodafone's defence with regard to common and fixed network costs, based on the contestable market hypothesis, could be of relevance, were it theoretically valid and empirically substantially corroborated. In particular, the vast differences of estimates for fixed and common cost by Vodafone and OFCOM are striking and cast serious doubts on the approach taken.

At any event, for the practical purpose of this analysis one can use the experience of the European Commission and many NRAs for a better understanding of the costs of international roaming. Again, the costs of three categories of calls will be analysed:

- Calls home
- Received calls
- Local roamed calls.

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

Calls home typically involve the use of network resources for:

- Call origination (international roaming) in a foreign country
- Transit to the home country, if no direct interconnection of the concerned operators is in place
- Call termination in the home country, which may be on
 - The network of the roaming customer
 - Another mobile network
 - A fixed network or
 - (If the called party is roaming itself) foreign mobile network.

In inter-carrier relations, these 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 etc., which will be 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, cost of capital (including a risk premium), frequency use etc, no mark-ups for these costs will be made. Using a terminology and concepts of economics rather than the respective concepts of accounting is required to be able to make the required welfare comparisons.

Received 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.

Roamed local calls in the foreign country typically consist of the following network costs:

- Call origination (international roaming) in a foreign country, and
- Call termination on a network in the visited country.

These roaming network costs are compensated again by IOTs paid by the home network of the roaming customer. Again, the other directly attributable costs mentioned above will be integrated as additional cost parameters to the model.

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

Unit costs of international roaming

Cost type	Cost per minute (in €cents)
Termination costs	12.64
Origination costs	12.64
Transit costs	2.00
Special roaming costs	1.00
Roaming marketing costs	1.00

The assumed values for call origination and call termination are the average termination costs per minute in the EU; the other cost figures are estimates, emerging from several discussions with mobile operators.

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 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. Dynamic elements such as spillovers and redistributive effects may also be evaluated on the basis of the model's findings. The model's focus is on aggregate industry and consumer outcomes.

Three different regulatory options – no policy change, wholesale capping and the European home market approach – are assessed in the context of three different elasticity settings. The model will thus produce nine different economic impact scenarios, which will constitute a sound basis for developing an effective policy proposal.

No policy change

Extrapolating current market developments and assuming significant political pressure is maintained, wholesale prices for purposes of the model may be estimated to decrease gradually over time⁴⁴.

For this policy option, the Commission's economic model suggests that as a direct result of regulation, consumer welfare could be increased by approximately €1.5 billion. The precise change would depend on the elasticity scenario regarded as the most realistic one. Producer surplus – or industry profits – would be decreased by €0.6 to €1.0 billion, again depending on the elasticity scenario selected. Finally, total economic welfare gains could be estimated to lie somewhere between €0.5 and €0.9 billion⁴⁵.

Total economic welfare refers here to the state of overall economic well being reached as a result of the policy option pursued. It is a measure that includes both consumer surplus and industry profits. When comparing different policy options, it should be kept in mind that welfare thus quantified also includes what is known as the deadweight loss, i.e. the permanent loss of well being to society caused by monopoly or excessive pricing. The more successful a policy option is in bringing about a competitive outcome, the lower the deadweight loss and the higher economic welfare.

The result for consumer surplus is not merely the mirror-image of the result for producer surplus. The latter is defined as industry profits (i.e. revenues minus costs, estimated by the

⁴⁴ The reductions could of course differ from these estimates depending on the precise regulatory and commercial environment; the present analysis assumes that at least some recent operator announcements will be implemented as a result of the mere *threat* of regulation. Assuming less significant price reductions, the impact would be more modest.

⁴⁵ For this policy option, retail prices may be estimated to decrease to a weighted 72 cents (for all active calls) and a weighted 48.5 cents (for all passive calls). This constitutes a weighted 10-20% reduction of call prices (depending on the specific call category).

