Fixed call origination market review

A report for the BTHK

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April 2018

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1 Introduction

The Turkish Republic of Northern Cyprus (TRNC) enacted its Electronic Communications Law in 2011. The law[1] (6/2012), which came into effect in 2012, created the Information Technologies and Communication Authority, or Bilgi Teknolojileri ve Haberleşme Kurumu (BTHK)[2] as an independent regulator.

This law is largely based upon the European Union regulatory framework for electronic communications. Amongst the other powers and obligations it bestows upon the BTHK, it requires the BTHK to prepare market reviews at least every two years.

The BTHK has carried out a number of reviews of various telecommunications markets in the TRNC over the last few years, including:

- Sabit Şebekede Çağrı Sonlandırma Pazarı (Fixed Call Termination Market), March 2014.
- Mobil Çağrı Sonlandırma Pazarı (Mobile Call Termination Market) March 2014.
- Toptan Genişbant Erişim Pazarı Analizi (Wholesale Broadband Access Market Review), May 2017.
- Sabit Telefon Hizmetleri Pazarı Analizi (Fixed voice telephony services market review),May 2017

The BTHK has now engaged Plum Consulting London LLP (Plum) to undertake two further market reviews. The purpose of these studies is to provide the BTHK with market analysis on what remedies, if any, should apply to operators found to have significant market power (SMP) in the market under review. This report addresses the wholesale call origination on the public telephone network provided at a fixed location. This is Market 8 of the European Commission's Recommendation on relevant markets of 2003(henceforth referred to as the fixed call origination (or FCO) market).

A draft of this report has been open to public consultation. Submissions were received from the Competition Board of the TRNC and KKTCell. Their submissions have been considered and where appropriate adjustments made to the draft report in concluding this final report.

[1] Electronic Communication Law (June 2012), Elektronik Haberleşme Yasası 6-2012 http://www.bthk.org/Documents/yasa-duzenleme/elektronik-haberlesme-yasasi-RG.pdf

[2] Bilgi Teknolojileri ve Haberleşme Kurumu (BTHK), http://www.bthk.org/tr

2 Approach to market analysis

2.1 Introduction

This section sets out the approach to the market analysis. This approach is designed to:

- follow the TRNC's Access, Interconnection, Market Analysis and Tariff bylaw which is based on the EU's 2003 regulatory framework;
- supplement this with recent guidance from the European Commission as provided in its 2014 Recommendation on relevant markets and Commission comments on relevant market analysis decisions by individual EU NRAs where relevant;
- use evidence on the state of the telecommunications market in the TRNC and how it compares with benchmark countries on a number of key measures to inform the conclusions; and
- reflect and take account of the fact that the TRNC, with a population of only 350,000, is subject to the challenges of a 'microstate[3]'.

2.2 The TRNC's Access, Interconnection, Market Analysis and Tariff bylaw

The bylaw was created pursuant to various Articles of the TRNC Law 6/2012. Section 3 of the bylaw addresses the market analysis procedure to be followed. This closely mirrors the European Commission's approach to market analysis.

Within this section the following articles are of particular relevance:

- Market analysis – Articles 9 (1) and 9 (2).
- Definition of relevant markets – Article 10 (1).
- Determining the undertakings with Significant Market Power – Article 11 (1), (2), (3), (4), (5).
- Remedies for undertakings with Significant Market Power – Article 12 (1-7).

One element of the bylaw which is not entirely consistent with the EU approach is the period between market reviews. Article 9 (1) specifies:

> *Market analysis is conducted by the Authority on its own initiative in at least once in every two years or when needed or they are made upon a reasoned request of an operator.*

By international standards this is a relatively short time between market reviews – which could raise regulatory costs unnecessarily and create regulatory uncertainty. The current European Commission requirement is for National Regulatory Authorities (NRAs) to conduct market reviews on each Recommended Market, every three years[4]. However, in the review of the Framework currently underway, the European Commission is proposing to extend the market review cycle to every five

[3] A microstate is defined as a country with a population of less than 1 million people.

[4] Article 16(6) of the Framework Directive.

years[5]. In Plum's work on the effective regulation of telecommunications in microstates[6] it recommended that market reviews should only be conducted when a material change in the market is detected – typically when a new operator enters a market.

2.3 Tailoring the EU market analysis process to market conditions in the TRNC

There are a number of factors specific to the TRNC which indicate a need to tailor the approach used for market analysis in the EU to the specific conditions prevailing in the TRNC.

First the European Commission's thinking on best practice in market analysis has become clearer since the initial 2003 Recommendation and guidance (on which the TRNC's Access and Interconnection bylaw is based). In particular the Commission has stressed more clearly, in setting out guidance on use of the 2014 Recommendation as illustrated in Figure 2-1, the need for regulators to focus their analysis on making the relevant downstream retail market more competitive and on making outcomes in the retail market better for end users. This often, but not always, involves considering the implementation of remedies in an upstream wholesale market which supplies inputs to the retail market.

Figure 2-1: The European Commission focus on retail markets[7]

> It should be assessed whether retail markets are effectively competitive from a forward-looking perspective in the absence of regulation based on a finding of significant market power" (Recital 8)
>
> If the retail market concerned is not effectively competitive from a forward-looking perspective in the absence of ex ante regulation, the corresponding wholesale market(s) susceptible to ex ante regulation in line with Article 16 of Directive 2002/21/EC should be assessed […] On the other hand, if the retail market concerned is effectively competitive from a forward looking perspective in the absence of ex ante wholesale regulation on the corresponding relevant market(s), this should lead the national regulatory authority to conclude that regulation is no longer needed at wholesale level (Recital 10).

Secondly the European Union regulatory framework assumes that the telecommunication sector is fully liberalised. This is not currently the case in the TRNC. While the TO retains exclusive rights in key retail services (notably the supply of fixed voice telephony) this means that it is important to consider the nature of retail price controls on the TO which will improve end-user outcomes. Again, this suggests the central importance of considering retail markets before considering whether to impose remedies in upstream wholesale markets.

