Mobile access and call origination market review

A report for the BTHK

Grant Forsyth
David Lewin
Sam Wood
Memduh Erismen

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Plum Consulting, London
T: +44(20) 7047 1919, **www.plumconsulting.co.uk**

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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 mobile access and call origination on public mobile telephone networks. This is Market 15 of the European Commission's recommendation of 2003 (henceforth referred to as the mobile access and call origination (or MACO) 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.

Fourthly a key issue in the TRNC mobile market is to determine whether the two mobile operators are jointly dominant. This analysis needs to be conducted at the retail, rather than at the wholesale, level.

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 MACO wholesale market 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 MACO 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.

[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

In making comparisons it is necessary to:

- take care when making price comparisons; and
- 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.

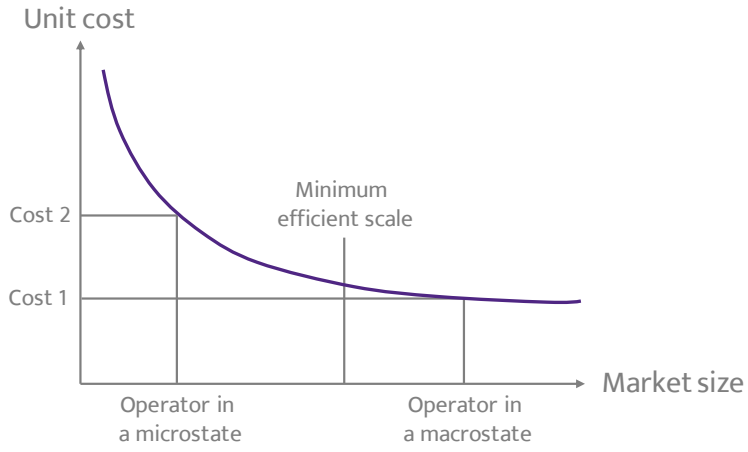
[14] Defined as a country with a population of less than 1 million.

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

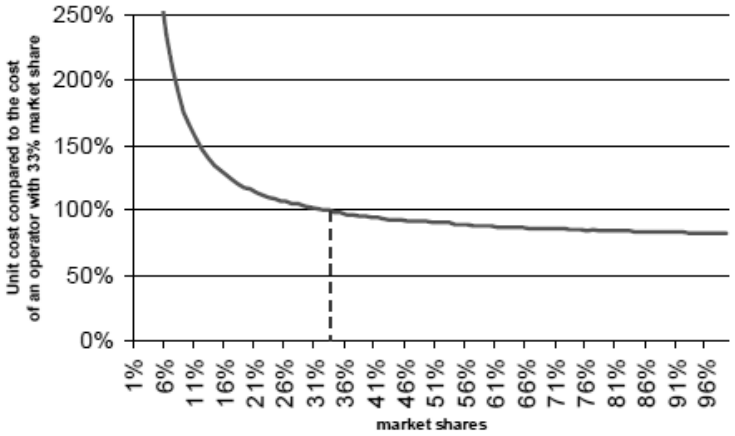
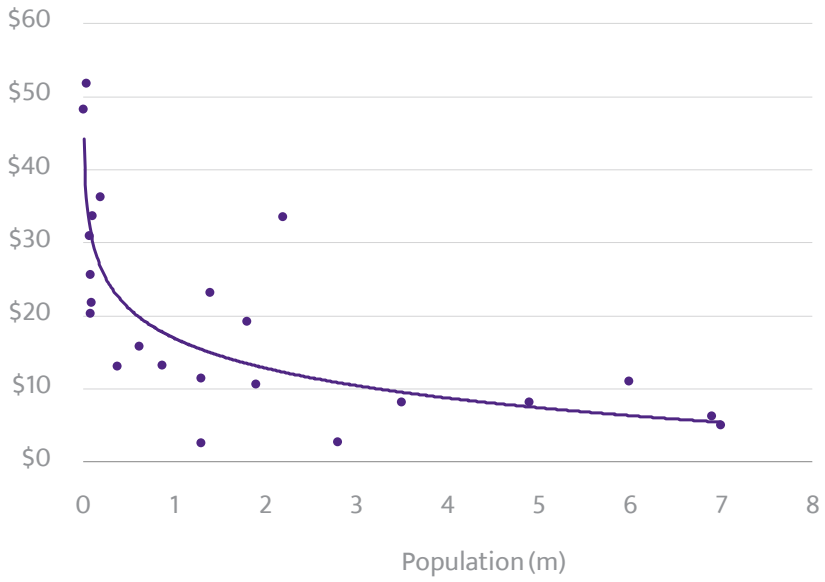


Figure 2-4: A mobile economy of scale curve for middle income countries



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

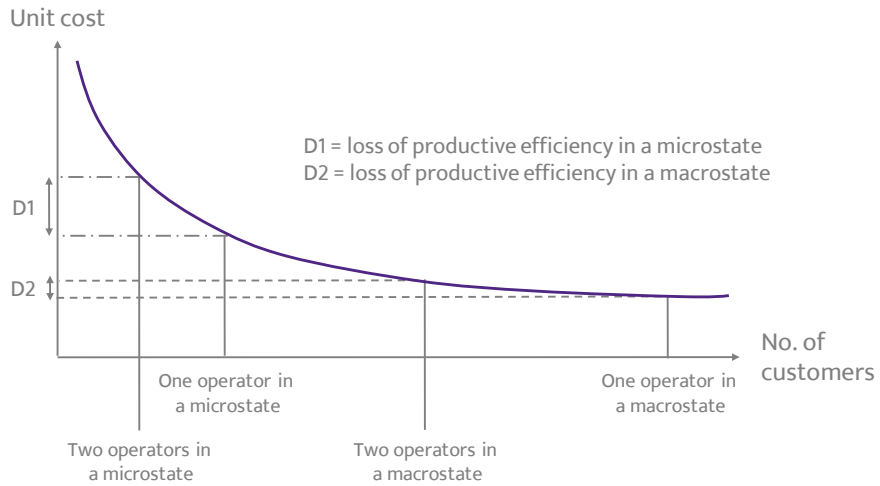
The inability to achieve minimum efficient scale in the TRNC means that:

- 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.

