

Competition and Regulation in the Turkish Telecommunications Industry

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Abstract

The telecommunications industry in Turkey has gone through a number of significant changes in the last few years. The monopoly of the incumbent operator over fixed line infrastructure and voice services has been terminated as of the end of 2003. An independent regulatory authority has been established in 2000 with extensive authority to issue secondary legislation. The incumbent operator is up for privatisation in 2005. Overall, the development of competition has been slower than expected. This paper examines the interaction between privatization, liberalization and competition law enforcement and analyzes their impact on the performance of the industry. It reviews the emerging regulatory framework, compares it to that prevailing in the EU and provides an account of the main competition law cases carried out by the Competition Authority. It identifies that main shortcomings of the regulatory framework and provides some recommendations to improve it.

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Executive Summary

Introduction

Competition is a new phenomenon in the Turkish telecommunications industry. Until recently the fixed line segment consisted of a state-owned vertically integrated statutory monopoly, Türk Telekomunikasyon A.S. (TTAS). In the mobile segment, since the mid-1990s there were two operators, Telsim and Turkcell, which had revenue agreements with Türk Telekom; these operators were not free to set their prices, the latter was controlled by Türk Telekom.

The industry has gone through a number of significant changes in the last few years. The mobile operators were granted concession contracts in 1998, which started a period of genuine duopoly competition. Additional licenses were granted in 2000. The monopoly of TTAS over fixed line infrastructure and voice services ended at the end of 2003 and it was announced that TTAS would be privatized in a few years. The Telecommunications Authority (TA) was established in 2000 with extensive powers to issue secondary legislation in areas such as tariffs, interconnection and (since 2001) licensing, to monitor compliance and impose fines in case of non-compliance.

The termination of monopoly rights of TTAS and the establishment of the TA were seen as changes that produced an opportunity to create an environment conducive to competition, introduction of new services, higher investment and growth. It was hoped that Turkey's quest for European Union (EU) membership would facilitate the creation of such an environment.

In the telecommunications sector, whether or not the business environment is conducive to investments, either in the form of new entry or expansion of existing plant, depends critically on the existence of a regulatory framework that encourages new entry on the one hand and prevents anti-competitive behaviour by incumbents on the other. In order to be effective, such a regulatory framework has to be perceived as fair, transparent and predictable by the potential investors. In most countries, such a regulatory framework entails both *ex-ante* sector-specific regulations, and the *ex-post* enforcement of competition law. In many, but not all countries, these are implemented, respectively, by a sector-specific regulator and an agency that specializes in overall enforcement of competition law.

This paper examines the interface between competition, regulation and privatization and presents an overview of the evolution of the industry in recent years. The main conclusion of the paper is that the development of competition in the industry is slower than expected, even in the most potentially competitive segments.

The Regulatory Regime

In the telecommunications sector, whether or not the business environment is conducive to investments, either in the form of new entry or expansion of existing plant, depends critically on the existence of a regulatory framework that encourages new entry on the one hand and prevents anti-competitive behaviour by incumbents on

the other. In order to be effective, such a regulatory framework has to be perceived as fair, transparent and predictable by the potential investors.

The regulatory regime in Turkey is inspired by the European regulatory framework for telecommunications, however significant divergences exist. The most significant divergence lies in the licensing regime. While in the European regime entry is regulated through general authorizations, and, in cases where scarce resources such as frequency are involved, through rights of use, the Turkish system relies on a highly cumbersome regime where separate individual licenses are needed for narrowly defined activities. This makes entry difficult. Moreover this type of regime potentially suffers from uncertainty regarding the exact coverage of the licenses and creates incentives for frivolous legal challenges.

The interconnection regime is closer to the European practice. It stipulates voluntary commercial agreements for access and interconnection, with the TA intervening for dispute resolution in case the parties fail to reach an agreement. It also allows the TA to impose various obligations of access, transparency and cost orientation, especially on operators designated as having significant market power.

TA has published a Standard Interconnection Reference Tariff (SIRT) that will be enforced in case parties fail to reach an agreement. Charges for call termination on the incumbent's fixed network are higher than those prevailing in Europe. By contrast, those for termination on mobile networks are lower than the European average. The interconnection charges announced by the TA seem to reflect a more pro-entry attitude in the mobile segment relative to the fixed segment.

Many countries see provision of unbundled access to local loop as an important step in the development of facilities based competition. In Turkey, unbundled access to the local loop will be available in the second half of 2005.

Turkey has a separate Law on the Protection of Competition which is enforced by the Competition Authority (CA). The CA has taken a number of significant decisions in the telecommunications industry involving cases of abuse of dominant position by incumbents in both the fixed and wireless segments. There is some ambiguity in the relevant laws regarding the division of authority between the TA and CA, and the two agencies have not been able to develop a productive relationship. The degree of complementarity between the two agencies is low, exchange of opinions are rare and not fruitful when they exist. The evolving tendency is that the CA will not investigate allegations of competition law violations when actions in question are in areas regulated by the TA.

Industry Performance and the Impact of the New Regime

The recent overall investment performance of the industry has been poor. After a period of rapid expansion that lasted until mid-1990s, total investments in the telecommunications industry have slowed down. According to data from the International Telecommunications Union, between 1996-2002, telecommunications investment has remained at about 0.26 percent of GDP in Turkey, which is lower than all types of comparators, including Germany (0.45 percent), France (0.46 percent), Portugal (1.47 percent), Brazil (1.17 percent), Mexico (0.70 percent), Bulgaria (0.79

percent). In comparative terms, investment in the fixed segment has been poorer than the mobile segment. One of the main objectives of the new regime was to promote new investments by creating a competitive environment. The review presented in this paper suggests that the first one and a half year of liberalisation has not yet created an environment that will generate a significant jump in investments.

Even after more than a year and a half of full liberalization, competition in fixed line telephony is very limited. Licenses for domestic long distance and international telephone services have been issued in May 2004. However, effective competition has been delayed by various actions of the incumbent operator, including denying or delaying the availability of carrier selection (CS) and pre-selection (CPS) services for the new entrants, despite rulings by the TA. The TA has so far not taken any remedial action against TTAS's failure to provide CS and CPS services. Hence, as of June 2005, pure resale is the only possible mode of entry into the long distance business.

Competition for local access services is not yet permitted. The regulation for issuing licenses for alternative local access infrastructure such as cable, fiber optic or fixed wireless access (FWA) was put out only a full year after liberalization, and no licenses have been issued because the Ministry of Transport has not determined license fees since then.

Duopoly competition in mobile markets existed since the 1990s. Interestingly neither of the incumbents, Turkcell and Telsim, were associated with Türk Telekom, and soon Turkcell became the leader with a market share reaching 60-70 percent. The government issued two additional licenses in 2000, one to a joint venture that included Telecom Italia Mobile, representing the largest foreign direct investment to date, and one to TTAS which established a mobile subsidiary. New entry did little to challenge the dominance of Turkcell, partly because the intentions of the government and the regulator to impose roaming obligations on the incumbents were successfully frustrated by the incumbents through legal challenges. Eventually the two new entrants merged into one.

An important potential competitor to the fixed line incumbent operator is the cable TV (CATV) network. Pursuant to a Competition Authority decision, the CATV network has been separated from Türk Telekom prior to privatization and placed under the state owned satellite company. The opportunity that this potentially important step has created to encourage competition and new investment in alternative access infrastructure is being wasted by the government's refusal to issue licenses.

Overall, then, while there is a trend towards more competition, it would be fair to say that both the current level and the rate of development of competition are below expectations.

Assessment: Competition, Regulation and the Deficiencies in the Investment Environment

The sluggishness in the emergence of competition reflects inadequacies in the regulatory environment. While overall the regulatory environment in Turkey is changing in the right direction, the pace of change so far has been slow. This is partly

explained by the fact that the sectoral regulatory authority is young, has had to go through significant amount of learning itself, and has been suffering from inadequate human capital. Regulations put out by the TA have had unintended gaps and legal vulnerabilities which became apparent only after they were put into effect. Such a process of learning from mistakes was probably unavoidable.