Thirdly the current market analysis process, as specified by the European Commission, is based on the assumption that there is already considerable ex-ante regulation in place in wholesale markets.

[5] European Commission (October 2016), *"Proposal for a Directive establishing and Electronic Communications Code"* (Recast), page 15 http://eur-lex.europa.eu/resource.html?uri=cellar:c5ee8d55-7a56-11e6-b076-01aa75ed71a1.0001.02/DOC_3&format=PDF

[6] Plum (2017), *"Effective telecoms regulation in the island states of the Caribbean"*, http://plumconsulting.co.uk/effective-telecoms-regulation-island-states-caribbean/

[7] European Commission (2014), *"Commission staff working document explanatory note accompanying the document: Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation"*.

This complicates assessment of competition in EU retail markets where, in many cases, there is effective competition only because of previously imposed ex-ante regulation in upstream wholesale markets. This is not the case in the TRNC, where such ex-ante regulation is restricted largely to the 2014 requirement for operators to terminate calls on their networks at regulated prices. This difference again suggests that the best approach in the TRNC is to assess market conditions in the relevant retail market before deciding whether there is a need for wholesale remedies.

Finally there are major market developments which have occurred in the EU since the 2003 framework was established. In 2003 the Commission identified 18 markets which were susceptible to ex-ante regulation. By 2014 this was reduced to four markets[8]. Key developments since 2003 also include the move from narrowband to broadband services, the move towards bundled offerings, the development of so called 'over the top' (OTT) services, and fixed-mobile substitution. In the light of these developments the FCO wholesale markets is judged now not to be susceptible to ex-ante regulation in the majority of EU member states. NRAs in the EU therefore need to justify their inclusion in any market analysis they conduct.

The considerations listed above would suggest that market analysis in the TRNC is best done by considering market conditions in the relevant retail market, before considering whether wholesale remedies in the FCO market is an appropriate way to move the market towards effective competition.

2.4 Comparing the TRNC with international benchmarks

From time to time in the analysis, market conditions in the TRNC are compared with market conditions elsewhere. To do this seven countries have been selected to compare with the TRNC in terms of market outcomes. The comparator countries are:

- South Cyprus and Malta which have similar (small) populations to the TRNC;
- Turkey – a country with a similar level of economic development to the TRNC which uses the same currency. Turkey is also the home of the parent companies of the TRNC's mobile operators and one which the population of the TRNC compares itself with in terms of telecommunications prices; and
- Estonia, France, Germany and the UK as representatives of developed EU member states.

The performance of the telecommunication sector in the TRNC is then compared with that in the benchmark countries at the end of 2015, using the latest information from the ITU yearbook of statistics plus BTHK market statistics. Note that these benchmark countries are different from those used by BTHK in setting mobile termination rates in 2014[9]. In the latter case BTHK primarily chose 13 countries which have used LRIC modelling to set termination rates. Here the choice is made for different reasons – as set out above.

In making comparisons it is necessary to:

- take care when making price comparisons; and

[8] European Commission (October 2014), *"Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC"* https://ec.europa.eu/digital-single-market/en/news/commission-recommendation-relevant-product-and-service-markets-within-electronic-communications

[9] Sabit ve Mobil Şebekelerde Sonlandırma Ücretleri, BTHK, 2014

- take account of the fact that the TRNC is a microstate.

These issues are discussed below.

2.4.1 Price comparisons

Many of the international comparisons made – on uptake and availability of service, levels of investment and levels of profitability – are relatively straightforward to interpret. However, care needs to be taken when comparing end-user telecommunications prices. If the objective of the price comparison is to assess how affordable services are for end-users in the TRNC, then it should:

- include taxes when comparing prices; and
- use PPP exchange rates rather than market exchange rates when converting into US$. Suppose a general basket of goods and services cost $100 in the US but only $70 in the TRNC. If a telecommunication service is priced at $1 in the US and $1 in the TRNC (using market exchange rates) then it is more expensive in the TRNC than the US relative to the cost of living there. A PPP exchange rate controls for this cost of living difference.[10]

On the other hand, if the purpose of the price comparison is to see whether prices in the TRNC might reflect efficiently-incurred costs[11] then it should:

- compare prices net of tax. This is especially important in the TRNC where the tax rate[12] on mobile telecommunication services is 90%[13] (compared with other countries where it is typically around 20%);
- take account of the fact that the TRNC (along with South Cyprus and Malta) is a microstate.[14] As discussed below end-user prices which reflect efficiently-incurred costs are typically significantly higher in microstates than in macrostates; and
- use an exchange rate which reflects the input costs of the operators. This is some mix of market exchange rates (to reflect the fact that equipment and software are traded on global markets) and PPP exchange rates (to reflect local labour costs). This analysis assumes exchange rate midway between the two,(henceforth referred to as the **cost comparison** exchange rate).

2.4.2 The impact of being a microstate

The TRNC has a population of just under 350,000 people. As such it is a microstate. That means that the regulatory remedies which are appropriate in a macrostate (with a population of several million people or more) may not be effective in the TRNC.

[10] There is not a reliable PPP exchange rate for the TRNC. Instead the PPP exchange rate for Turkey is used, after adjusting for differences in GDP per capita.

[11] On the assumption that the prices observed in other countries are set at a competitive level to reflect efficiently incurred costs.

[12] Tax rate = tax/(retail price - tax).

[13] Based on calculations using BTHK data.

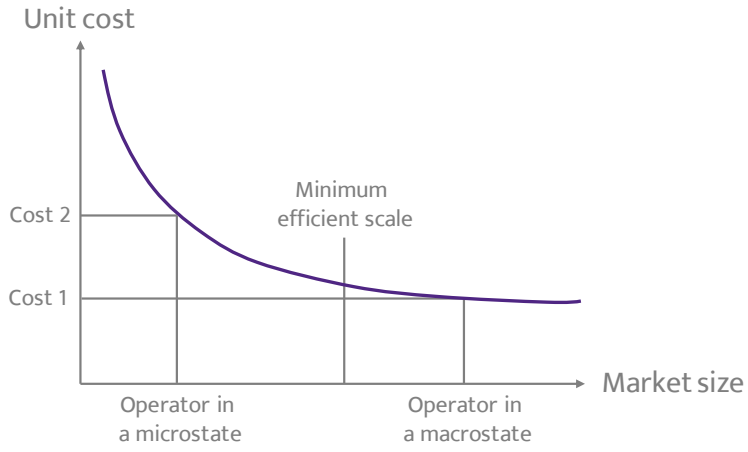
[14] Defined as a country with a population of less than 1 million.