While this finding might apply to fixed operators in the TRNC, it needs to be qualified for the mobile market. It is clear that TTKCell and Telsim, as subsidiaries of major mobile operators in Turkey and elsewhere, have the ability to avoid some of the disadvantages of small-scale when procuring equipment[22]. But procurement is only one of many factors which affect the unit costs of the two operators. The operations of each mobile operator in the TRNC and its parent in Turkey are quite separate. So the economy of scale effects which a large operator enjoys in terms of its operational support systems, customer support systems, sales and marketing, product development, network operations and field engineering are lost in a microstate like the TRNC. This analysis suggests that cost oriented mobile prices in the TRNC may be lower than those suggested by Figure 2-4.

Figure 2-5: Competition in a microstate



[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

[22] For example both operators purchased 4G equipment for the TRNC when they rolled out their 4G networks in Turkey to take advantage of volume discounts.

2.5 The approach to market analysis for the MACO 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 MACO wholesale market review.

- Step 1: define the relevant downstream retail market which relate to the MACO 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 upstream wholesale access markets such as the MACO market, and obligations to terminate calls and messages in the market for personal communication such as voice and SMS services.

2.5.2 Step 1: define the relevant downstream retail markets

In Step 1 the relevant downstream retail market for which the MACO 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[23] 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;[24]
- 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
- 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

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

[24] 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 retail market for fixed voice telephony services.

Given these four markets it is clear that the relevant downstream retail market corresponding to the MACO market is the retail market for mobile communications.

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[25], 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.

[25] 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 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).
- 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."*[26]

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;

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

- product or services diversification;
- economies of scale;
- economies of scope;
- 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."[27]

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

[27] 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* ,(Commission Guidelines 2002), Point 118, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52002XC0711(02)&from=EN

- 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:

- 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 mobile access and call origination (MACO) market

3.1 Step 1: defining the related downstream retail market corresponding to the MACO market

3.1.1 The downstream retail market

Wholesale services within the mobile access and call origination (MACO) market are designed to make the downstream retail market for the supply of mobile services more competitive. Again as the NRA in Malta puts it:

> *"The group of products and services under consideration in this document consist of wholesale access and call origination on mobile networks. Wholesale services are those sold and purchased by electronic communication providers rather than end-users. In this market the wholesale of such services enables electronic communication providers to sell to end-users the ability to access mobile networks and be able to make and receive mobile calls and other associated services."*[28]

3.1.2 Defining the retail mobile services markets

The analysis set out below suggests that there is a single retail market for mobile communications with the following characteristics.

The market includes both voice access and voice calls

Both elements are required to create a product which an end-user would purchase. A service which delivers mobile 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 the average end-user.

The market includes voice, text and data services

Mobile voice, SMS and broadband services are routinely sold as part of the same tariff bundle, which creates some common pricing constraints for end users. The majority of mobile data connections are handset-based, and the majority of handsets only support one SIM. As a result, the subscriber is obliged and incentivised to purchase mobile voice, SMS and data services from the same supplier. New applications running over mobile data (so called 'over-the-top OTT apps) can substitute for traditional mobile voice and SMS services. The growing use of OTT services and common pricing constraints between different types of mobile service therefore imply demand-side substitutability between voice, text and data services.

[28] MCA (August 2012), *Wholesale Access and Call Origination on Mobile Networks*, Final Decision, https://www.mca.org.mt/sites/default/files/attachments/decisions/2012/mobile-wholesale-access-and-call-origination-final-decision.pdf

Mobile networks are typically deployed to provide a combination of voice, SMS and data services. This implies that there is also supply-side substitutability.

The market includes both business and residential customers

Retail mobile services available to consumers and enterprise customers are generally identical in terms of characteristics. Thus, both types of customer typically have access to an offer containing all the previously identified retail services. Enterprise customers are free to purchase consumer packages, although packages for larger enterprises are priced and possibly bundled differently. At the same time both mobile operators in the TRNC provide their mobile services to both consumers and enterprises.

Enterprise customers may be offered additional services, discounted pricing and serviced through separate distribution channels. Thus there is limited demand-side substitutability between services for consumers and those for enterprise customers. However the same network equipment is used to provide retail mobile services to consumers and enterprises. It would therefore be relatively easy for an existing provider of consumer retail mobile services to start offering enterprise retail mobile services (and vice versa). So there is a substantial likelihood of supply-side substitution and a SSNIP by a hypothetical monopolist offering service to just one group of customers would prove unprofitable.

The market includes both contract and prepaid customers

Retail mobile services provided under prepaid or contract subscriptions offer identical functionality. Postpaid subscribers can typically migrate to prepay at any time, and some prepaid subscribers can migrate to contract (although migration in this direction is constrained by the fact that some subscribers will not meet the operators' eligibility criteria for contract subscriptions). Thus there is good substitutability between contract and prepaid subscriptions and some substitutability in the opposite direction.

At the same time both operators in the TRNC offer prepaid and contract services and can easily provide a different proportion of prepaid or contract services if the market requires it. In other words supply-side substitution is very likely.

The BTHK notes that there is a consensus amongst telecommunications regulators elsewhere in the world that postpaid and prepaid customers are in the same retail mobile market.

The market spans 2G, 3G and 4G technologies

4G services have not yet been provisioned in the TRNC. While 2G, 3G and 4G networks offer different performance characteristics, the nature of the basic services is not fundamentally different, and in most cases there is automatic handover between the networks (e.g. voice calls and data sessions will switch back and forth between 2G and 3G networks without noticeable interruptions). In this sense, the commercialisation of 2G, 3G and 4G services is a technology evolution, not a distinct relevant market. This leads to the conclusion that 2G, 3G and 4G networks belong to the same relevant market.

There are significant network and licence-related costs involved in an upgrade from 2G to 3G and 4G. However, much of the basic infrastructure (such as towers, cell sites and backhaul) can be re-used. There are also strong incentives for operators to follow their competitors in upgrading. This implies that there is at least some supply-side substitutability.