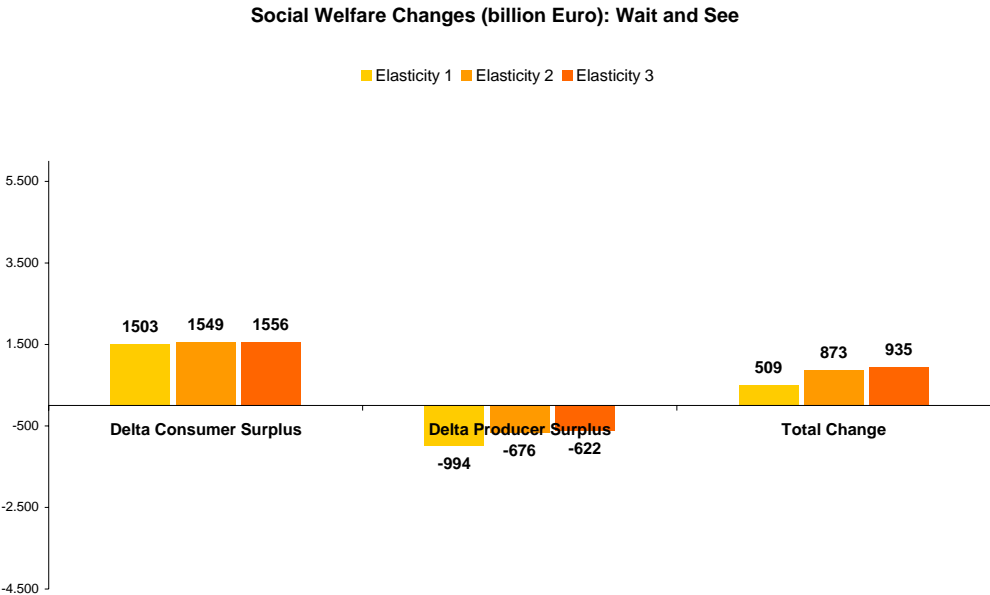
model’s cost function), whereas the former is the difference between consumer aggregate willingness to pay for roaming services (estimated by the model’s demand function) and prices resulting under this policy option⁴⁶. Welfare gains resulting from a reduction of the dead-weight loss, which occurs in situations of market failure, in our model will be captured mainly by consumers, thus increasing consumer surplus disproportionately in relation to industry profits. The net gain for consumers is thus higher than a simple transfer of profits.

The table and chart below display the precise results of the Commission’s model:

Table 1

€billion (Delta)	Elasticity Scenario 1	Elasticity Scenario 2	Elasticity Scenario 3
Consumer Surplus	1.503	1.549	1.556
Producer surplus	-994	-676	-622
Economic welfare measure	509	873	935

Chart 1



⁴⁶ Graphically speaking, it is the surface below the demand curve.

These immediate (or static) results of price regulation have to be situated, of course, in a broader economic context. This context includes dynamic impacts of regulation, for instance on future investment levels, as well as possible spill-over effects on the general price level for domestic mobile services.

Wholesale capping

For the option of wholesale regulation only, the Commission’s economic model assumes that wholesale prices would be capped at 30 cents. This would be a single price cap regardless of whether the call was terminated within the visited country or in another EU country. A further assumption is that there would be some (but by no means complete) pass-through of these price changes to retail level⁴⁷.

For this option, the model suggests that as a direct result of regulation consumer welfare could be increased by approximately €2.1 to €2.3 billion. The precise change would depend on the elasticity scenario regarded as the most realistic one. Producer surplus – or industry profits – would be decreased by €1 to €1.5 billion, again depending on the elasticity scenario selected. Finally, total economic welfare gains could be estimated to lie somewhere between €0.6 and €1.3 billion⁴⁸.