Economy of scale effects in the telecommunications sector

There is general recognition that the supply of telecommunications services is characterised by economy of scale effects. Economy of scale effects arise because the creation of a telecommunications network involves substantial fixed costs as well as a variable cost per customer served. This implies a unit cost curve like that shown in Figure 2-2.

It is almost certain that the telecommunications companies in the TRNC are operating at a point well below the minimum efficient scale shown in Figure 2-2. As the number of customers shrinks the cost per customer grows because the fixed costs must be recovered from fewer customers. This means that there is a loss of productive efficiency within the sector. An operator in a macrostate is likely to be operating at a point on this curve where economies of scale are largely exhausted. But in a microstate an operator with the same market share is likely to be operating at a point on the curve which is well below minimum efficient scale.

Figure 2-2: Economy of scale effects



What is the minimum efficient scale?

There are significant economies of scale in the provision of both fixed and mobile network services. These arise from three main sources:

- the fixed costs of a network management centre, operations support system and customer support system. The higher the number of customers the lower these fixed costs are per customer;
- the level of utilisation of a network is higher for larger networks. Network components, such as the civil engineering components of inter-switch transmission links, are supplied at some minimum size. The need for redundancy also lowers utilisation more in micro networks. Additionally, queuing theory suggests that micro-scale networks must operate at lower utilisation for the same grade of service;
- procurement effects. Small operators have relatively little procurement power when compared with large operators. This has two main effects:

- small operators get limited discounts from suppliers when compared with large operators and this raises unit capital costs. According to an interview with ECTA, DSLAM prices for macrostate incumbents are often 50% below those charged to small operators; and
- small operators are a low priority for the large equipment vendors. So, unless they become test beds for new technology equipment, they receive equipment and service later than the large operators.

There are however some differences between fixed and mobile *access* networks in terms of economies of scale.

- Access network costs for a *fixed* network do not generate substantial economy of scale effects. Based on analysis of the FCC's ARMIS database, Ovum concluded in a 2005 report[15] that a 10% increase in the number of customers leads to a near 10% increase in costs. It is likely that this conclusion will continue to apply as fixed services move from narrowband to broadband.
- In contrast, *mobile* access networks generate economies of scale because of the fixed cost of minimum population coverage. Mobile operators need to meet coverage requirements and/or offer a level of coverage to potential customers that is competitive. This requirement does not apply to fixed networks so strongly.

These differences are relatively modest and only affect the access network component of overall service provision.

It is clearly important to try to establish where economy of scale effects are exhausted and minimum efficient scale is reached. The available evidence suggests that minimum efficient scale is achieved by mobile networks with more than two million customers. This finding is based on three sources listed below.

- A 2009 study[16] which indicates that the smallest of the three mobile operators in Korea was at or below minimum efficient scale in 2008. This operator had around nine million customers at that time.
- An ERG study[17], which provides an economy of scale curve for the supply of mobile services in Romania in 2005 at a time when there were 16 million mobile customers. The curve is shown in Figure 2-3. This analysis suggests that minimum efficient scale is achieved at a market share of just over 30% or five million customers.
- ITU data on the price of mobile services[18]. Plotting the price of a basket of mobile services in 2015 for middle income countries shows the economy of scale curve of Figure 2-4. This suggests a minimum efficient scale of around two million customers[19].

The minimum efficient scale for fixed network services is likely to be marginally smaller, given the lower economy of scale effects in the supply of fixed access networks.

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[15] Ovum and Indepen (June 2005), *"Applying the EU regulatory framework in microstates"* http://www.indepen.uk.com/docs/applying_the_eu_regulatory_framework.pdf (Ovum 2005)

[16] Changi Nam, Youngsun Kwon, Seongcheol Kim,and Hyeongjik Lee (March 2009), *"Estimating scale economies of the wireless telecommunications industry using EVA data",* Telecommunications Policy, Volume 33, Issues 1–2, February–March 2009, Pages 29–40, http://www.sciencedirect.com/science/article/pii/S0308596108000992

[17] ERG (February 2008), *"ERG's Common Position in Symmetry of Fixed Call Termination and Mobile Call Termination Rates"*, ERG(07)83 final 080312.

[18] *Measuring the information Society Report 2015*, ITU 2016.

[19] Assuming two mobile operators per country.