However, delays are also due conscious choices of the Ministry and the sectoral regulator, as exemplified in significant delays in issuing licenses. More generally, the Ministry does not seem to appreciate what it takes to develop competition in the telecommunications nor the magnitude of the welfare costs generated by delays in the creation of competition. In addition, the prospect of privatization of Türk Telekom seems to have prompted the authorities to slow down the introduction of competition in expectation of higher privatization revenues.

The main drawbacks in the Turkish regulatory environment are as follows:

- So far, the regulatory framework has not been very successful in curtailing efforts by the incumbent operator to delay competition and new entry. In fact, some features of the regulatory framework, such as the licensing regime, have helped the incumbent with its delaying tactics by creating opportunities for legal challenges.
- There is significant regulatory uncertainty. The Ministry does not seem to be committed to the development of competition in the industry, or at least, it does not seem to appreciate what it takes to create competition in this sector. The commitment of the sectoral regulator is hampered by the lack of commitment by the Ministry. In fact, it is quite likely that a stronger endorsement of competition by the Ministry would have reduced the resistance of TTAS to the emergence of competition. The prospect of privatization of Türk Telekom seems to have prompted the authorities to slow down the introduction of competition in expectation of higher privatization revenues. The Turkish experience has shown that even when the regulatory authority is delegated to an agency with significant formal independence, political ownership is still important for the creation of a suitable investment environment.
- Regulatory decision making, while much more transparent than the rest of the bureaucracy, is not transparent enough. In the current regime, the decisions of the Telecommunications Board need not be made public; also regulations and board decisions do not need to be supported by justifications. This increases regulatory uncertainty as the intentions of the regulator remain unclear. From the investors' perspective it increases regulatory discretion and reduces trust in the appeal mechanism.
- The TA routinely announces annual work plans which help reduce regulatory uncertainty. The current work plan includes important actions such as implementing unbundled access to the local loop, number portability, and carrying out market analyses. However, there is still uncertainty about how effective the implementation of these regulations will be.
- There is insufficient collaboration between the sectoral regulator and the competition authority. This prevents useful exchange of ideas.

The following are likely to generate significant improvements in the regulatory environment:

- Clearer ownership of the competition agenda by the Ministry. It is hoped that the completion of the privatization of TTAS will encourage policy makers to embrace that agenda more wholeheartedly.
- Preparation of a policy document by the ministry or the TA, outlining the government's main objectives in the area telecommunications policy, outlining challenges regarding the development competition in the industry and presenting the government's perspective (including justifications) on the main issues such as licensing, interconnection, facilities vs service based entry etc. This would help reduce regulatory uncertainty and enhance accountability
- Increased accountability and transparency of the regulatory agencies: publication of all TA Board decisions concerning the telecommunications industry along with justifications
- Simplification of the licensing regime; adoption of an EU-like approach that relies on general authorizations and rights of use
- Effective implementation of the next steps in the regulatory agenda, including unbundled access to the local loop, licensing of alternative local access services, privatisation and liberalisation of the cable infrastructure.
- Increased cooperation and complementarity between the sectoral regulator and the competition authority; clarification of their respective roles and institution of stronger channels of dialogue.

1. Introduction

The telecommunications industry in Turkey has gone through a number of significant changes in the last few years. The monopoly of the incumbent operator, Turk Telekomunikasyon A.S. (TTAS), over the fixed line infrastructure and voice services has ended at the end of 2003. In mobile communications services some degree of competition existed since the mid 1990s, however recently there have been attempts to increase the number of operators by promoting new entry. Internet services have been provided by a multitude of operators since the mid 1990s, and recently broadband applications have been launched. The Telecommunications Authority (TA) has been established in 2000 with extensive powers to issue secondary legislation and monitor compliance in areas such as tariffs, interconnection and (since 2001) licensing. The termination of monopoly rights of TTAS and the establishment of the TA were seen as changes that produced an opportunity to create an environment conducive to competition, introduction of new services, higher investment and growth. It was hoped that Turkey's quest for European Union (EU) membership would facilitate the creation of such an environment.

The performance of the industry under the new-regime-in-making is mixed. Introducing competition even into the most potentially competitive segments is proving more difficult than many had anticipated. Provision of alternative infrastructure access to end-users is not even possible yet because the licensing regime is not yet completed. Efforts to enhance competition in mobile communications through new entry have had only limited success. Broadband penetration is very low and independent internet service providers (ISPs) are engaged in a legal battle to force the incumbent operator to open up the broadband market. Hence while there is a trend towards more competition, it would be fair to say that both the current level and the rate of development of competition are below expectations.

The purpose of this paper is to review the recent evolution of the telecommunications industry in Turkey. Both economic theory and international experience suggests that in the telecommunications industry liberalization by itself is not sufficient to generate competition, investment and growth. Also needed is a regulatory and legal environment that can effectively curb anti-competitive behavior by incumbents, and provide confidence among potential entrants that the rules of the game are and will remain predictable and fair. Hence the paper examines the interaction between privatization, liberalization, regulation and competition law enforcement and their impact on performance of the sector. The performance of the sector is evaluated through measures of competition, investment, and growth in an internationally comparative perspective. The paper reviews the design and implementation of regulations issued by the TA and compares them with those that prevail in the EU. It also reviews the main decisions taken by the Competition Authority (CA) in the telecommunications sector and examines their role in promoting entry and expansion, and preventing foreclosure by incumbents.

The analysis suggests that there is room for improvement in the regulatory environment. How such improvement can be affected is not straightforward. Some deficiencies may be easy to correct because their removal are compatible with the incentives and perceived interests of the decision-making bodies of the regulatory

agencies. Addressing other weaknesses may require changing the incentives themselves, for example, by establishing better accountability mechanisms. The paper will attempt to identify a number of institutional measures that may provide stronger incentives for improved decision-making.

The paper is organized as follows. The next section provides a brief introduction to the telecommunications industry and summarizes the characteristics that make the development of competition difficult. Section 3 outlines the regulatory framework that currently exists in Turkey and provides brief comparisons with that in the EU. The next four sections review the development in the fixed line telephony, mobile, internet/broadband and cable TV segments respectively. Section 8 provides an overall assessment of the current regulatory framework, and provides recommendations on how to improve it. Section 9 concludes. The privatization of TTAS, which occurred after the main text was written is summarized in a postscript to the text.

2. Evolving structure of the telecommunications industry and the need for regulation

The telecommunications industry traditionally consisted of the provision of voice telephony services. The cost structure of the industry exhibited strong economies of scale, especially at the level of the local loop, because it was on average cheaper to provide a service over a single network rather than a larger number of networks. It also exhibited economies of scope, meaning it was cheaper to provide different services (such as local, long distance and international calls; or access and transmission services)¹ together over a single network owned by a single firm rather than separately through different networks owned by different firms.² Hence typically voice telephony services were provided by vertically integrated monopolies. These were either under public ownership (as in most of Europe and developing countries) or they were under private ownership but regulated so as to prevent monopolistic behavior.

Changes in technology have altered the structure of the industry over the last two or three decades. Equipment costs have declined and building networks with much higher capacity and more intelligence have become possible. These changes have reduced the extent of economies of scale, scope and density and facilitated the introduction of competition. New services have been put on the market, and more importantly, with the advent of digital technology, services that were once seen as unrelated are being provided over the same network, leading to a convergence between traditional telecommunications industry and cable TV, broadcasting, and the computer industry (or between voice telephony, data and content/entertainment), further creating opportunities for competition.

¹ Access or distribution services refers to carrying of voice and other signals between a subscriber's end-point equipment (such as a telephone hand set or a fax machine or a computer) to a local switch. Transmission (or trunk, or conveyance) services refers to the carrying of larger volumes of signals between large switches (such as carrying voice between cities). See, OECD (2002a). Other useful reviews of the basic structure of telecommunications networks include De Bijl and Peitz (2002), and Laffont and Tirole (2000).

² One also speaks of economies of density, which refers to the fact that once a link is established to a locality, it becomes cheaper to establish additional links.