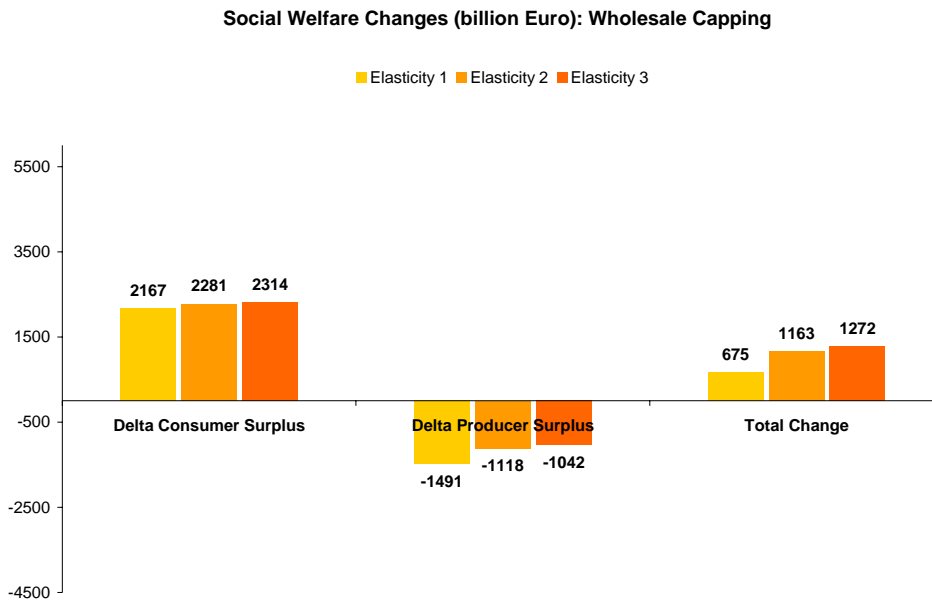
Table 2

€billion (Delta)	Elasticity Scenario 1	Elasticity Scenario 2	Elasticity Scenario 3
Consumer Surplus	2.167	2.281	2.314
Producer surplus	-1.491	-1.118	-1.042
Economic welfare measure	675	1.163	1.272

⁴⁷ On the issue of pass-through, see box in section 4.2.2.

⁴⁸ For this policy option, retail prices may be estimated to decrease to a weighted 66.5 cents (for all active calls) and a weighted 44 cents (for all passive calls). This constitutes a weighted 18-25% reduction of call prices (depending on the specific call category).

Chart 2



European home market approach

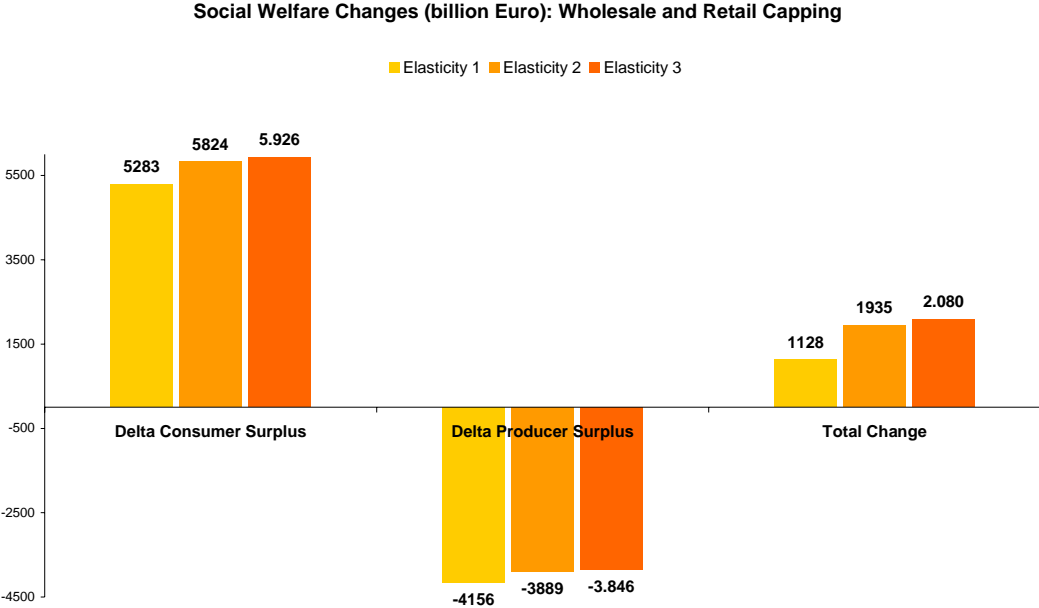
For this option, the model suggests that as a direct result of regulation consumer welfare could be increased by approximately €5.2 to €5.9 billion. The precise change would depend on the elasticity scenario regarded as the most realistic one. Producer surplus – or industry profits – would be decreased by between €3.8 and €4.2 billion, again depending on the elasticity scenario selected. Finally, total economic welfare gains could be estimated to range from €1.1 to €2.0 billion.

The table and chart below display the precise results of the Commission’s model:

Table 3

€billion (Delta)	Elasticity Scenario 1	Elasticity Scenario 2	Elasticity Scenario 3
Consumer Surplus	5.283	5.824	5.926
Producer surplus	-4.156	-3.889	-3.846
Economic welfare measure	1.128	1.935	2.080