Figure 2-3: An economy of scale curve for mobile operators

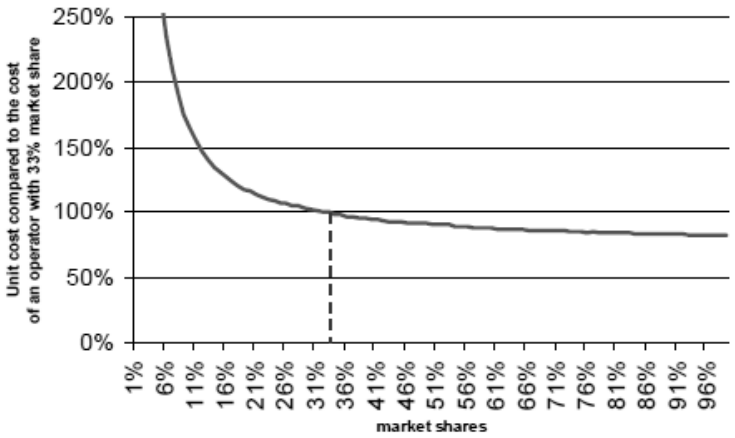
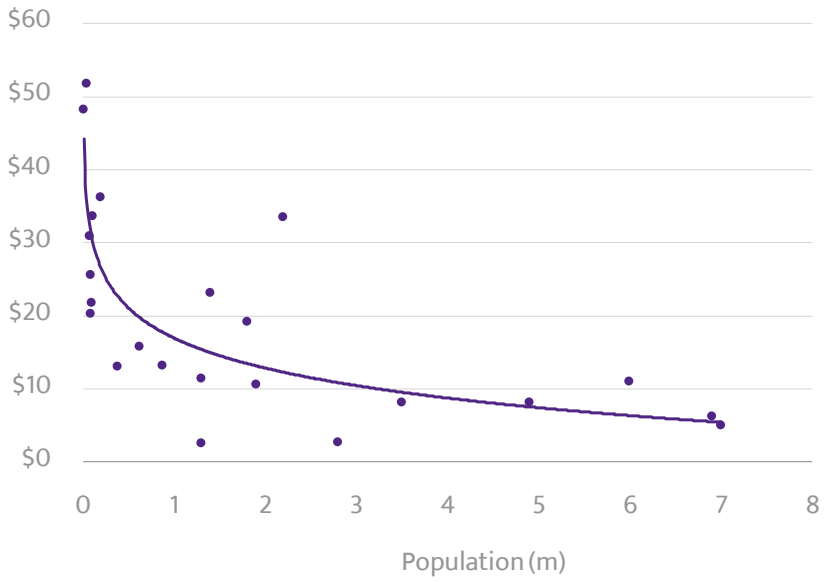


Figure 2-4: A mobile economy of scale curve for middle income countries



There are also arguments which suggest that the minimum efficient scale is growing over time as telecommunications services switch from narrowband to broadband services. Around the world operators are witnessing a large increase in the volume of data carried by networks as they switch from narrowband to broadband services. This switch creates a requirement to provide additional fibre transmission links for both national and international connectivity. Yet the cost of providing these additional links is largely fixed: From previous (private) studies for consulting clients elsewhere, Plum estimates that a transmission link which carries the data traffic generated by 20 million people might cost five times that needed to carry the traffic generated by 350,000 people -but not 60 times as much. This trend creates a particular cost burden for the TRNC – where there is a high and growing proportion of data traffic which requires undersea fibre cables.

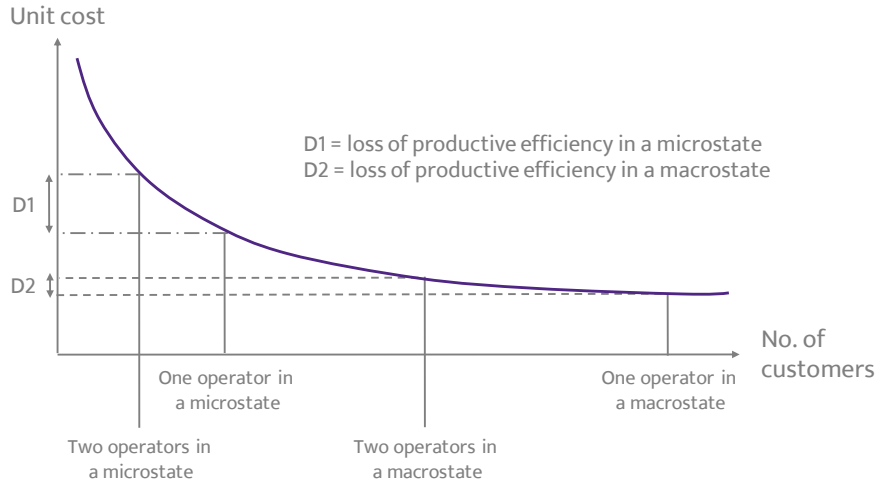
Implications for the TRNC

The inability to achieve minimum efficient scale in the TRNC means that:

- efficient unit costs and prices (whether retail or wholesale) are likely to be significantly higher than those observed in macrostates; and
- the unit costs of supplying telecommunications infrastructure rise substantially as the number of competing operators increases and the scale at which each supplies services shrinks – as illustrated in Figure 2-5. This means that increases in competition lead to significant losses of productive efficiency[20].

It is challenging to estimate how much higher prices which reflect efficiently-incurred costs should be in a microstate than in a macrostate. However, Figure 2-4 provides one indicator. Using ITU data on the price of mobile services,[21] it plots the price of a basket of mobile services in 2015 for middle income countries. It suggests that, in a country with a population of fewer than half a million people (like the TRNC), prices are more than double those observed in macrostates. The evidence in Figure 2-4 refers to the mobile market. But given the analysis set out above we would expect broadly similar effects in the fixed markets of the TRNC.

Figure 2-5: Competition in a microstate



2.5 The approach to market analysis for the FCO market

2.5.1 The overall approach

Based on the specific market conditions in the TRNC, as discussed in Sections 2.2 to 2.4 above, a four step approach to market analysis has been developed for the FCO wholesale market review.

[20] That is, the unit costs of supply increase as the number of infrastructure-based operators grows.

[21] ITU (2016), *"Measuring the information Society Report 2015"*, https://www.itu.int/en/ITU-D/statistics/pages/publications/mis2016.aspx

- Step 1: define the relevant downstream retail market which relate to the FCO wholesale market.
- Step 2: determine whether this retail market is structured in a way which makes it susceptible to ex-ante regulation by applying the three criteria test specified in Clause 9(2) of the TRNC bylaw.
- Step 3: determine whether any player in this retail market has significant market power, absent any relevant pre-existing wholesale access regulation.
- Step 4: consider what remedies to impose if SMP is found so as to improve end-user outcomes. Options include retail price controls, obligations on SMP operators in the upstream wholesale access market such as the FCO, and obligations to terminate calls in the market for personal communication.