The market is national in scope

Both operators have licences permitting them to offer services across the whole of the TRNC, and to offer national coverage, even if their coverage differs slightly. The retail packages on offer are all available for use across the whole of the operator's network footprint and have a single national price. Thus the relevant market is national.

The market is separate from the fixed retail markets

Although mobile services can be used as a substitute for fixed services the reverse is not true: fixed services are not a substitute for mobile services because they lack the intrinsic mobility of mobile. Hence the demand-side substitutability is limited to using mobile services in place of fixed.

SMS is a service that exists on mobile networks only, thus there is no fixed substitutability.

Substitution of mobile broadband for fixed broadband (both wireline and fixed wireless) is possible to some extent. LTE services may be faster than some ADSL broadband lines, and if the challenge of base-station backhaul can be addressed, might be able to be attractively marketed. However, mobile broadband performance is more variable (depending on network loading) and mobile broadband is almost always subject to data caps, whereas most fixed broadband services allow unlimited data usage. Fixed broadband is also typically a household service that is shared, whereas mobile broadband is more of a personal service – although new easily used software and smart phones or mobile dongles make sharing of mobile broadband much easier now.

Fixed residential services are increasingly being bundled with TV services, which may also discourage migration to mobile services. Consequently, in case of a SSNIP in fixed broadband services, there would not necessarily be a rapid migration to mobile broadband services. Similarly, a SSNIP in mobile broadband services would not necessarily cause a rapid migration to fixed broadband. Thus fixed and mobile services are not good substitutes from the demand side.

On the supply side, it is not possible for a fixed operator to offer mobile services quickly as it would first need to obtain suitable spectrum and then make significant additional investments. A mobile operator could readily offer fixed-wireless services, although this is likely to require some network adaptions. Supply-side substitutability is therefore only possible from mobile to fixed.

Conclusion on market definition

Overall the analysis indicates that there is a single national retail mobile market in the TRNC which is separate from fixed services and which includes voice, messaging and data service offered over 2G, 3G and 4G technologies via both prepay and contract packages to both residential and business customers.

This conclusion is consistent with those drawn by EU NRAs and approved by the European Commission over the past few years. Malta and South Cyprus are both microstates like the TRNC. In South Cyprus the OCECPR states that:

> *"At the…retail level, pre-paid and post-paid mobile communications services, mobile access, national and international calls, short messaging services (SMS) and advanced mobile data services are all included in the market. This cluster of services can be offered over 2G, 3G or 4G networks. OCECPR concludes that the market has no other demand- and supply-side substitutes (following the Hypothetical monopolist test) and that the relevant geographic market is the territory of the Republic of Cyprus."*[29]

And in Malta the MCA concludes as follows:

> *2At retail level, MCA identifies a market for access to mobile services, voice calls (including international roaming calls) and SMS services, provided to both business and residential customers via postpaid and prepaid services. All such services provided over 2G and/or 3G technologies are included in the same relevant retail market. At wholesale level, MCA defines a relevant wholesale market consisting of the supply of access and call origination services over the network of each mobile network, including self-supplied access and call origination. The relevant market includes all MNOs in Malta (i.e. Vodafone, GO, and Melita). MCA defines the relevant geographic market as national".*[30]

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

Does the retail market for mobile services meet the three criteria test and so make it susceptible to ex-ante regulation?

3.2.1 Criterion 1: high and non-transitory barriers to market entry

There are high barriers to entry into the retail mobile market of the TRNC by a third mobile operator. The recent decision of the TRNC Competition Board lists these[31]. The main barriers are:

- scarcity of spectrum - which is allocated by government;
- substantial sunk costs on entry. According to the CEO of KKTCell it would cost a third operator US$60 to US$70 million in infrastructure investment, brand recognition and spectrum fees to enter the TRNC mobile market. This compares with revenues of around US$14 million per annum if a third player achieved a 20% market share; and
- no mobile number portability. This significantly raises end-user switching costs between operators and makes market entry more challenging.

[29] European Commission (April 2015), *Commission Decision concerning Case CY/2015/1726: Wholesale access and call origination on public mobile telephone networks in Cyprus Comments pursuant, Brussels, 24.4.2015, C(2015) 2885 final.,* https://circabc.europa.eu/webdav/CircaBC/CONNECT/e-cctf/Library/01%20-%20Commission%20Decisions/Commission%20Decisions%202015/CY-2015-1726%20ADOPTED_EN.pdf

[30] European Commission (August 2012), *Commission Decision concerning Case MT/2010/1349: Wholesale access and call origination on public mobile telephone networks in Malta, Brussels, 01/08/2012 C(2012) 5641.*

[31] TRNC Competition Board (September 2017), Decision, at 8.2.2.1 Barriers to Market Entry.

In a microstate like the TRNC entry by a third mobile operator would also lead to a major loss of productive efficiency across the whole of the mobile market, which may ultimately be to the detriment of consumers.

Some of these barriers to entry may disappear over the next market analysis period:

- mobile number portability has been introduced in 2018; and
- the Government plans to license significant additional spectrum in 2018.

But major sunk costs investment is still required and the prospects for recovering it in a small-scale mobile market like that of the TRNC look poor. It is therefore likely that the first criterion is met.

3.2.2 Criterion 2: the market is not tending to effective competition

As noted in Section 3.2.1 the barriers to enter the retail mobile market are high. Besides the need to secure spectrum, which is only allocated by the Government, an entrant would need to invest significant amounts to build out its network.

Mobile technology is evolving continuously and at pace. However these technological advances largely affect the quantum and quality of delivery of services – for example, improving the efficiency of delivering data – rather than circumventing the need to roll out a physical network. In fact, the newer technologies usually drive additional network build or densification. That being the case there is little likelihood of the mobile market tending to effective competition through technology change.

The existing ex-ante regulation which requires mobile operators to terminate calls at cost oriented prices is necessary for effective competition, but on its own it is not sufficient to move the market to effective competition. There is no other existing ex-ante regulation which will move the market toward effective competition and in its absence it is likely that the market is not tending to effective competition. and hence conclude that Criterion 2 is met.