The potential for competition varies across different segments of the industry. Transmission services in most countries can accommodate multiple operators and are considered natural oligopolies; hence liberalization is expected to lead to facilities-based³ entry into the transmission business (OECD 2002a). Transmission services can be provided over wired (fiber optic) and wireless (eg radio) links. The former has higher installation costs and higher capacity whereas the latter has lower installation costs but also lower capacity.

The potential for competition in the local access or distribution business is more limited. Access services are also provided through wired or wireless links. The most common wired technology is the twisted copper wire that connects subscribers' premises to local switches. The most widespread wireless technology is mobile (cellular) services, where access is provided through radio links between a mobile handset and a mobile base station. The scope for competition in the local access business depends on the level of demand, population density and the technology used. Empirical evidence (Gruber and Verboven, 2002a, 2002b) seems to suggest that initially (when mobile penetration is still limited) fixed and mobile services are complementary, that is, countries with higher fixed penetration also have higher use of mobile services. However, as mobile penetration increases, fixed and mobile services become more substitutable. While the mobile technology provides mobility, the fixed network still has the advantages of lower cost and higher capacity to transmit data.

Mobile services are subject to facilities based competition in most countries whereby major mobile operators have each installed their own network of base stations. In the case of wired access, the traditional network potentially faces facilities-based competition from alternative wired distribution facilities such as fiber optic and cable TV (CATV), both of which are broadband technologies, that is, have higher capacity to carry signals compared to the copper wire. Hence, in areas with high population density and/or high demand (eg business demand) new operators may find it possible to install fiber optic lines and compete directly with the old wired network, and provide much faster access to data services in addition to voice. It is also possible, through DSL technology, to enhance the capacity of the copper network. It is expected that most areas can sustain only one fixed-broadband network, except perhaps the highly populated areas of large cities (OECD 2002a).

Most countries also have promoted more limited forms of entry, where the entrants do not roll out full networks. Hence, a more limited form of entry is acquiring access to unbundled elements of the local loop, where the entrant would rent some components from the incumbent (eg the copper wire) and install itself the rest of the components. A form of entry that requires the least investment would be resale, where the entrant purchases services from the incumbent at a discount and sells it to final consumers.

Consumer benefits from new entry, whether facilities-based or in other form, depends crucially on whether the different segments of the industry can "talk" to each other. This feature of the industry makes access and interconnection a crucial element of competition. New entrants need access to subscribers of incumbents, or need to

³ Facilities based entry refers to cases where the new operator builds its own network rather than renting network components from incumbents.

interconnect to existing networks. Incumbents, on the other hand, have incentives to thwart competition by refusing to provide access or interconnection at reasonable terms. In most countries, traditional competition policy is seen as insufficient to restrain incumbents from anti-competitive practices. In addition, most countries have identified the provision of some basic telecommunications services to all citizens at reasonable cost as a social policy objective. This policy objective is difficult to attain through competition alone.

Hence, in most countries liberalization has been managed through a set of rules that regulate the behavior of established operators and their interaction with competitors and newcomers. These rules are typically designed and implemented through regulatory authorities. These authorities are often organized as administrative agencies with varying degrees of operational and financial independence from the ministries, which until liberalization had executive authority over the sector. The rules typically focus on areas where competition is seen as difficult to develop, in particular access, interconnection, and retail and wholesale prices of the incumbent.

In general terms, the design and enforcement of *ex-ante* regulations and *ex-post* enforcement of competition law are seen as complementary measures that are indispensable to ensure the development of competition and prevention of monopoly abuse. It is generally expected that the intensity of *ex-ante* regulation will increase once monopoly rights are abolished and new entry into the sector is allowed (a stage called “phase 2” in Bergman et. al., 1998). As competition develops in most segments of the industry (“phase 3”), perhaps including in local access, it is hoped that the need for regulation will eventually diminish and protection of competition will be carried out through *ex-post* application of competition law alone. As discussed below, under the new regulatory framework of the EU, *ex-ante* regulations themselves are designed on the basis of market analyses carried out in the tradition of competition law.

The objectives of regulation can be formulated as achieving static and dynamic efficiency in the industry, preventing rent extraction by firms with market power and ensuring universal service. Static efficiency includes allocative efficiency (control or elimination of market power) as well as cost efficiency (attaining minimum cost for a given quantity and quality of output). It turns out that in some segments welfare losses that can be caused by high prices can be substantial because demand can be highly elastic.⁴ Dynamic efficiency entails attracting the optimal amount of investment (expansion or new entry) as well as encouraging generation and adoption of new products and technologies. Prevention of rent extraction reflects the distributional objective of regulation. Universal service entails making available a basket of services at affordable prices to all citizens. Creating an environment conducive to competition and investment depends not only on the nature of individual policies and regulations but also on the confidence the regulatory environment gives to investors that future policies will be predictable and fair.

There is currently a controversy about whether there is a tradeoff between static and dynamic efficiency. One argument is that a regulatory framework that emphasizes

⁴ Newbery (1999) calculates that deadweight loss in 1995 due to high margins in calls from the UK to the USA alone could be as high as 1.5-4.5 percent of all UK telecommunications revenue.

short run competition would choose to force incumbents to provide unbundled access to the local loop, and this may weaken incentives of new entrants to build their own infrastructure. Hence, promoting service-based competition may hurt the development of facilities-based competition. The counter argument is that service based competition may provide new entrants with learning and experience that can eventually assist transition to facilities-based competition. Some recent papers on the experience in the US promote the first view, namely that unbundled access to the local loop has actually retarded infrastructure investment, and that it was actually the elimination of mandatory sharing rules that has promoted facilities based entry.⁵ Focusing especially on the impact of ULL on broadband markets, De Bijl and Peitz (2005) derive a much less unequivocal conclusion from the European experience, arguing that ULL will probably lead to more competition, but adding that one would need to tackle a number of uncertainties before one can discuss whether this will be welfare improving in the long run. This paper will not examine this controversy. Local loop unbundling (LLU) is an important component of the regulatory framework in the EU. Rather than attempt to provide a critical assessment of that framework, and given that Turkey is a candidate for full membership, the paper will examine Turkey's progress towards the goal of developing an EU-like regulatory framework.

3. The Regulatory Framework in Turkey

3.1. *Historical background*

As was the case in many European countries, telecommunications services in Turkey were provided by a state monopoly (Posts, Telegraph and Telephone, PTT). The legal basis was the Telegraph and Telephone law of 1924 (Law No. 406).⁶ Liberalization of telecommunications equipment occurred early on in the 1980s, along with the privatization of equipment manufacturers that were subsidiaries of PTT. In 1994, as part of an overall orientation towards privatizing state assets, telecommunications services were separated from post and telegraph and Türk Telekom A.S. (TTAS) was established as a state economic enterprise and a joint stock company (Law No. 4000, 10.6.1994). The same law liberalized value added services and allowed the Ministry of Transport to issue licenses to private enterprises on conditions that would not lead to monopolies.

The first important step in liberalization was the authorization of two private companies to provide mobile services over the GSM 900 standard in 1994. These companies, Turkcell and Telsim, had revenue agreements with TTAS until 1998, at which time they were issued licenses by the Ministry of Transport. Contrary to the practice of many European countries, TTAS was not initiated to take part in the mobile business, which evolved as a duopoly until 2001. As a result of this decision, TTAS is still not a dominant player in the mobile market.

⁵ Hazzlett (2005). See also Nuechterlein and Wieser (2005). Bourrau and Dogan (2004, 2005) theoretically show that under certain circumstances, the incumbent's pricing of unbundled access is lower than optimal, resulting in too late (from a social welfare point of view) adoption of new technologies by new entrants. The regulatory remedy they propose is actually a price *floor*.

⁶ For background information on the Turkish telecommunications industry see OECD (2002b), Yilmaz (2000), Ulusoy (2002), and Cakal (1995) and McKinsey (2003, Section 2, Chapter 1).