2.5.2 Step 1: define the relevant downstream retail markets

In Step 1 the relevant downstream retail market for which the FCO wholesale market provides possible remedies is defined. A preliminary definition of the main retail markets of the TRNC telecommunications sector has been reached, by drawing on:

- theoretical considerations of supply and demand side substitution effects. This approach uses the conceptual framework of the 'SSNIP' test[22] to assess whether a hypothetical monopolist could profitably sustain a Small but Significant Non-transitory Increase in Price. The relevant market is defined as the largest market over which such a price increase could be sustained profitably;[23]
- precedents from the EU. The European Commission has defined a series of distinct retail markets using SSNIP test considerations in drawing up its Recommendations on relevant markets for 2002, 2007 and 2014. In particular the European Commission makes it clear that:
  - fixed and mobile retail markets are separate; and
  - fixed voice telephony, fixed broadband for consumers and fixed broadband for enterprises are also separate markets; and
- precedents from relevant market analyses by individual NRAs and merger cases by National Competition Authorities (NCAs) where appropriate.

This leads to the provisional conclusion that there are four main retail markets in the TRNC:

- the retail market for mobile communications;
- the mass retail market for fixed broadband services;
- the corporate retail fixed market for broadband services and dedicated links; and
- the retail market for fixed voice telephony services.

Given these four markets it is clear that the relevant downstream retail market corresponding to the FCO market is the retail market for fixed voice telephony services.

[22] This test is also sometimes called the 'hypothetical monopolist test'.

[23] The logic is that for a smaller market, the price increase cannot be sustained because there are close substitute products or services that customers can switch to or there are other market players which would find it profitable to enter the smaller market when the SSNIP was made. In this case, those substitute products/services should be included within the definition of the relevant market and the definition of the relevant market expanded until no such close substitutes exist.

The geographic, customer, and product scope of this downstream market can then be determined by using demand-side and supply-side substitution tests and precedents from elsewhere.

2.5.3 Step 2: determine whether the retail market is susceptible to regulation through the application of the three criteria test

Before determining whether a market is effectively competitive (no operators with SMP), the Access and Interconnection bylaw (Article 9(2)) requires the BTHK to test whether the market is susceptible to ex-ante regulation by applying the three criteria test. The purpose of this step, as set out by the European Commission in its explanatory note accompanying its recommendation on relevant markets[24], is to ensure that regulation is not imposed when it is not required so as to avoid inhibiting investment and innovation by market players.

> *"Regulation must be targeted and balanced in a way that addresses the true obstacles to effective competition in the sector: an excessive regulatory burden on operators would stifle investment and innovation, whereas too little regulation and a failure to apply it where it is needed would reverse the achievements of the past decade of liberalisation, consumer choice and competitive dynamics in the sector. Consistent with the objectives set by the regulatory framework, regulation must promote inter alia efficient investment and innovation in the interest of end users, as well as a consistent approach to regulation throughout the Union"* (P8 of guidance)

In applying the three criteria test it is important to note how it differs from the subsequent assessment of whether an individual operator has SMP within the market. As the Commission states:

> *"The three criteria test focuses on overall market characteristics and structure, for the sole purpose of identifying those markets that are susceptible to ex ante regulation. The assessment of significant market power instead determines whether an operator active in a market that has been identified as susceptible to ex ante regulation, should be made subject to ex ante regulation. While a market may meet the three criteria for the purposes of the Recommendation, and is therefore listed as susceptible to ex ante regulation, regulation on the identified market in an individual Member State may not be warranted."* (P12 of guidance)

As specified by the European Commission, the three criteria are as follows:

- Criterion 1: there are high and non-transitory barriers to market entry (in the absence of any prospective ex-ante regulation). These barriers may be:
  - structural. It may not be commercially viable for an operator or service provider to enter the market without further ex-ante regulation; or
  - legal or regulatory. Limitations on use of spectrum or planning rules which prevent network buildout are obvious examples here.
- Criterion 2: the market structure does not tend towards effective competition. Even where there are high barriers to entry the market may still tend towards effective competition because of technological developments or the impact of previously imposed ex-ante regulation (such as regulated interconnect requirements in the case of the TRNC).

[24] European Commission (October 2014), *Explanatory Note accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector*, https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets

- Criterion 3: competition law alone is insufficient to adequately address the identified market failures. Ex-ante regulation should only be applied if competition law is inadequate. This makes ex-ante regulation appropriate when a justified remedy cannot be imposed using competition law or when it is necessary to monitor compliance with a remedy frequently over an extended period of time.

If all three of these criteria are met then the market is susceptible to ex-ante regulation and the next stages of the analysis proceeds: SMP assessment and remedy selection.

2.5.4 Step 3: determine whether any player in the retail market has significant market power (SMP)

The notion of SMP or dominance in Europe has been aligned with the notion of dominance in competition law. It refers to the ability of a company (or a group of companies) to maintain the prices of its products and/or services above a competitive level. Market power arises in a number of industries as a result of factors such as economies of scale that act as barriers to entry and thereby reduce the number of efficient market players, or the existence of switching costs that limit the ability of customers to move to new suppliers. Specifically, a company:

> *"shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers."*[25]

The TRNC Access and Interconnection bylaw (Article (11)) addresses the determination of whether an undertaking has SMP in the same way as laid down by the European Commission. The bylaw notes in Article 11(1):

> *"When determining the undertaking(s) with significant market power, market shares of the undertakings are considered as the primary criteria."*

Article 11(1) continues by noting that there are different *"characteristic properties"* of market share including: income (revenue), subscribers, traffic volumes, etc.

Although the possession of high market share is not sufficient on its own to conclude that an operator has significant market power, it is unlikely that a dominant operator would not have a substantial market share. Other criteria which indicate that an undertaking has *"competitive superiority"* include:

- control of infrastructure which is not easily duplicated;
- technological advantages or superiority;
- lack of countervailing buying power;
- easy or privileged access to capital markets/financial resources;
- product or services diversification;
- economies of scale;
- economies of scope;

[25] European Commission (2002), *Regulatory framework for electronic communications*, Article 14(2) ,

- vertical integration;
- highly developed distribution and sales network;
- lack of potential competition; and
- barriers to expansion.