3.2.3 Criterion 3: competition law alone is insufficient to deal with the competition problems identified

There are a number of problems with the retail mobile market in the TRNC. These are discussed in Section 3.2.5 below. However these problems are not competition problems which relate to the behaviour of the mobile operators. Rather, they relate to actions by, and policies of, the Government. As such they are not amenable to competition law remedies.

Nevertheless it is clear that the retail mobile market in the TRNC is highly concentrated and this could give rise to competition problems in future. Entry by a third mobile operator to reduce market concentration (and substantially reduce the possibility of joint dominance between the two existing mobile operators) is very unlikely for the reasons set out in Section 3.2.1.

It is difficult to see how use of competition law to impose ex-post remedies on mobile operators with SMP would improve competition in the retail market in an efficient way. It would be more effective, and more in line with best international practice, if instead ex-ante remedies such as obligations to provide MVNO access, facility sharing, or national roaming were considered by BTHK as the specialist regulator for the sector if SMP were found.

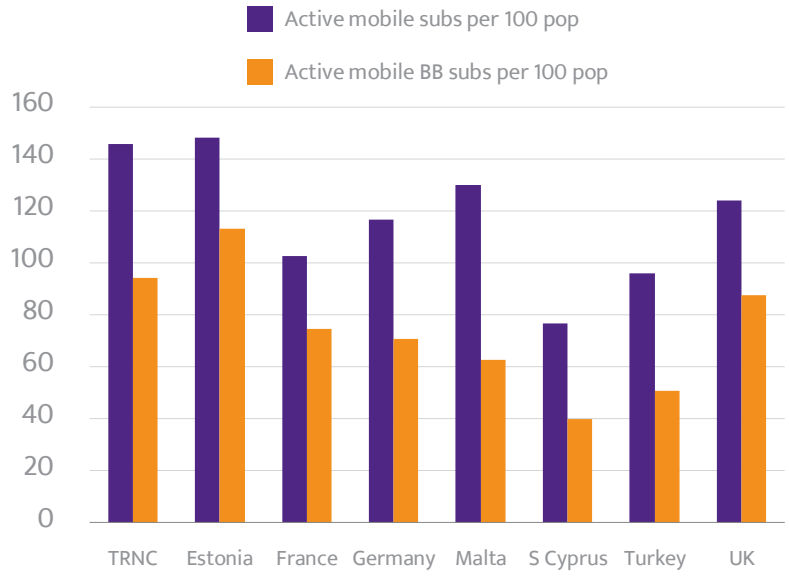
3.2.4 Conclusion

All three criteria are met and the retail mobile market in the TRNC is susceptible to ex-ante regulation.

3.2.5 Other problems with the retail mobile market

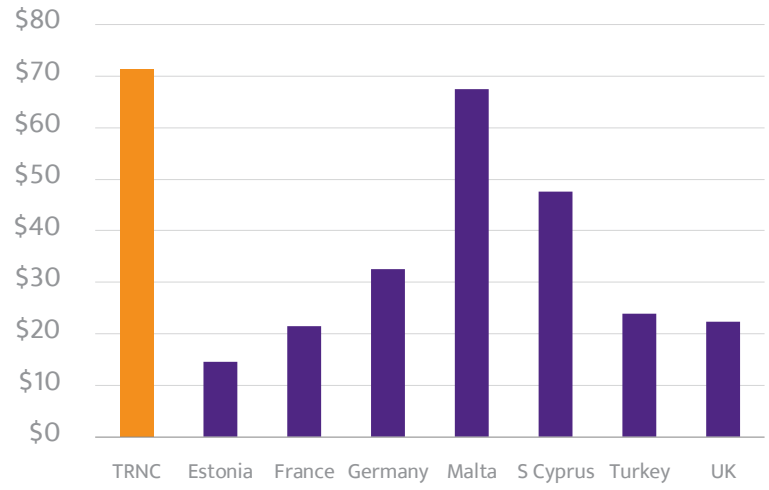
In some respects the retail mobile market is performing reasonably well. For example, end-user outcomes in terms of take-up of mobile services are at international benchmark levels. See Figure 3-1. However, retail prices in the TRNC's mobile market are high by international standards. See Figure 3-2.

Figure 3-1: Take-up of mobile services – TRNC vs other countries



Source: BTHK and ITU yearbook of statistics 2016

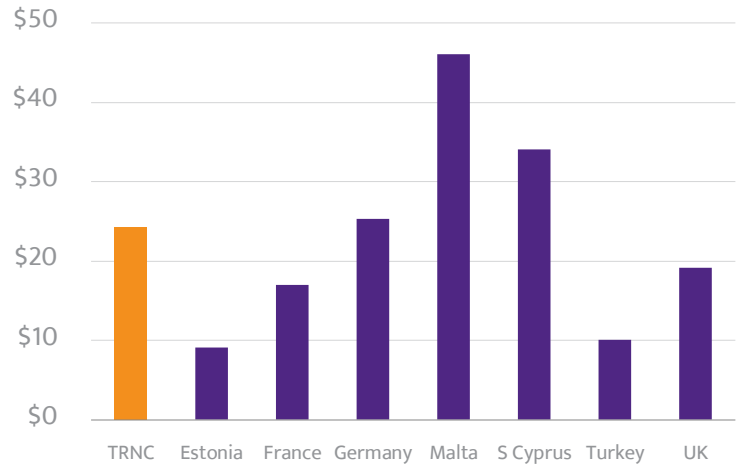
Figure 3-2: Mobile basket price including tax (PPP US$ per month)



Source: BTHK mobile tariff comparison report 2017[32]

There is little evidence that these high prices reflect competition problems which might relate to cost inefficiencies or price gouging by the two operators. When the tax on mobile services[33] is removed and a cost comparison (rather than a PPP) exchange rate is applied to make the comparison, the picture of Figure Figure 3-2 changes considerably. As shown in Figure Figure 3-3 TRNC prices are then similar to those charged in the benchmark countries. Moreover they are significantly below the prices charged in the other two microstates in the benchmark set – Malta and South Cyprus – where unit costs and cost oriented prices are expected to be significantly higher than in the remaining benchmark countries.