Despite this pro-competitive stance in the mobile sector, competition in the fixed market did not become an important policy objective until very recently. Various attempts were made to privatize TT, but these failed due to legal and constitutional challenges. These attempts were carried out without first establishing a legal framework for sector regulation, perhaps because the government was to retain majority of shares. For example, Law No. 4107 of 1995 prescribed that 34 percent of privatized shares were going to be sold to “strategic investors”. Hence if privatization efforts would have been successful, Turkey was going to end up with a monopoly with major private sector participation.

The landmark law regarding liberalization and regulatory reform in the Telecommunications industry was amending Law No. 4502, adopted in January 2000. Often referred to as the “Telecommunications Law”, Law No. 4502 prescribed that the monopoly rights of TTAS would end on December 31, 2003. The rights and duties of TTAS were to be defined in an Authorization Agreement between TTAS and the Ministry of Transport. The law established an independent regulatory body, the Telecommunications Authority (TA), and effectively transferred the regulatory functions of the Ministry of Transport to that agency. The TA was authorized to issue regulations for the telecommunications industry, determine operators which are responsible to provide interconnection and roaming services, regulate or set tariffs, monitor compliance and impose fines in case of non-compliance. The authority to issue licenses nevertheless remained with the Ministry. The TA started functioning in August 2000. Later, partly as a result of pressures from the IMF, licensing authority was also transferred to the TA through Law no. 4673 (May 2001).

3.2. The current regime

Ex-ante vs. ex-post regulation

In most countries sector specific regulatory authorities with mandates to promote competition in the industry co-exist with competition authorities that execute general competition law. This situation raises two distinct questions. The first is to what extent competition issues should be resolved through *ex-ante* regulation versus the application of competition law *ex-post* (for example, at one extreme access charges could be determined by a regulator *ex-ante* or at the other extreme their determination could be left to market and an intervention could be invoked only if market outcomes are deemed to be infringing competition law). As will be seen below, Turkey is trying to follow EU norms on this question. Hence the scope of *ex-ante* regulation is largely shaped after the regulatory regime that exists in the EU. The second is how authority to intervene in the sector should be divided between the sector specific regulator and the competition agency, how the two agencies should interact, and how any difference of opinions should be resolved. For example, should the sector specific authority have the mandate to conduct *ex-post* investigations on infringement of competition? Should the competition agency have the authority to investigate complaints about access charges (as an extreme example, say, even when those are determined or approved by the sector-specific regulator)? There does not seem to be a consensus on this problem and countries seem to have adopted various approaches, as a recent OECD study (1999) demonstrates.

In Turkey, general competition policy is governed by the Law on Protection of Competition (No. 4054, 1994). The law is enforced by the Competition Authority

(CA) which is organized as an independent regulatory agency. The law prohibits agreements and concerted practices (Art. 4) that restrain competition, and abuse of dominant position (Art. 6).⁷

There does not exist in Turkey a clear consensus on the division of labor between the TA and CA. Law No. 4502 provides the TA with the authority to investigate anti-competitive practices in the telecommunications industry (art. 16/m). It also states that the Competition Authority (CA) should take the TA's opinion into consideration before taking any decisions on the telecommunications industry. In a significant omission, it does not require the TA to seek the opinion of the CA.

A protocol of cooperation was signed between the two authorities in Sept 2002. The protocol stipulates that the two agencies shall exchange information when carrying out their tasks. It establishes a coordination committee that convenes 4 times a year and requires agencies to obtain written opinions from each other before reaching decisions. For example, the CA is to consult the TA before it reaches decision on mergers and acquisitions, negative clearances and exemptions and the TA does the same in decisions on determinations of dominant position, and design of concession agreements. If there are applications to both agencies on competition matters, then the agencies will coordinate through the Coordination Committee.

In principle, the protocol provides a workable set of rules. However, in practice the quality of the dialogue and the degree of coordination and complementarity between the agencies has been less than satisfactory. At the risk of oversimplifying, one can say that the Telecommunications Authority is of the opinion that the Competition Authority does not have the authority to carry out competition investigations in the telecommunications sector. This position has not been openly stated in any policy document, but seems to be reflecting the dominant feeling at the TA. Another, less exclusionary position one hears from the TA is that the CA should not investigate actions in areas that are being regulated by the TA. If that is indeed the position of the TA, then the extent of disagreement between the two agencies is smaller than one would be led to believe, as will be discussed in section 8.4 below. In any case, the Competition Authority, on the other hand, argues that it has exclusive authority to carry out investigations on violations of the competition law, and authority to impose monetary fines in case such violations occur.

The overall approach to *ex-ante* regulation

The overall regulatory environment emerging in Turkey is shaped by that in the EU. In the EU, regulation of the telecommunications industry has gone through significant changes with the emergence of the new regulatory framework in 2003 (the "2003 package" see Box 1). The previous regime, the "1998 package" that guided the full liberalization of telecoms in Europe in 1998, was a series of more or less ad-hoc interventions, reflecting a process of learning by the European Commission as well as the regulatory authorities of the member states. With significant achievements in terms of competition across Europe, the aim of the 2003 package was to clarify and simplify existing rules, removing those that were deemed as no longer necessary, to

⁷ Articles 4 and 6 of the Turkish law are similar to Articles 81 and 82 of the EC Treaty. Article 7 of the law covers mergers and acquisitions.

achieve greater harmonization across member states and develop a framework that made more systematic use of competition law.⁸

The main logic of the new framework in the EU is indeed inspired by competition law. The main idea is that regulatory obligations should be imposed only where effective competition does not exist. The regulatory process starts with the definition of relevant markets, using the tools of competition law. It is followed by the identification of dominant operators, or operators with “significant market power” (SMP), again mimicking how that would be done in the application of competition law. Then obligations that will be imposed on such operators are formulated. The types of obligations that can be imposed are described in EU directives. Finally, as competition further develops, existing regulations are to be reviewed and those that become unnecessary are to be removed.

Box 1: The 2003 Regulatory Package of the EU

The new regulatory package consists of the following components:

Framework Directive: Provides the motivation of the new framework and lays out the main principles, including the idea that regulations will be inspired by competition law ex-ante obligations are to be imposed only on operators with SMP.

Competition Directive: Defines electronic communications services so as to take account of convergence, prohibits the granting of exclusive or special rights, and imposes on dominant or state owned providers of public telecommunications services legal separation of cable networks.

Access Directive: Describes the principles to be followed in the regulation of access and interconnection and obligations that can be imposed on SMPs.

Authorization Directive: describes the licensing regime. Emphasizes that the regime should be simple and should mainly rely on general authorizations, except for instances where scarce resources such as frequency and numbers require limitations on the number of operators.

Directive on Privacy: Outlines measures needed for the protection of privacy over networks especially in relation to the processing of personal data.

Universal Service Directive: Outlines principles to be followed in the design and financing of universal service obligations.

Turkey will have to transpose the 2003 EU regulatory framework as part of her accession process. The regulatory framework that is emerging in Turkey increasingly follows the basic logic of the 2003 framework, but there are significant differences as well. The basic legal framework outlined in Law No. 4502 was prepared before the new EU framework came about. The drafting of individual regulations in Turkey is guided in a general sense by the 2003 package, however it was also shaped Law no. 4502 and by the need to respond to immediate challenges that the regulator faced (as in the case of roaming regulations discussed in section 5), and, to the perceptions and

⁸ See Buigies (2003) and Cave (2003) for descriptions of the 2003 package and comparison with the 1998 framework.

biases the regulator had both about transition to liberalized market structures and the particular problems and characteristics of the Turkish case. The main steps in the development of the current regulatory framework are summarized in Box 2.