2.5.5 Step 4: consider what remedies to impose if SMP is found

If market analysis establishes that a market is not effectively competitive, then the last phase of the work involves developing remedies to promote competition in that market by addressing the identified market problems. In selecting appropriate remedies, it is necessary to:

- consider the existing regulations, in order to understand the burden that any proposed remedies will have on the SMP operator;
- select remedies that are justified in terms of the specific market conditions, and aimed at addressing the market failures identified by the market analysis; and
- choose remedies that are in accordance with the principle of proportionality to ensure that:

  "the means used to attain a given end should be no more than what is appropriate and necessary to attain that end. In order to establish that a proposed measure is compatible with the principle of proportionality, the action to be taken must pursue a legitimate aim, and the means employed to achieve the aim must be both necessary and the least burdensome, i.e. it must be the minimum necessary to achieve the aim."[26]

The fact that the TRNC is a microstate should also be added to the above considerations. This impacts the application of regulation and the imposition of remedies. In particular, it implies that there is a need to:

- trade-off the dynamic efficiency effects of greater competition in the sector against the need to maximise productive efficiency by moving the operators in the sector towards minimum efficient scale. This is not a significant issue in macrostates;
- account for the fact that retail and wholesale prices for telecommunications services are likely to be significantly higher in microstates than macrostates;
- allow for specific additional costs faced by the geographic location of the TRNC, such as international undersea connectivity;
- accept that the prospects of market entrants challenging the existing players are more limited than in a macrostate; and
- regulate in a way which keeps the costs of developing, implementing and complying with regulation to a reasonable level so as to not raise end-use prices unnecessarily.

The TRNC Access and Interconnection bylaw (Article (12)) addresses the imposition of remedies on undertakings with SMP and provides for a broad range of remedies similar to those provided for under the EU Framework, including:

[26] European Commission (2002) *Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services* , Point 118, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52002XC0711(02)&from=EN

- transparency;
- non-discrimination;
- accounting separation;
- access;
- price control; and
- carrier selection.

These are in addition to interconnection addressed in Article 7 and to retail price controls addressed in Articles 13 to 17 of the bylaw.

3 The fixed call origination (FCO) market

3.1 Step 1: defining the relevant downstream retail market corresponding to the FCO market

3.1.1 The relevant downstream market

Wholesale services within the FCO market are designed to make the downstream retail market for the supply of fixed voice telephony (FVT) services more competitive. As the NRA in Malta puts it:

> *"Wholesale [fixed] call origination is considered as one of the three wholesale inputs, including call termination and call transit, which are necessary to provide retail call services. Wholesale call origination can be self provided by building a local access network, or bought directly from a third party, if no direct access link to the end user is being sought."*[27]

3.1.2 Defining the scope of the fixed voice telephony (FVT) retail market

The retail FVT services market in the TRNC includes the supply of **both access and calls**. Both elements are required to create a product which an end-user would purchase. A service which delivers calls needs access to end-users to be viable. At the same time, a voice access service without the ability to deliver calls is of no value to an end-user.

The FVT market is **separate from the fixed broadband market**. The European Commission makes this point in its guidance on the 2014 Recommendation on relevant markets. The distinction is based on the application of a SSNIP test. Fixed voice telephony services clearly do not substitute for fixed broadband. A hypothetical monopolist which offered a fixed broadband service or a FVT service on its own would therefore find a SSNIP profitable.

There is evidence that this distinction may be disappearing as end users retain fixed access lines for broadband, and purchase a bundle of fixed broadband and fixed voice telephony in which the focal product is fixed broadband and the FVT service is supplied at little or no extra charge. However, at the moment there are sufficient end-users in the TRNC who purchase FVT services without fixed broadband for the distinction to remain valid.[28]

The market is **separate from a market for mobile voice telephony**. There are very substantial barriers to mobile operators entering the FVT market. In particular a mobile operator would need to replicate the fixed access network. There is therefore very little prospect of supply-side substitution if a hypothetical monopolist offering FVT were to make a SSNIP. The likelihood of demand-side substitution is greater in that mobile voice telephony calls are a good functional substitute for fixed voice telephony. At the same time the volume of fixed voice telephony calls in the TRNC has dropped by 40% over the past three years. But the prices of FVT calls are very much lower than the price of mobile calls (see Figure 3-1). This means that a SSNIP by hypothetical monopolist offering FVT is likely to prove profitable.

[27] MCA (November 2015), *Wholesale call origination on the public telephone network provided at a fixed location in Malta*

[28] There are currently around 90,000 active narrowband access lines in the TRNC, but only 20,000 of these lines are used for fixed broadband.

The market includes **both residential and business customers**. A hypothetical monopolist who offered FVT services to business customers alone would, almost certainly, find a SSNIP unprofitable because of supply-side substitution effects. The SSNIP would prompt suppliers of FVT to residential customers to supply business customers as well - particularly in microstate markets like the TRNC where every additional customer contributes a relatively large incremental revenue stream.

The market's **geographic scope is national**. European Commission guidance specifies that national pricing and provision and, more importantly, uniform competitive conditions across the country are strong evidence of a national market. These conditions apply to the FVT market in the TRNC where the TO is the sole supplier across the country.

In conclusion: the FVT market is national in scope, serves both residential and business customers, and includes both access and calls. It is distinct from the fixed broadband markets and the mobile markets.

3.2 Step 2: applying the three criteria test to the retail market for FVT services

3.2.1 Criterion 1: High and non-transitory barriers to entry

The TO currently has exclusive rights to provide fixed voice telephony services in the TRNC and there are no plans to remove these rights over the next market analysis period. So the first criterion listed above is met.

3.2.2 Criterion 2: No move towards effective competition

While the TO remains the exclusive provider of fixed voice telephony services in the TRNC there is no prospect of the market moving towards effective competition. This means that the second criterion is met.

3.2.3 Criterion 3: Competition law insufficient to deal with the problem

The TO, as a public body, is exempt from competition law. This exemption, specified in Article 39 of the Competition Act[29], means that competition law cannot be used to modify the TO's behaviour and thus the third criterion is met.

3.2.4 Conclusions

The retail market for fixed voice telephony services passes the three criteria test and should therefore be subject to market analysis.