Figure 3-3: Mobile basket price excluding tax (PPP US$ per month)



[32] The prices shown in Figure 3-2 are a simple average of the six baskets prices calculated in the BTHK report.

[33] The effective tax rate is 90% in the TRNC, compared with less than 20% in almost all the benchmark countries.

Source: BTHK mobile tariff comparison report 2017[34]

Another problem in the TRNC's mobile market is that the launch of 4G services lags behind most other countries. See Figure 3-4.

Figure 3-4: Launch dates for 4G services

Country	4G launch date
TRNC	2018?
Estonia	2012
France	2012
Germany	2011
Malta	2013
S Cyprus	2015
Turkey	2016
UK	2013

Again this poor outcome is largely outside the control of the mobile operators, who have identified three main barriers to 4G rollout:

- The required spectrum for 4G deployment is not yet available. The Ministry plans to auction an additional 250 MHz of sub-3 GHz spectrum for wireless communication use, in addition to the 146 MHz already allocated for mobile use, in 2018.
- The fibre backhaul which is needed to offer cost-effective 4G mobile data services is not available on commercially viable terms. Currently virtual all mobile backhaul is self-provided by the mobile operators using microwave technology. But this does not offer the backhaul capacity required to match the data which a base station might generate using 4G technologies. The mobile operators would like to self-provide fibre backhaul but are not currently allowed to do so. Here the TO has exclusive rights and its conditions for supplying fibre backhaul involve:
  - the mobile operators building the fibre backhaul link;
  - the mobile operators transferring ownership of the fibre link to the TO
  - the TO then renting the fibre back to the mobile operator at a price which reflects both the capital and operating costs of the link.

  The mobile operators find these terms unacceptable.
- The spectrum fees paid annually by the operators, and the fees which the mobile operators pay for the use of base stations[35], are expected to increase very substantially with 4G rollout unless the schedule of fees is modified. This would make investment in a 4G upgrade significantly more difficult to justify - given the high taxes and low GDP per head in the TRNC.

[34] The prices shown in Figure 3-3 are a simple average of the six baskets prices calculated in the BTHK report.

[35] In combination these fees currently cost the mobile operators around TL4 million per year.

3.3 Step 3: determining undertakings with SMP

3.3.1 The level of concentration in the TRNC's mobile market

The retail mobile market in the TRNC is highly concentrated by international standards, as shown in Figure 3-5. This tabulates the Herfindahl-Hirschman Index[36] (HHI) for the mobile market in the TRNC and benchmark countries. The HHI in the TRNC is the highest of those tabulated.

Figure 3-5: HHIs – TRNC vs other countries

Country	Mobile market HHI
TRNC	5306
Estonia	3547
France	2900
Germany	3413
Malta	3694
S Cyprus	4584
Turkey	3528
UK	2845

HHI based on subscribers at start of 2017. Sources: Ofcom, EC, BTK, BTHK, operator websites.

Figure 3-6 compares market shares, levels of investment and levels of profitability for Telsim and KKTCell in 2014 and 2016 – the period over which these data are available. Figure 3-7 then provides a more extensive time series analysis over a five-year period which measures changes in KKTCell's market share by subscribers. This reveals that:

- the market is a highly concentrated one with only two operators and no MVNOs;
- KKTCell's market share by subscribers has fallen from 74% to 62% over the past five years – a substantial reduction by international standards;
- Telsim has grown its market share of the retail mobile market significantly over the past few years. But it is still very much the smaller mobile operator;
- Telsim has increased its profitability significantly over the same period at the expense of KKTCell. This may reflect the economy of scale improvements it has generated through increasing its market share; and
- overall profitability in the market has declined over the past three years as illustrated in Figure 3-6. It is now approaching the levels observed in mobile markets which are judged effectively competitive as illustrated in Figure 3-8.

[36] An HHI of close to zero indicates a market which is perfectly competitive while an HHI of 10,000 indicates a pure monopoly market.

Figure 3-6: Telsim vs KKTCell – key indicators

	2014		2016	
	Telsim	KKTCell	Telsim	KKTCell
Market share by revenues	31%	69%	37%	63%
Market share by subscribers	28%	72%	37%	63%
EBITDA margin	16%	57%	27%	45%
Overall EBITDA margin[37]	44%		38%	

Source: BTHK

Figure 3-7: KKTCell market share over time

Contract + Prepay	Q2 12	Q2 13	Q2 14	Q2 15	Q2 16	Q2 17
Overall	74%	72%	72%	68%	63%	62%
Offers which include voice and SMS	74%	72%	72%	68%	66%	65%
Other offers[38]	74%	71%	68%	71%	57%	58%

Source: BTHK

Figure 3-8: EBITDA margins in the mobile market – TRNC vs others[39]

Country	EBITDA margin	EBITDA trend	NRA assessment of competition
TRNC	38%	Falling	See below
France	32%	Stable	Effective
Germany	38%	Falling	Effective
Mexico	35%	Stable	SMP
Norway	42%	Rising	SMP
Turkey	35%	Stable	Effective
UK	29%	Stable	Effective

Source: BTHK plus Merrill Lynch Global Wireless Matrix

The concentrated nature of the market raises issues of market dominance. There are essentially three possible outcomes here:

- KKTCell, the biggest operator, enjoys single dominance in the market.

[37] Weighted by market share

[38] Such as telemetry, point-of-sale, and data only services.

[39] It would have been desirable to have included other microstates in the international comparison, but unfortunately data from such countries was not available.

- The two operators together enjoy joint dominance.
- The market is effectively competitive.

The prospects for finding single and joint dominance in the mobile market of the TRNC are analysed below.

3.3.2 Is KKTCell dominant on its own?

Under EU competition law (on which the TRNC's competition law is modelled) a market player is defined as dominant if it is in

> "*a position of economic strength affording an undertaking the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers"*

A key indicator of dominance is market share. For example the European Commission guidelines[40] on assessment of dominance state that:

> *"According to established case-law, very large market shares - in excess of 50 % - are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position"* (Para 75 of the guidelines). .