Chart 3

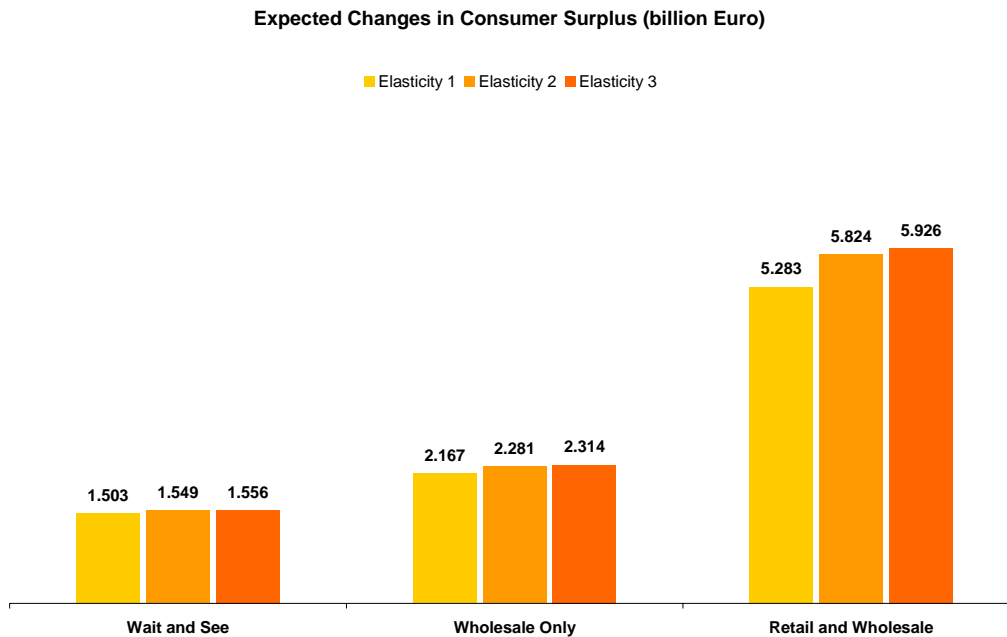


These immediate (or static) results of price regulation have to be situated, of course, in a broader economic context. This context includes dynamic impacts of regulation, for instance on future investment levels, as well as possible spill-over effects on the general price level for domestic mobile services.

The three options reconsidered - the consumer's point of view

The above analysis has looked at consumer surplus, producer surplus and a measure of overall economic welfare. If we place stricter assumptions on our evaluation and focus principally on consumer surplus, what comparative results will the three options yield?

Chart 4



As can be seen, the retail and wholesale regulation policy option – different elasticity effects notwithstanding – ultimately delivers the greatest benefits to consumers. This result should be borne in mind when we simplify our analysis further and look at these three options again under even stronger assumptions in the last section of this chapter.

A simplified comparison of three policy options

In the preceding sections, various policy options were explored. Some of them were analysed in detail as to their likely impact by means of an economic model. While the analysis was aimed to address in sufficient measure the complexities involved, it is now useful to recall in somewhat simplistic fashion the main impacts consumers and industries will face under three different policy options:

- A scenario where firms will offer lower prices as a result of continued political and regulatory pressure that falls however short of actual intervention (‘No Policy Change’)
- A scenario of wholesale regulation only (‘Wholesale Regulation’)
- A scenario that combines wholesale with retail regulation (‘European home market approach’)

The purpose of following tables is to depict the simplified impact these policy options have on consumers and industry.

While based on and in accordance with the economic model of the Commission’s services, the impacts are calculated on a strict *ceteris paribus* assumption that excludes all elasticity effects, substitution effects and dynamic adjustment processes. They are thus hypothetical.

Nevertheless, broad trends can be seen to emerge:

Chart 5

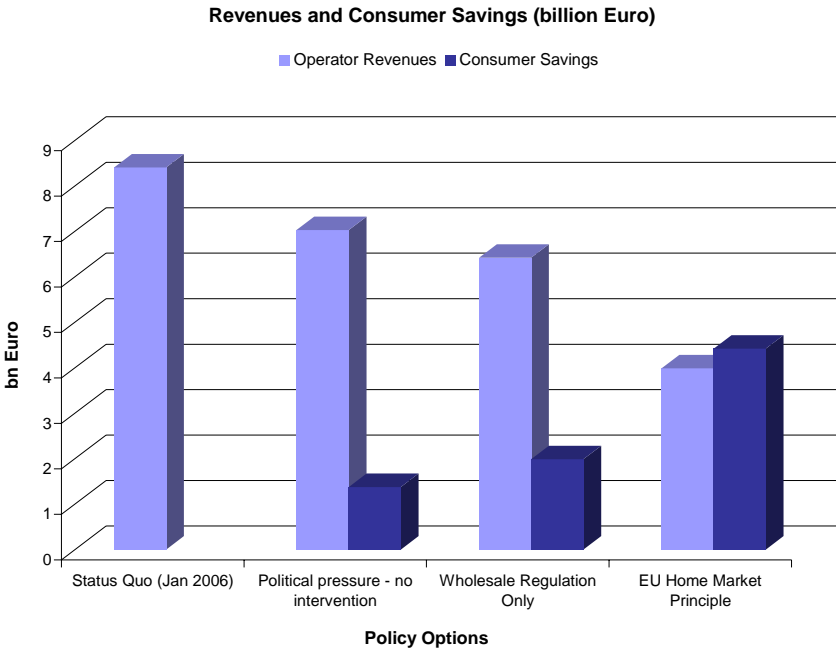


Chart 6

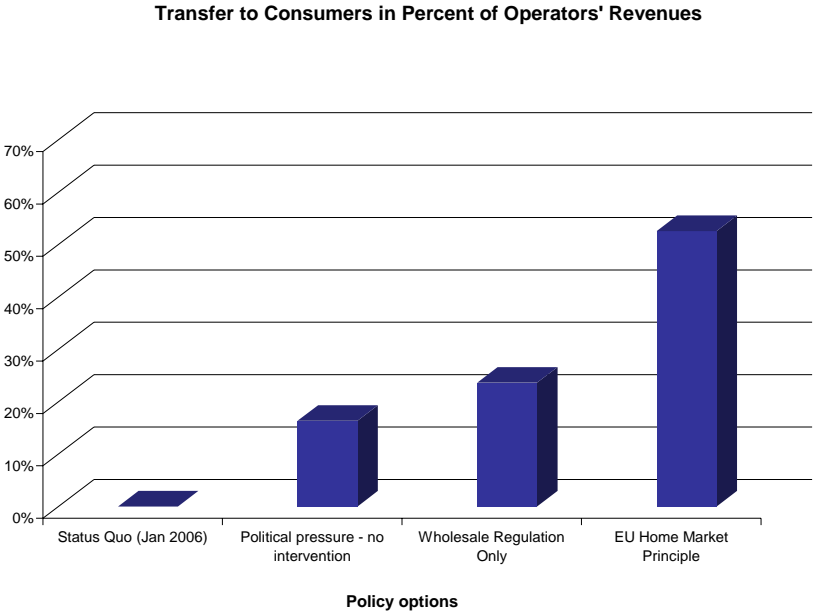
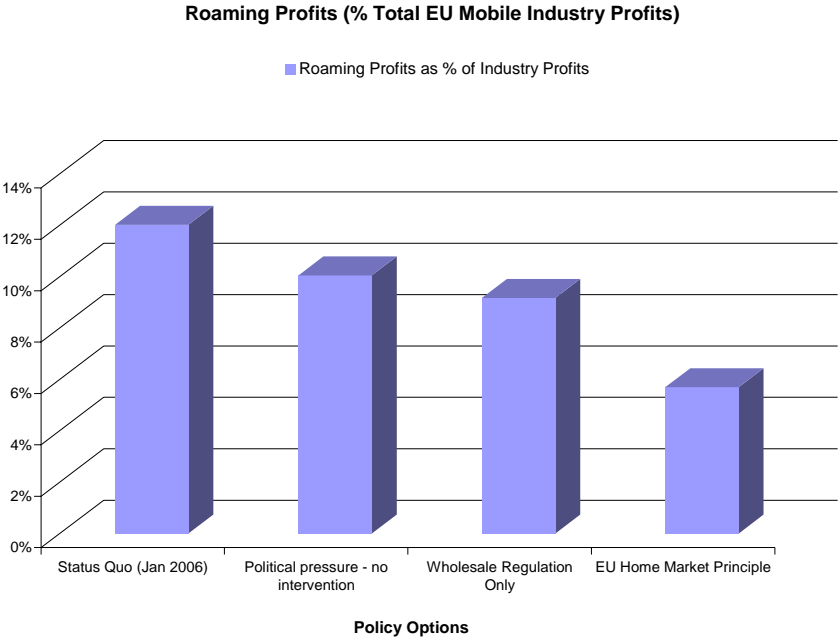


Chart 7



These charts suggest that the European home market approach will lead to transfers of more than €1 billion from the industry to consumers as a result of regulation. As argued above, if substitution and elasticity effects are factored in, the resulting gains in consumer welfare could be even higher. However, even our simplified analysis shows that the European home market approach is the preferred regulatory way forward.