[29] Competition Law (2009), http://rekabet.gov.ct.tr/Portals/1112/Mevzuat/36-2009%20Rekabet%20Yasas%C4%B1.pdf Article 39 "This law does not apply to the following cases: …(2) In cases where the performance of public enterprises which are legally or actually charged by the State for the execution of services providing general economic benefit or public undertakings in the form of financial monopoly (income-generating monopoly) are to be prevented."

This situation might change as and when the exclusive rights of the TO are removed. This is a matter for a subsequent market analysis. But the prospects for immediate change, to a situation in which the market fails the three criteria test, are l remote. Experience across the member states of the EU indicates that it might take a decade or more from the date of market liberalisation to a position where the market would fail the three criteria test and the retail FVT market is no longer susceptible to ex-ante regulation.

3.3 Step 3: determining undertakings with SMP

Currently:

- the TO has exclusive rights to supply FVT services in the TRNC;
- there are no immediate plans to remove these exclusive rights and liberalise the market;
- the ISPs which provide fixed broadband services to end users could supply FVT services as well at modest additional cost. They are keen to do so but prohibited from offering FVT services at the moment; and
- there may be some competitive constraints on the TO from the mobile operators. But these are likely to be weak given that:
  - prices charged for national calls – currently set by the Ministry of Transport – are very low compared with mobile call prices; and
  - the price of a fixed landline and call bundle is low compared with corresponding mobile plans.

  See Figure 3-1.

Figure 3-1: Price comparison between mobile and fixed voice call prices

	Mobile on-net contract	Mobile on-net pre-pay	Fixed On-net
Price of calls per minute (TL)	0.37	0.55	0.03
	Monthly prices in TL		
Mobile plans[30] with 300min vs Fixed landline (10Tl/m) with 300 min	79	60	19
Mobile plan with 600 min vs Fixed landline (10\TL/m) with 600 min	119	120	28

Source: BTHK and operator web sites

Based on this analysis the BTHK concludes that:

- the TO has a statutory monopoly in the supply of retail FVT services and therefore has SMP in this market;
- as a result the market is not effectively competitive; and

[30] KKTCell contract mobile plans and Telsim prepay plans were used for comparison.

- this position is unlikely to change between now and the next market analysis.[31]

3.4 Step 4: remedies to be imposed on undertakings with SMP

3.4.1 Possible remedies

There are three main types of remedy which might be implemented to make the retail FVT market more competitive in addition to existing regulation requiring termination of voice calls at regulated prices.

Remedy 1: market liberalisation

The Government might liberalise this market and remove the exclusive rights of the TO to supply FVT services. The ISPs, which currently provide just under 70% of premises in the TRNC with fixed broadband, would then be able to sell bundles of FVT and fixed broadband services at modest incremental cost. This could move the FVT market towards effective competition. It is unclear to what extent the ISPs will enter the FVT market however. On the one hand:

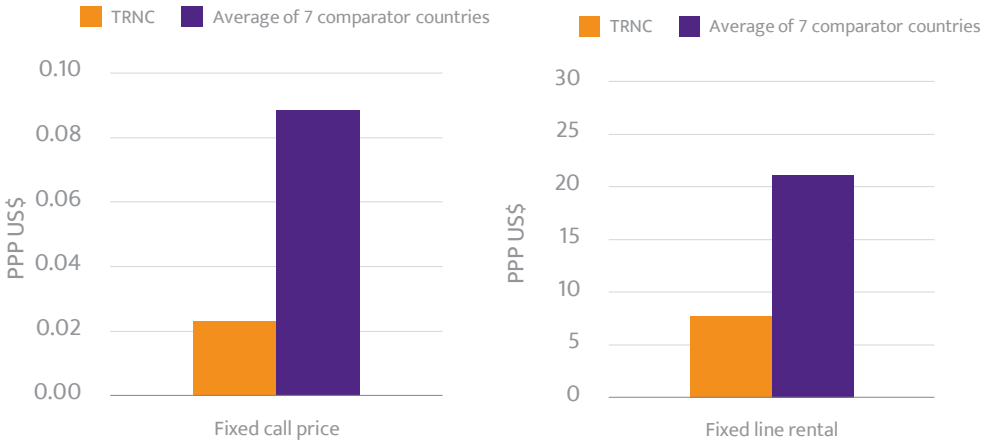
- FVT prices in the TRNC are currently very low by international standards. See Figure 3-2; and
- demand for FVT is declining quickly in the TRNC as end-users switch to use of mobile voice telephony and OTT voice telephony services like Skype. The number of narrowband lines in use has fallen by just over 10% over the last four years while the volume of fixed originating minutes has fallen by 40% – despite the low prices in the TRNC.

On the other hand:

- bundles of FVT and fixed broadband have proved very popular in most EU member states; and
- ISPs may be more effective than the TO in promoting FVT as an add-on to fixed broadband given that the TO, as a statutory monopoly, has done very little in the past to promote FVT services.

[31] Article 9(1) of the Access, Interconnection, Market Analysis and Tariff bylaw specifies the period between market reviews to be two years.

Figure 3-2: End user prices for FVT services – TRNC vs benchmark countries[32]



Source: BTHK and ITU yearbook of statistics 2016

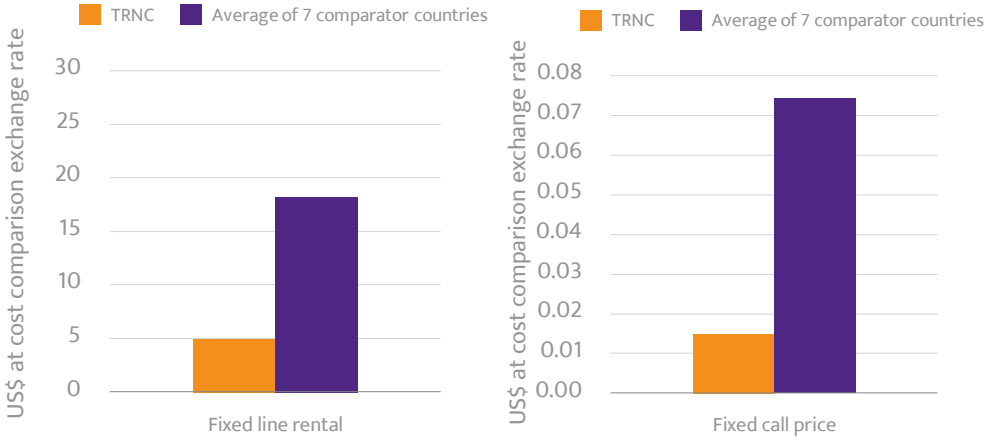
Remedy 2: retail price regulation

The BTHK assume responsibility for the retail price regulation of FVT services, given that the TO has SMP in the FVT services market. This action is consistent with Article 13(1) of the Access and Interconnection bylaw. At the same time retail price controls remain essential whilst the market remains a statutory monopoly.