However the Commission then goes on to say:

> *"An undertaking with a large market share may be presumed to have SMP, that is, to be in a dominant position, if its market share has remained stable over time"* and that "*fluctuating market shares over time may be indicative of a lack of market power in the relevant market".*

KKTCell has a large market share but it is not stable and it has fluctuated substantially over time. Currently at 62%, its market share is well in excess of the 50% indicated by the Commission. However its market share has fluctuated considerably since it entered the market as the second mobile operator in 1998. Since then its market share has grown from 0% to a level of 74% in 2012 and then fallen to 62% by mid-2017.

In addition to market share, the Commission guidelines list factors (also set out in Article (11) of the TRNC's Access and Interconnection bylaw) to consider in assessing dominance. Again the findings are mixed. On the one hand the mobile market in the TRNC meets some of the conditions for KKTCell dominance in that:

- there are substantial barriers to entry by a third mobile operator (see Section 3.2.1);
- end users have little countervailing buying power; and
- KKTCell offers better geographic coverage for its services than Telsim.

But on the other hand many of the indicative factors of dominance are absent in the TRNC mobile market. In particular KKTCell has few of the competitive advantages over Telsim which would allow it to act "*to a considerable extent independently of its… competitors*". Specifically:

[40] 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 (2002/C 165/03)*, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52002XC0711(02)&from=EN

- Both KKTCell and Telsim are wholly-owned subsidiaries of much larger companies. KKTCell in the TRNC is an operating company within Turkcell in Turkey while Telsim is part of Vodafone. This means that both players have similar access to capital markets and financial resources.
- KKTCell has no obvious technology advantages, better product diversification or clearly superior sales and distribution networks in the TRNC.
- KKTCell has no clear advantage over Telsim in terms of economies of scale and scope.
- Both KKTCell and Telsim are vertically integrated.
- Both KKTCell and Telsim are disadvantaged to a similar extent by the TO's monopoly on the supply of wireline backhaul.

This means that KKTCell meets relatively few of the criteria required for a finding of single dominance beyond its very substantial current market share. But this is a share which has fluctuated significantly since KKTCell entered the market and which is currently falling quickly by international standards. At the same time KKTCell's profitability is also falling relatively quickly. In these circumstances it seems unlikely that KKTCell could act "*to an appreciable extent independently"* of Telsim.

On balance this analysis suggests that:

- KKTCell does not currently meet the conditions required for a finding of single dominance; but that
- KKTCell's large market share might enable it to meet the conditions required for a finding of single dominance at the next market analysis if current market trends cease or are reversed.

Empirical evidence from market analysis decisions in the EU is broadly consistent with this conclusion. There are three other retail mobile markets in Europe – Malta, Norway and South Cyprus – with similar levels of market concentration[41] to the TRNC. Figure 3-9 compares key market characteristics and recent dominance decisions in these three countries with the situation in the TRNC.

[41] As measured by the Herfindahl-Hirschman index (HHI).

Figure 3-9: Dominance decisions in highly concentrated mobile markets

Measure	Malta	Norway	S Cyprus	TRNC
Date of market analysis	2012	2016	2015	2018[42]
Market share by subscribers at that date:				
biggest operator	50%	58%	65%	62%
second biggest operator	37%	34%	30%	37%
other operators and MVNOs	13%	8%	5%	0%
HHI[43]	4033	4584	5150	5288
Market share of biggest operator	Falling	Growing	Stable	Falling
Mobile Number Portability?	Yes	Yes	Yes	Yes
Three criteria test shows market to be susceptible to ex-ante regulation?	No	Yes	Yes	Yes
Dominance assessment made	Yes	Yes	Yes	Yes
Single dominance found	No	Yes	Yes	No
Joint dominance found	No	No	No	No

Source: European Commission notification letters and market review by Norwegian NRA. HHIs given are as at time of market analysis.

Looking at market share alone, decisions elsewhere would suggest that KKTCell is dominant in the retail mobile market. The NRAs in Norway and South Cyprus, where the market share of the leading operator is similar to that of KKTCell, both found the leading mobile operator to enjoy single dominance. But such an inference fails to take into account the behaviour of market shares over time. At the time of the decisions tabulated in Figure 3-9, the market share of the leading mobile operator was stable in South Cyprus and growing in Norway. This is not the case in the TRNC, where the market share of KKTCell is falling relatively quickly.

Based on the analysis set out above, the BTHK determines that KKTCell on its own does not have dominance in the retail mobile market.

3.3.3 Do KKTCell and Telsim enjoy joint dominance?

The European Commission guidelines on assessing SMP also cover the possibility of joint (or collective) dominance. At one time cases of joint dominance focussed on the existence of structural links between the parties which would enable them to coordinate their activities. But in the 1990s the European Union's Court of First Instance expanded the concept of joint dominance to include situations in which there are *economic* rather than *structural* links between the parties.

> *"there is no reason whatsoever in legal or economic terms to exclude from the notion of economic links the relationship of interdependence existing between the parties to a tight oligopoly within which, in a market with the appropriate characteristics, in particular in terms of market concentration, transparency and product homogeneity, those parties are in a position to anticipate*

[42] This is the date which the market shares shown below are measured.