While it is difficult to make generalizations about the “worldview” of an administrative agency, or of the persons who make up its decision-making bodies, it is still useful to mention some of the main concerns that seem to have guided the regulatory practice of the TA. There was a strong acknowledgement that Turkey was at the very start of a liberalization process. The process itself was seen as full of uncertainties and unforeseen contingencies. In general, it was perceived that the TA needed to retain instruments with which it could respond to these unforeseen contingencies, and there was a general discounting of the costs associated with having too much discretion. There was a general concern about the speed of liberalization: it was seen as prudent to adopt the market system step by step so that the TA would not be stuck with very rapid developments with irreversible consequences. There was a general worry about the possibility of excessive, and in particular, of low quality entry, and a general belief that especially in the early stages of liberalization, consumers and even operators could make ill-informed decisions.⁹ It seems there was also a worry about inefficient bypass, that is, that infrastructure would be duplicated by competitors in uneconomic ways.¹⁰

Another important factor that shaped the political dimension of the regulatory process is the privatization of Turk Telekom. The privatization process was dominated by revenue considerations. This was so not only because of tight constraints on public finances but also because the government was worried that low privatization revenues could enable opponents of privatization to accuse the government of allowing the capture of valuable public assets without paying a fair price. When privatization is guided predominantly by revenue considerations then development of competition can be seen as undesirable because it would reduce the incumbent’s potential monopoly rents and therefore privatization revenues. This may generate a political resistance against liberalization and may provide incentives to slow down the emergence of competition.

The licensing regime

The licensing regime is an important determinant of the speed and scope of new entry. The licensing regime in Turkey is governed by the Ordinance on the Authorization of

Box 2: Main Developments in the Regulatory Framework

January 2000 – Law no. 4502 . Monopoly rights of Turk Telekom will be terminated on December 31, 2003. The Telecommunications Authority is established as an independent regulator

⁹ The recent boom-and-bust cycle of the world telecommunications industry also seems to have affected the TA’s perceptions.

¹⁰ This was reflected in statements like “TTAS infrastructure should be utilized efficiently”.

August 2000 – The TA starts operating

September 2000 – TA issues Principles and Procedures to be followed in Mediations regarding Disagreements on National Roaming

March 2001 - Telecommunication Services Regulation (replaced by Ordinance on the Authorization of Telecommunications Services and Infrastructure in 2004)

May 2001 – Law no. 46 73. The law transfers licensing authority from the Ministry of Transport to the TA.

August 2001 –Tariff Ordinance (Official Gazette, August 28, 2001 no. 24507)

January 2002 - Communiqué on Principles and Procedures to Apply Price Cap Regulation to Turk Telekom Tariffs (Official Gazette, 11.01.2002, No. 24637) (Price Cap Communiqué I)

March 2002 – Ordinance on Principles and Procedures for Making Roaming Agreements

May 2003 - Ordinance on Access and Interconnection (Official Gazette, 23.05.03)

June 2003 – Communiqué on Principles and Procedures Regarding the Determination of Operators with Significant Market Power (Official Gazette June 3, 2003, No. 25127)

June 2003 - Communiqué on Principles Regarding the Determination of Operators with Dominant Position (Official Gazette June 3, 2003, No. 25127)

December 2003 - Communiqué On Principles And Procedures Regarding Co-Location And Facility Sharing (Official Gazette, December 31, 2003 No. 25333)

December 2003 –Price Cap Communiqué II

February 2004 - Regulation for Numbering

February 2004 – Ordinance on the Processing of Personal Information and Protection of Privacy (Official Gazette, 26.02.2004)

February 2004 – TA Board Decision on Principles and Procedures for Accounting Separation and Cost Accounting Obligations on Turk Telekom and Operators with SMP in Mobile Call Termination Markets

April 2004 – TA issues Annex 8 to the Authorization Ordinance on the authorization of Long Distance Telephone Services (Ordinance on Making Changes to the Ordinance on Telecommunications Services, Official Gazette April 13 2004, no. 25432).

May 2004 - TA issues the first set of licenses for long distance operators

July 2004 - Communiqué on Principles and Procedures on Unbundled Access to the Local Loop

August 2004 – Ordinance on the Authorization of Telecommunications Services and Infrastructure(Official Gazette, August 26, 2004).

September 2004 – TA issued Standard Interconnection Reference Tariffs

October 2004 - The TA adopts a decision on ADSL resale and bitstream access (Board Decision No. 2004/535 of October 6, 2004, not published in the official gazette).

<p>December 2004 – TA issues Ordinance on Consumer Rights in the Telecommunications Sector (Official Gazette, 22.12. 2004, No. 25678)</p> <p>February 2005. TA adopts its decision no. 2005/21 dated 10.01.2005, which mandates Turk Telekom to rent leased lines and other media to holders of long distance telecommunications licenses to carry telephone traffic, including for access to users</p> <p>February 2005 – TA issues Ordinance Amending the Ordinance on the Authorization of Telecommunications Services and Infrastructure (Official Gazette No 25718, 05-02-2005). This ordinance adds Annex 10 to the to the Authorization Ordinance (Official Gazette, August 26 2004) on the licensing of “cable platform services”.</p> <p>February 2005. Authorization of Broadband Fixed Wireless Access (amendment to the Authorization Ordinance) Official Gazette dated 17.02.2005</p>
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Telecommunications Services and Infrastructure (Official Gazette, 26.08.2004, hereafter referred to as the Authorization Ordinance). According to the Ordinance:

- The incumbent fixed line operator, Turk Telekom operates under an Authorization Agreement. This is to be replaced by a concession agreement once the privatization of TTAS is completed.
- Operators providing Telecommunications services which are to be provided by a limited number of operators are authorized through concession agreements if the services are provided on a national scale and through Type 1 Telecommunications Licenses if the services are provided regionally or locally. Currently mobile operators operate under concession agreements (there are no Type 1 telecommunications licenses issued yet). Concession agreements and Type 1 Telecommunications licenses are to be issued through auctions.
- Type 2 Telecommunications License provides authorization for services or infrastructure that do not need to be provided through a limited number of operators, including fixed line long distance and international phone services, and, for services are listed in the Supplementary Article 18 of Law No. 406, which includes cable TV, satellite, public phones, intelligent networks, data networks and “similar value added services”. For long distance telephone services, this type of authorization is further divided into types A, B and C, the details of which will be discussed below.¹¹
- Finally, General Authorizations are for services that do not need to be provided through a limited number of operators and which are *not* listed in the Supplementary Article 18 of Law No. 406. This is the least restrictive type of authorization and simply requires registration. Currently, this type of authorization is applied only to internet service providers (ISP).

¹¹ As of July 2004, in addition to long distance call services, Type 2 licenses have been offered for the following: Satellite telecommunications services, satellite platform services, GMPCS mobile telephony services, telephone message services, data transmission services over fixed lines, PMR/PAMR services.

There are significant divergences between the Turkish licensing regime and that envisaged by the EU Authorisation Directive. In comparison, the Turkish regime is more complicated, restrictive and, costly. Examples of divergences include:

- The Authorization Directive of the EU Regulatory Framework aims at the “least onerous” authorization system possible and stipulates only two types of authorizations: general authorizations and individual use of rights, the latter limited to operators that use radio frequencies, numbers or rights of way. By contrast, The Turkish regime is one of individual licenses and authorizations cover narrowly defined activities. As distinctions between these activities are not always clear, this increases regulatory uncertainty and makes entry more difficult. In addition, even in cases where regulatory intent is clear, the Turkish regime is more vulnerable to legal challenges.
- While in the EU regime limits on the number of firms are associated with granting of rights for radio frequencies, in the Turkish regime how identity of the “services which are to be provided with a limited number of operators” will be determined is not clear.
- According to the Ordinance, minimum fees for authorizations will be determined by the Council or Ministers. This potentially provides the Ministry the ability to slow down liberalization by delaying the determination of minimum fees. In addition, in the Authorization Directive of the EU, fees for general authorizations are explicitly limited to administrative costs.¹²

The most glaring gap in the current regime until recently was that facilities based entry at the local level was not authorized at all (that is, the building of infrastructure and provision of services directly to businesses and residences, including the building of CATV networks). Given low penetration rates, and given low cost of installation (thanks to lower wages) this is an area where delays are likely to generate significant welfare losses. This was recently changed with amendments to the Authorization Ordinance that authorizes the provision of “cable platform services” and broadband fixed wireless access (see Box 2). However, as of July 2005, these licenses were still not issued because the Council of Ministers has not yet determined minimum fees.