Over the past three years the Ministry has kept key FVT prices (line rental and national call prices) constant at out turn prices during a period when inflation has been running at around 10% per annum. In other words prices in real terms have fallen at 10% pa. It is likely, as Figure 3-3 shows, that these prices are now well below the level required to recover efficiently incurred costs, reducing funds for capital investment and holding back innovation. It is also likely to have the effect of distorting current competition between fixed and mobile voice telephony. In future, it also would distort competition in FVT market between the TO and new-entgrants were that market to be liberalised

[32] Prices expressed at cost comparison exchange rates. Benchmark countries are Estonia, France, Germany, Malta, South Cyprus, Turkey and the UK.

Figure 3-3: Do the TO's prices recover efficiently incurred costs?



Source: BTHK and ITU yearbook of statistics 2016

The Access and Interconnection bylaw requires the BTHK to ensure that prices of services provided by an undertaking with SMP are not lower than costs (Article 13(4)). Raising fixed voice telephony prices to a level that meets this requirement might have the effect of creating strong incentives for FVT market entry – for example by the broadband ISPs – but at the same time making the use of FVT services less attractive relative to the use of mobile voice telephony.

In implementing Article 13(4) the BTHK will need to define the cost of supply of FVT services in an appropriate manner. In a world where end-users increasingly purchase FVT services as an add-on to fixed broadband services, it may be appropriate to set a price floor for FVT which reflects the incremental cost of supplying FVT *in addition to* fixed broadband rather than the stand-alone cost of FVT supply.

We note the competition law prohibits the setting of minimum prices. Our proposed remedy takes account of this constraint.

Remedy 3: impose wholesale remedies

The BTHK could impose the traditional wholesale remedies used in the FCO market by NRAs in Europe. The wholesale FCO market was identified by the European Commission as a market susceptible to ex-ante regulation in its 2003 Recommendation on relevant markets. But it was dropped from the 2014 update of this recommendation on the grounds that it no longer met the three criteria test in most EU member states. However over the intervening years almost all NRAs in the EU found that this wholesale market was not effectively competitive and imposed some mix of three main remedies within it to move the retail market towards effective competition. These remedies are as follows:

- Require the SMP operator to offer ***carrier selection*** in which a subscriber chooses an access seeker to deliver an individual call by dialling a carrier selection code in front of the E164 number called.

- Require the SMP operator to offer ***carrier preselection*** in which the subscriber's local exchange is programmed to route all calls (or all calls in a given category) via the access seeker. The access seeker bills the subscriber for calls and the access provider bills for line rental.
- Require the SMP operator to offer ***wholesale line rental*** where the access seeker rents a subscriber line from the access provider, usually in combination with a carrier preselection service to deliver all outbound calls from that subscriber. The access seeker then provides the subscriber with a single bill for both access and calls.

It is clear that the current FCO market (which involves 100% self supply by the TO to itself) passes the three criteria test and that the TO, as the current monopolist in the retail market for FVT services, has SMP in the upstream market for FCO. So there is justification for imposing such remedies under the Access and Interconnection bylaw (Article 12).

The question then arises as to whether any FCO remedies should be imposed. There are two main arguments to consider here:

- Such a remedy is of no use whilst the TO has exclusive rights to supply FVT services. An FCO remedy might enable competition but the statutory monopoly of the TO to supply retail FVT services prevents it from being effective.
- It is questionable whether an FCO remedy should be applied at the same time as the liberalisation and retail price control remedies discussed above. A better approach might be to wait until the next market analysis to observe the effect of the first two remedies (where implementation costs are low) before deciding whether to impose FCO remedies (where implementation costs are significant). If FCO remedies are implemented immediately then there is a danger that the TO will incur significant costs in implementing them but that there will be no demand from access seekers for them. One alternative is for the BTHK to require the TO to implement FCO remedies at some point before the next market analysis provided that the access seekers can demonstrate that there is "reasonable demand" for them.

3.4.2 Remedies to be imposed

Based on the market analysis set out above, the BTHK will assume responsibility for price regulation given that the TO has been found to have SMP in this market.

The BTHK will impose a price control remedy on FVT services supplied by the TO. This action is consistent with Article 13(1) of the Access and Interconnection bylaw. The price control remedy may involve:

- determining the incremental cost of adding FVT services to fixed broadband services rather than the stand-alone costs of supplying FVT, against which the TO retail price can be compared. If the TO retail price is lower than the determined cost, then the TO would be required to make available the difference – a subsidy of the retail price – to all providers of retail voice services, fixed or mobile; and
- setting a ceiling on retail prices for FVT which reflects the standalone cost of supplying FVT services in a microstate.

The BTHK will delay the implementation of wholesale FCO remedies until market entry is permitted and there is a possibility that wholesale remedies will be effective.

With this in mind, the BTHK will also ask the Government to liberalise the retail FVT market in the TRNC by removing the exclusive rights of the TO to supply FVT services. (There are also strong public interest arguments for the Government to remove the TO's exclusive rights to supply wireline transmission links). Enabling competition through liberalising the FVT market would be consistent with the purpose of the Competition Law 2009. Article 3 of the law spells out the purpose of the Act as being "*...to promote economic efficiency and consumer welfare …and to ensure effective competition.".*