[43] These HHIs are measured at the time of the NRA's decision and therefore different from those of Figure 3-5

one another's behaviour and are therefore strongly encouraged to align their conduct in the market, in particular in such a way as to maximise their joint profits by restricting production with a view to increasing prices. In such a context, each trader is aware that highly competitive action on its part designed to increase its market share (for example a price cut) would provoke identical action by the others, so that it would derive no benefit from its initiative. All the traders would thus be affected by the reduction in price levels" (Guidelines Para 91)

Using this guidance a number of NRAs have conducted market analyses in which they have found joint dominance in the mobile market and these findings have then been reviewed by the courts or the European Commission. Based on these cases[44] there are five main conditions which need to be met to establish that KKTCell and Telsim are jointly dominant in the TRNC mobile market:

- The two firms need to be able to coordinate their activities without explicit collusion. This is relatively simple in the TRNC. There are only two players in the market and each uses the same technologies and faces the same cost structures. This makes it easy for each player to assess the likely competitive response of the other.
- The firms need incentives to coordinate their activities. These are likely to be present in this market. The market is reaching maturity as subscriber and revenue growth slows while there are substantial barriers to entry by a third mobile operator.
- Each firm needs to be able to punish the other (for example through price cuts) if it deviates from the coordinator position. Here the fact that there are only two players in the market makes it easy to detect deviation. At the same time it is likely that both mobile operators will have substantial spare network capacity over the period before the next market analysis given the upcoming spectrum auctions. These should enable each of the two players to expand network capacity and hence reduce prices if necessary to punish deviation from a coordinated position – although this will be mitigated by the expected growing demand for expensive national backhaul and international connectivity (both of which are under the monopoly control of the TO).
- There needs to be evidence that the operators price their products in a similar way and change prices at the same time. Here the evidence is mixed:
  - Both operators offer a range of differentiated prepaid and contract packages.
  - Prepaid prices are similar across the two operators.
  - There is little evidence that the differences in contract prices between Telsim and KKTCell are smaller than the price differences observed in South Cyprus, Malta or the UK for the prices for contract offers with similar data allowances are compared. (Mobile data is now the key product-package differentiator for contract packages in the TRNC – where the average subscriber consumes 4 GB of data per month[45] compared with less than 2 GB per month in the UK[46]). See Figure 3-10.[47]

[44] See for example J R Holmes (2017), *Collective dominance and oligopoly control in European competition law: Dealing with persistent oligopoly in markets such as telecommunications,* Monash University,

[45] Source: BTHK.

[46] Source: Ofcom(2017), Connected Nations report, paragraph 3.18
https://www.ofcom.org.uk/__data/assets/pdf_file/0024/108843/summary-report-connected-nations-2017.pdf

[47] Appendix A provides a detailed explanation of the calculation of the comparison percentages.

Figure 3-10: Comparison of price spread across retail mobile packages

Retail data allowance (GB per month)	TRNC	South Cyprus	Malta	UK
2 to 3	37%[48]	19%	25%	33%
5 to 8	58%	na	30%	na
8 to 15	29%	na	0%	29%
15 to 20	40%	na	na	5%
Joint dominance found?	See below	No	No	No

Source: Plum analysis of mobile operator websites

- There is also some evidence that operators change prices and make similar new offers at the same time. Figure 3-11 provides some examples here. This evidence is inconclusive. It might be interpreted as evidence of coordination or it might simply reflect a competitive response by one operator to another so as to minimise loss of competitive position. (Such behaviour is often observed in other countries where there is clearly no joint dominance). In some cases it may also be a response to changes in the mobile price ceilings made periodically by the Ministry of Transport. In a country where inflation is running at 10% per annum such behaviour might be expected in the absence of joint dominance

Figure 3-11: Possible evidence of price coordination

Example 1: Telsim offered its subscribers an amnesty on outstanding debts in late 2017. KKTCell responded with a similar offer shortly afterwards.

Example 2: both mobile operators raise the prices of their standard packages with 24 hours of the Ministry raising mobile price ceilings.

Example 3: both operators offer the same number of minutes at the same price in packages aimed at the police and the military. Note however that Telsim offers significantly more data in its package than KKTCell. Given that the data offer is now a key competitive differentiator in many countries this is a significant difference.

Example 4: typically KKTCell makes a promotional (temporary) offer and Telsim follows with a similar offer a couple of days later.

- There should be evidence in terms of stable market shares and profits that coordination is working. But this evidence is lacking in the TRNC where KKTCell's market share by subscribers has fallen substantially over the past five years – from 74% to 62%. In addition KKTCell's profits have fallen significantly over the past three years while Telsim's profits have risen and overall market profitability has fallen. Given that a key objective of joint dominance behaviour is to maintain overall profit levels for the participating market players, this observed behaviour is in conflict with a finding of joint dominance.

[48] The difference between the highest and lowest priced offers is 37% of the average price for offers in this category of contract.

Across Europe there have been six instances where an NRA has found joint dominance in the mobile market since the current regulatory framework was introduced in 2003. These cases are summarised in Figure 3-12 which shows that:

- there have been no cases of joint dominance considered in the European mobile market over the past nine years;
- four of the six findings of joint dominance failed on review and were not upheld; and
- the remaining two – in Malta and Spain – were upheld on review but joint dominance was found to be transitory.

Figure 3-12: Joint dominance decisions in European mobile markets

Country	Date of initial decision	Initial decision	Outcome after review
France	2005	Joint dominance between three biggest MNOs	NRA withdrew decision following review by European Commission
Ireland	2004	Joint dominance between two biggest MNOs	Appeal tribunal rejected NRA's findings
Italy	2008	Joint dominance between two biggest MNOs	Courts rejected claim of joint dominance
Malta	2006	Joint dominance between two existing MNOs	Upheld on review but joint dominance finding revoked at next market analysis
Slovenia	2008	Joint dominance between two biggest MNOs	NRA withdrew decision following review by European Commission
Spain	2005	Joint dominance between two biggest MNOs	Upheld on review

Source: Plum analysis of NRA decisions

Overall this analysis indicates that:

- NRAs elsewhere have struggled to sustain findings of joint dominance in the mobile market. While this does not rule out a finding of joint dominance in the TRNC, it does highlight the difficulty in doing so.
- The evidence of a finding of joint dominance in the TRNC's mobile markets is mixed. The market is one in which:
  - the ability and incentives for KKTCell and Telsim to coordinate are strong;
  - evidence on coordinated pricing behaviour is inconclusive; and
  - key outcomes, in terms of the falling market shares of KKTCell and market profitability falling to international norms, are in conflict with a finding of joint dominance.

On balance the analysis suggests that KKTCell and Telsim are not jointly dominant in the mobile market, although market conditions are conducive to joint dominance emerging in the future.