Identification of dominant operators

A crucial step in the EU approach to regulation in the telecommunications industry is the identification of operators on which *ex-ante* regulations may be imposed. In the 1998 package, this issue was resolved by identifying operators that had at least 25 percent market share in their relevant market as possessing *significant market power* (SMP); operators with SMP were eligible for *ex-ante* regulatory obligations. The approach taken in the 2003 package is more closely inspired by competition law.¹³ Now, after defining relevant markets, operators with SMP are to be identified in the same way dominant operators are identified under competition law; no automatic thresholds in terms of market share are specified. The Commission has also issued

¹² Type 2 Telecommunications Licenses for long distance operators are granted for 15 years; those for cable platform services are granted for 20 years. The longest period that an authorization can be granted is for 25 years (Authorization Ordinance, Art. 9)

¹³ See Gual (2003) for an analysis of identification of relevant markets under the new approach. Larouche (2002) provides a critical view of the attempt to base telecommunications regulation on competition law.

recommendations regarding which telecommunications services would constitute relevant markets for this exercise (European Commission 2003a). This list is not binding, and national regulatory authorities (NRA) of each member state are expected to carry out investigations about the relevant markets within their jurisdiction, in consultation with the European Commission, an exercise that is still going on in member states.

Turkey has not yet started the process of transposition of the new framework. Nevertheless, the 2005 Work Program of the TA states that relevant markets will be determined by November 2005 in accordance with the guidelines issued by the European Commission. The current regime on operators with SMP is as follows: The Ordinance on Access and Interconnection (May 2003) identified “dominant operators or operators with SMP” as operators on whom certain regulatory obligations could be imposed. These terms were defined in two subsequent Communiqués (June 2003). “Significant market power” was defined as the power of an operator or group of operators to *influence* economic parameters such as the sale or purchase price of services that they sell to users or other operators, the quantity of demand or supply, market conditions, main telecommunications network components that are used to provide telecommunications services and access to users. By contrast, the term “dominance” was defined as the power of a single or multiple operators to *determine* economic parameters such as price, production and quantity of distribution. Hence dominance is a stronger concept, a dominant operator was also an operator with SMP but the reverse was not true.¹⁴

The Communiqués required the TA to identify every year operators with dominant positions and those with SMP. In 2003, the TA identified Turkcell as having SMP in the market for mobile services and both Turkcell and Telsim in the market for mobile call termination. In June 2004, Turkcell was designated as a dominant operator in the mobile communications market and in December 2004 as possessing SMP in the mobile call termination market. Telsim was no longer designated as having SMP.

The two communiqués mentioned above lay out procedures which will be followed in designating operators that have dominance or SMP. However, none of the SMP dominance or designations by the TA are backed by any publicly available analysis.¹⁵ This is a reflection of a general problem with the TA that regulatory decisions are not backed by publicly available “justifications”, an issue that severely limits its accountability; see section 8 for a more detailed discussion.

Price control

Price control is governed by the Ordinance on Tariffs (August 2001). The Ordinance outlines procedures to be followed in the approval and auditing of telecom tariffs of operators with a monopoly or dominant position or those with significant market power. Note that the Ordinance provides the TA with the authority to “approve” rather than “set” tariffs. This is more restrictive authority than what was allowed in

¹⁴ One reason for the existence of both terms *dominance* and *SMP* in the Turkish framework is that the law No. 4502 used the term dominance and not SMP. The concept of operators possessing SMP was introduced in subsequent secondary legislation. A draft electronic communications law completely dispenses with the term dominance and uses only the concept of SMP.

¹⁵ By the same token, why Telsim is no longer designated as having SMP in the mobile termination market is not explained either.

Law No 4502 and reflected TA's desire not to be too intrusive. The distinction was barely noticed when the draft of the Ordinance was put out for discussion. It later became the legal basis through which TTAS challenged TA's decision that imposed on TTAS the obligation to provide bitstream access to ISPs (see section 6).

According to the Ordinance, the basic principles to be followed in tariff approvals and auditing include (art. 6): tariffs need to be based on cost of efficient service provision, they should preclude both excessively high prices that may result from possession of SMP and large price discounts that may restrict competition. Tariffs also should be fair, should not discriminate among different users, and should not allow for cross-subsidization unless there is a justifiable reason.

In terms of price control methodology, Article 7 states that the NRA may approve tariffs either on the basis of the method of "cost of efficient service provision"¹⁶ or the "price-cap method applied to average prices of baskets of services". The TA has made two determinations of price control since the issuance of the Ordinance. In the first, issued in January 2002 and valid until end-2003, the TA imposed a price cap over two different service baskets: services provided over fixed lines, and, leased lines. With competition ahead, tariffs of Turk Telekom had to go through substantial rebalancing (see section 3.1), it was thought that regulation through a price cap would provide Turk Telekom with the necessary flexibility. It was also stated in Article 4 of that communiqué that after January 1, 2003, leased line tariffs could be approved on the basis of the method of cost of efficient service provision and required TT to make the necessary preparation. In affect, cost-based regulation of leased line tariffs started in June 1, 2004 because TT was delayed making the necessary preparation in terms of cost accounting and accounting separation. When the cap was revised at the end of 2003, a single basket was defined but this time caps were introduced on individual products for which the TA deemed that insufficient rebalancing of tariffs had taken place. The basket included connection charges, transfer fees, monthly rental fee for PSTN, ISDN PA and ISDN BA services, and per minute charges for intra-city, inter-city international and internet calls. Of these, ISDN PA connection, transfer and monthly rental fees, international calls and internet calls have individual sub-caps.¹⁷

Another legal source of retail price control are the concession agreements granted to mobile operators. These also stipulate a price cap regime where caps are revised every six months by the regulator. Mobile operators are obliged to submit any tariff changes or proposals for new tariffs to the TA a week before publishing them. Except for a brief period during a major macroeconomic crisis in 2001, the caps applied to mobile phone tariffs have not been binding in the sense that competition has driven prices well below the caps.

Access and interconnection

Availability of access and interconnection services is crucial for the development of competition. Because incumbents may have incentives to foreclose markets to competitors by refusing to provide access and interconnection, many regulatory

¹⁶ That, in turn is defined as the sum of long run incremental cost plus that portion of common costs that can be attributed the service in question.

¹⁷ These were international calls, dial-up charges for access to internet, and ISDN-PA leased lines.

jurisdictions impose access and interconnection on incumbent operators. The important issue is what kinds of obligations the NRA can impose on what types of operators.

In Turkey, according to the Ordinance on Access and Interconnection (May 2003)¹⁸ the TA has the authority to impose access obligations on any operator in situations where refusal to provide access or imposition of unreasonable terms would hinder the emergence of a competitive market (Art. 8). By contrast, the EU Access Directive explicitly states that obligations shall not be imposed on operators that have not been designated as having SMP, except where such is required to ensure end-to-end connectivity (see Box 2). Hence, the TA has more discretionary authority than what is envisaged in the EU approach. It should also be stated that the TA has not yet made use of this discretion.

Regarding interconnection, Article 10 requires that, when requested by other operators, all operators are required to negotiate interconnection. TTAS and operators with SMP are obliged to provide interconnection. In addition when the TA considers that the denial of an interconnection request may hinder the emergence of a competitive market, or would not be in the end-user's interest, it may impose an interconnection obligation on any operator.

Box 2: EU Access Directive

The Access Directive lays out both general conditions and obligations that can be imposed on operators, as well as specific obligations that can be imposed only on operators designated as SMP. All operators of public communications networks have an obligation to negotiate interconnection with each other (Art. 4). Art. 5(1) and 5(2) state that, in order to ensure end-to-end connectivity, the NRA may impose obligations on operators that control access to end-users, including obligations to interconnect their networks. It also requires that national regulatory authorities have authority to intervene where justified or when negotiations fail.

Then, Articles 8-13 deal with obligations that can be imposed on operators with SMP. More specifically, Art. 8(1) states that national Regulatory Authorities (NRA) are empowered to impose obligations described in articles 9-13, namely: transparency (Art. 9), non-discrimination (Art. 10), accounting separation (Art. 11), access to specific network facilities (Art. 12; including access to specific network elements, obligation of co-location and facility sharing, access to specified services such as software to ensure interoperability, and obligation to interconnect networks), and, price control and cost accounting (Art. 13). Article 8(2) states that where operators are designated as having SMP, the NRA shall impose those obligations as appropriate.

¹⁸ The Ordinance defines access as the provision of telecommunications infrastructure and/or services by an operator to another operator. In other words, access occurs when one operator needs to connect to the network of another operator to reach the latter's end-users. Interconnection, by contrast, refers to the connection of two separate networks for the realization of telecommunications traffic between them.

Then, Article 8(3) states that the NRA shall *not* impose those obligations on operators that have not been designated as having SMP.

The TA apparently wanted to retain discretion that would allow it to intervene if an operator that was not designated as SMP refused to provide interconnection to other operators, especially new entrants. A related reason possibly may have to do with the complicated nature of the SMP regime discussed above (see footnote 13 above). The problem is that the mere existence of such discretion may deter potential entrants from entering for fear that they may face obligations in the future even though they do not enjoy SMP.

Parties are free to determine the terms and conditions of access and interconnection agreements. If parties cannot reach an agreement, they may apply to the TA for dispute settlement and the TA is empowered to determine the terms and conditions, including tariffs. In the case of operators with SMP and operators on which the TA has imposed access or interconnection obligations, tariffs need to be cost oriented.

For this condition of cost orientation to be operational, costs need to be known, and that requires the availability of cost accounting and accounting separation. The TA has imposed these obligations on TTAS and operators it has identified as having SMP in their respective markets, these obligations will become effective in 2006.

An important problem with the current regime is that it lacks proportionality: Once an operator is designated as SMP, a number of obligations are imposed on it automatically. In the EU framework, the regulators are expected to have more discretion in choosing which obligations should be imposed on specific operators, and these obligations should be proportionate to the intensity of the competition problem that the specific market faces.

The TA has been active in the interconnection area both through dispute resolution and through the approval of reference interconnection tariffs. Actual developments in interconnection will be examined in sections 4 (fixed market) and 5 (mobile market).

4. Developments in fixed line telephony

4.1. The monopoly period

Widespread availability of basic telephone services is a relatively recent phenomenon in Turkey and dates back to the first half of 1980s. During those years the government embarked on an ambitious modernization and investment program. This was as part of an overall strategy to re-orient the government away from manufacturing and services towards infrastructure investments.

Investment and Penetration

Some indicators of this rapid growth are presented in Table 1. The number of main lines increased from about 1.1 million in 1980 to 6.9 millions in 1990 and 13.2 millions in 1995. Penetration (main lines per 100 inhabitants) rates from about 2.6 percent in 1980 to 12.1 percent in 1990 and 21.4 percent in 1995. The share of digital lines in total main lines increased from 12 percent in 1986 to 78 percent in 1996.

Turkey's public investment drive started to slow down in the 1990s. Growing public deficits, a major macroeconomic crisis in 1994, rapid increases in the interest payments on public debt and inability to restructure public expenditures resulted in cutbacks in investment expenditures. Investments by Turk Telekom, after increasing from around 250-300 million USD in the first half of the 1980s to around 600-700 million dollars in the early 1990s stagnated at those levels in the last decade. The stagnation is reflected in sharp declines in investments as percentage of revenues, from over 50 percent in the second half of the 1980s to less than 15 percent after 1995. Investment per main lines tells a similar story (Table 1). This decline in investment occurred despite steady increases in Turk Telekom total revenues from about 1 percent of GDP in the first half of 1980s to more than 3 percent in late 1990s.

The poor investment performance of the telecommunications industry is also apparent in total investment in the sector. According to data from the International Telecommunications Union, between 1996-2002, telecommunications investment has remained at an average of about 0.26 percent of GDP in Turkey, which is lower than all types of comparators, including Germany (0.45 percent), France (0.46 percent), Portugal (1.47 percent), Brazil (1.17 percent), Mexico (0.70 percent), Bulgaria (0.79 percent). In comparative terms, investment in the fixed segment has been poorer than the mobile segment.

Table 2 provides some international comparisons. Penetration rates in Turkey are lower than both western and eastern Europe but higher than Argentina, Brazil and Mexico. By contrast, revenues per main line are lower than all comparators except for Bulgaria and Romania. Telephone faults per 100 main lines are also quite high compared to most countries.¹⁹

The degree to which macroeconomic and fiscal considerations dominated the way in which successive governments perceived Türk Telekom cannot be overemphasized. The public company was essentially seen as an important source of fiscal revenue in an environment where government expenditures were severely curtailed. A large portion of Turk Telekom profits are transferred to the Treasury as dividends (reportedly about ¾ of about 1.1 billion USD profits in 2003).²⁰

The prospective privatization of the company was also often presented as another reason why no investments were not undertaken by the public since it was preferred that they would be carried out by the future private owners. Seen in this perspective, it can be said that the delay in privatization resulted in postponing investments in new technologies, especially in broadband services such as DSL (see section 5).

Tariffs

In countries where liberalization has taken place, tariffs for telephone services have gone through two main developments. On the one hand, fixed charges have increased as a result of rebalancing. At the same time competition has pushed operators to reduce usage or per minute charges, both in long distance domestic and international

¹⁹ McKinsey Global Institute (2003) reports that in 2002 total factor productivity (TFP) of Türk Telekom was about 66 percent of fixed line TFP in the US.

²⁰ The figures in the text were reported at the website <http://turk.internet.com> (June 23, 2004).

calls. More recently, fixed line tariffs are becoming less sensitive to both distance and time (OECD 2001, 2003). Operators are increasingly charging a single rate to all domestic calls (in some cases, and especially for business customers, for some international calls as well). At the same time, increasing portions and types of calls are charged on an unmetered basis, whereby, for example, fixed rates are applied to many individual calls irrespective of usage time.

Turk Telekom tariffs have gone through some significant changes. Overall, it can be said that especially after August 2004, fixed line tariffs are not significantly out-of-line from international averages, which are used as the main benchmark in this paper.

Table A1 in the Appendix displays data on fixed fees and usage charges for local calls, obtained from ITU World Telecommunications Indicators. The most noticeable development is the decline in one-off connection charges, which has decreased from over 150 USD in 1990 to about 7 USD by 2002. Initially this has occurred because increases in connection charges were kept below the rate of currency depreciation and inflation. Since the end of the 1990s, however, Turk Telekom seems to have pursued a deliberate policy of reducing connection charges. At the same time, there has been a gradual increase in monthly fixed and per minute charges. Monthly fixed charges have increased from around 2-3 USD in the early 1990s to about 4 USD in the 2000s. The cost of a 3-minute local call has increased from about 6-8 US cents to about 10-12 US cents in the same period (Table A.1 and Figure 1).

Table 3 presents international comparisons on fixed charges and cost of local calls, as of 2002. What the table reveals is that per-unit charges for local calls (measured in terms of a standard 3-minute call) in Turkey are close to international averages whereas connection fees and monthly fixed fees are much lower. There is international evidence that penetration rates are sensitive to connection charges but much less sensitive to monthly fees or per-minute charges, and that this sensitivity to connection charges is higher in countries with lower incomes (e.g. Crandall and Waverman, 2000, especially chapter 5). Hence, the decline in connection charges probably is partly responsible for the increase in penetration rates during the 1990s (in effect, decline in connection charges seems to have played the role of – in hindsight quite successful– universal service policy), though perhaps further declines observed in 2000-2001 are probably excessive and unnecessary. Insensitivity of demand to per-unit charges also suggests that the increase in per-minute charges observed in the last decade makes economic sense. The figures may suggest that monthly fees in Turkey are excessively low and allocative efficiency may require that they be rebalanced upwards; however it is difficult to reach precise conclusions about this without more precise information about to what extent such increases would result in lower participation by poor consumers. International evidence suggests that the reduction in participation should be small.