In 2017 the Competition Board found that KKTCell and Telsim had been jointly dominant in the retail mobile markets for both contract and prepay customers in recent years. However there are a number

of important differences between the criteria used to reach this decision and the criteria used by the BTHK in its dominance assessment. Specifically:

- The Competition Board decision was based on an ex-post analysis of market conditions which prevailed in 2015/16 whilst the BTHK assessment is based on a forward-looking analysis of current 2018 conditions and anticipated future market conditions.
- The BTHK assessment is based on 2018 price information and price differences whilst the Competition Board decision is based on the prices of 2015/16.
- The Competition Board analysis of price differences compares packages which offered a similar number of voice minutes in 2015/16 while the BTHK assessment has looked at the variation in prices for packages offering similar data volumes. This difference in approach reflects the fact that data offers have become key competitive differentiators for end-users over the last few years.
- The BTHK assessment takes account of the fact that mobile number portability is now in place. This lowers the cost for end-users when switching between mobile operators and potentially changes the behaviour of consumers towards switching between mobile operators. This service was not available in 2015/16 when the Competition Board carried out its assessment.
- The Competition Board decision is based on a detailed analysis of specific problems related to the prices charged to low prepaid customers in the TRNC. In contrast the BTHK assessment is a general one which follows closely the European Commission's guidance to National Regulatory Authorities (NRAs) (Commssion Guidelines) on how to assess joint dominance. It is important to note that these guidelines for sector specific regulators such as the BTHK are not intended to constrain decisions by national competition authorities such as the competition board.[49]

With these differences in mind the BTHK and the Competition Board have reached different conclusions. The Competition Board concluded that there were two retail mobile markets in 2015/16 in which the two mobile operators were jointly dominant. In contrast the BTHK has concluded that there is now a single mobile market in which there is no current joint dominance.

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

3.4.1 Possible remedies

In Europe NRAs have imposed a number of wholesale remedies on SMP operators in an attempt to make their retail mobile markets more competitive. These remedies include:

- an obligation to provide passive facilities sharing on regulated supply terms;
- an offer of national roaming services on regulated supply terms; and
- requiring MVNO access on regulated supply terms.

These remedies are all categorised as falling within the mobile access and call origination (MACO) market. The first two of these remedies are appropriate as a way of boosting the competitive position

[49] Commission Guidelines 2002, Paragraph 14 states that "They [the guidelines] are entirely without prejudice to the application of Community law, and in particular of the competition rules, by the Commission and the relevant national authorities, and to its interpretation by the European Court of Justice and the Court of First Instance.

of a new entrant mobile operator. As such they may not be relevant in a microstate like the TRNC, where the barriers to entry by a third mobile operator are especially significant.

Given the findings in Section 3.3 – that there is no player or players with SMP at the moment and – it is not appropriate to impose any of the above remedies now. However, conditions in the TRNC retail mobile market are conducive to the future emergence of joint dominance. Market conditions in this market should therefore be monitored closely, with a view to imposing MVNO access obligations (if appropriate) at the next mobile market analysis.

3.4.2 Remedies to be imposed

Given the finding that there is no operator with single or joint dominance in the retail mobile market, BTHK will not impose remedies at either the retail or wholesale level as a result of its market analysis.

BTHK will however monitor market outcomes and behaviour closely for evidence of single or joint dominance in future. In particular it will look for evidence of price coordination and parallel pricing as well as changes in the market shares and levels of profitability of the two operators.

The BTHK will propose to the Government that the mobile specific taxes, which raise end-user prices for mobile services very significantly[50], are phased out. These taxes provide revenue to the Government of the TRNC. But there are strong economic arguments that their removal would stimulate use of telecommunications in the TRNC, promote economic growth and, in the long term, increase the general taxation revenues received by the Government.

Assuming that mobile specific taxes are phased out, BTHK will then monitor the retail prices charged by the two operators to check to what extent these tax cuts are passed on to end-users in reduced retail prices. It will then publish its findings.

BTHK will propose the removal of the TO's monopoly on the supply of wireline transmission links so that the mobile operators, and others, can enter this market. Such a further liberalisation of the telecommunication sector should help accelerate the rollout of 4G mobile services (which offers significantly lower unit costs than 3G services for data) and possibly lead to lower end-user prices.

[50] See Figure 3-2 and 3-3.

Appendix A: Assessing the variation in mobile contract prices between competitors

Comparing the pricing of mobile bundles is inherently complex, as operators' bundles tend to differ in terms of usage allowances (i.e. voice minutes, SMS or data offered), or other perks (e.g. discounted calling to certain countries).

In order to assess the price variation for comparable bundles within the TRNC, and within comparator countries, the following methodology was employed.

First, information was gathered on mobile operators' product offerings in the TRNC and in comparator countries – South Cyprus, Malta and the UK. The first two comparator countries were chosen as they are – like the TRNC – microstates; the UK, with four mobile operators, is a good example of a competitive market; and regulators have not found joint dominance in any of three benchmark countries The data gathered consisted of the price, allowances and any other notable features of the package.

Second, different categories were defined, based upon the data allowance of the package: 2 to 3 GB, 5 to 8 GB, 8 to 15 GB and 15 to 20 GB. The categories were defined so as to include, where possible, a package from each operator within each country. The mobile data allowance was used as the basis for comparison as this is now the key product differentiator for contract packages in developed mobile markets. Qualitatively, mobile data is now the focus of operators' marketing across the comparator countries, and a mobile data allowance can now be used for either making voice calls or for messaging.

Third, within each country, the average (mean) price of the packages within each category was calculated.

Fourth, the percentage difference between the mean and the highest and lowest-priced package on offer within each category was calculated. Summing up the absolute values of these two percentages gives a 'price spread'. For example, in the UK, three operators were found to offer a package with a data allowance of between 2 to 3 GB per month. These three packages were priced at £13.50, £17.99 and £19.00. The average price of packages within this range is £16.83. The highest-priced package is 113% above the mean, while the lowest-priced is 80% of the mean. The price spread is then calculated as the difference between the two: 113%-80% = 33%.