Table A.2 in the Appendix, taken from OECD (2003) also compares (monthly) fixed and usage charges, but for a different basket that includes domestic long distance calls. The basic message is the same. Fixed charges in Turkey are lowest among

OECD countries. Usage charges are close to the OECD average in nominal USD, but much higher than the OECD average when measured in PPP.²¹

The increase in usage charges for local calls can be seen as part of a rebalancing process that has been going on since the 1990s. Table 4 shows the evolution of tariffs for international calls in the 1990s in Turkey and selected OECD countries. While international call rates have declined in Turkey, the speed of decline is much lower than countries where liberalization has started earlier, with Turkish rates about 60% higher than the OECD average as of 2000. This particular series, published in OECD (2001) is not available for later years. Table 5, taken from OECD (2003) presents data for the year 2002. While not comparable to those in Table 4, because of changes in definitions, data in Table 5 is useful for international comparisons. The tariffs are listed both in nominal USD and in USD corrected for purchasing power parity (PPP). Irrespective of what measure one uses, international calls in Turkey were 60-80 percent higher than the OECD averages. They were higher than all countries, including central European countries, except for Mexico and Korea and, in the case of residential tariffs, Poland. Hence it seems that international call revenues were used to cross-subsidize local calls.

This situation has changed since August 2004, when, in response to prospective entry into the long distance and international call businesses Turk Telekom executed sharp reductions in domestic long distance and international call charges. Table 6 shows that long distance rates have declined by 50-70 percent. With these declines, current international tariffs are probably much closer to OECD averages. Given that actual competition in the international calls market has not yet developed (see section 4.2 below) it seems that the mere threat of competition has already pushed Turk Telekom to adjust its international tariffs.

4.2. Liberalization in long distance and international calls

Even though the monopoly of Türk Telekom over fixed line voice telephony ended on January 1, 2004, new entry into even the long distance and international calls has been delayed because of delays in issuance of licenses and in reaching interconnection agreements. Licenses for Long Distance Telephone Services (LDTS) were issued in May 2004.²² LDTS licenses are divided into three types: Type A is for operators which will use carrier pre-selection (CPS). Type B is for operators using carrier selection (CS) on a call-by-call basis. Finally, Type C license is reserved for operators providing service through a 10-digit access code (basically through calling cards). The fees for these licenses were kept relatively high and set as follows:²³

- Type A: One time fee of 405 bn TL (about 230,000 Euros), plus annual charge of max (0.5 percent of net annual sales, 405 bn/15).

²¹ The choice between nominal tariffs and those corrected for PPP depends on the purpose of comparison. PPP tariffs provide an explanation of how expensive tariffs are, from the point of view of consumer welfare, relative to, or controlling for, other prices in the economy. On the other hand, if input costs are relatively equal across countries, then nominal tariffs expressed in the same currency can be better indications of the extent of competition. In the case of fixed line telephony, labour represents a major portion of costs, suggesting that PPP-adjusted comparisons are more valid.

²² It will be understood that in the Turkish context, Long Distance Telephone Services includes international calls. Note also that an LDTS license is a Type 2 telecommunications license.

²³ TL/Euro exchange rate taken as 1 euro = 1,770,000 TL.

- Type B: One time fee of 180 bn. TL (about 101,000 Euros), plus annual charge of max (0.5 percent of net annual sales, 180 bn/15).
- Type C: One time charge of 90 bn. TL (about 51,000 Euros) plus annual charge of max (0.5 percent of net annual sales, 90 bn/15).

These fees are much higher than those observed in Western or Central and Eastern Europe. The current trend in most countries with liberalized telecommunications industries (for those licenses that do not use up scarce resources) is to limit fees to those amounts that would recover administrative costs, the TA set deliberately high fees for these licenses, ostensibly to screen out potential entrants seeking quick short term profits and to favor entrants with longer horizons.²⁴ In the event, 7 Type-A, 13 Type-B and 7 Type-C licenses were issued in May 2004. As of November 2004, there are 9 type A, 20 type B and 11 type C licensees.

The next step was to conclude interconnection agreements with Turk Telekom. Türk Telekom announced a reference interconnection offer (RIO) and proposed 50,000 and 70,000 TL/min (about 2.7 and 3.7 Euro cents/min) for intra-access areas and extra-access areas, respectively.²⁵ The Turkish Competitive Telco Operators' Association (Telkoder) was reported as offering 14,000 and 18,000 TL/min (0.7 and 1.0 eurocents/min) respectively, rates which Telkoder believed was close to EU averages.²⁶ Some operators refrained from signing agreements with Turk Telekom and waited for TA intervention instead. The TA announced Standard Interconnection Reference Tariffs (SIRT) in September 2004, as listed in Table 7. For the purposes of comparison, Table 8 lists interconnection rates recommended by the European Commission since full liberalization took effect in 1998, as well as average actual interconnection tariffs prevalent in Europe in 2003.

The standard interconnection reference tariffs determined by the TA decline over time. As can be seen in Table 8, qualitatively this reduction over time mimics the experience in Europe. However, the initial rates of 2.2 and 3.1 Eurocents/min are quite high relative to the European experience, though by the beginning of 2005 Turkish rates will come close the upper bound of best practice recommended by the European Commission in 1998, when liberalization started. The tariffs will decline substantially after September 2005 and will reach current European averages. One should expect that one of the main consequences of the announced interconnection schedule will be to delay the development of effective competition by about one year by reducing the profitability of new entry. In that respect, the TA's approach to interconnection is similar to that towards licensing.

The TA did not explain why the interconnection charges were set at those particular levels. The TA presumably used both benchmarking against charges prevailing in

²⁴ In particular, there was a stated intention to weed out dishonest entrants who would be able to abuse consumers before markets would reach a minimum level of maturity and operator reputation would be established. It was also rumoured that high fees were especially favoured by large entrants.

²⁵ At the then current (September 2004) exchange rate of 1 Euro= 1,875,000 TL. Intra versus extra access areas refer to the level at which physical interconnection is made in the network hierarchy. This two-way classification is different from the three-way classification used by the EU, namely local, single transit and double transit. As a rough approximation, intra-access area can be taken as being between the local and single transit switches, and extra-access area to a level between single and double transit.

²⁶ Reported at [turk.internet.com \(http://turk.internet.com/haber/yazigoster.php3?yaziid=10662\)](http://turk.internet.com/haber/yazigoster.php3?yaziid=10662)

Europe and some cost-modeling and provided for a transitional period. In comparison with Europe, Turkcell equated extra-access area with local-level and extra-access-area with single transit. By contrast, while benchmarking, the TA seems to have equated the intra-access level with single transit, and extra-access area with double transit levels.

The tariffs announced in the SIRT are not mandatory. The presumption is that if operators and TTAS fail to reach an agreement, then the TA would force the parties to agree at the rates announced in the SIRT. As of November 2004, out of 40 long distance operators, only 13 had signed interconnection agreements with Turk Telekom. That number has increased to 36 by January 2005. The tariffs in the agreements have not been made public but it appears in most of the agreements interconnection rates are higher than those prevailing in the SIRT; more specifically, while the SIRT stipulates declining rates, those in the agreements remain higher throughout 2005. The operators who have signed agreements have evidently surrendered to TTAS pressure to prevent further delays. Those operators²⁷ who chose not to sign agreements with TTAS before the publication of SIRT have launched dispute resolution procedures with the TA, and have provisionally obtained the SIRT tariffs. If that decision survives legal challenges by TTAS then it is likely that operators that have already signed an interconnection agreement with TTAS will seek to amend them on the basis that interconnection tariffs have to be non-discriminatory.

The new licenses have not yet resulted in effective competition and only type C licenses have become operationalized.²⁸ The original TA decision required TT to complete preparations necessary to operationalize type B licenses by November 2004 and type A licenses by May 2005, neither are active as of May 2005.²⁹ The TA has not yet taken any punitive action against this non-compliance.

5. Competition in mobile telecommunications

Cellular mobile telecommunications services in Turkey was launched in 1994 on the GSM-900 standard through revenue sharing agreements between Turk Telekom and two mobile operators, Turkcell and Telsim. The founding partners of Turkcell were Sonem Holding (currently Talia Sonera), a leading Finnish telecommunications company and Cukurova group, the third largest conglomerate in Turkey, which was active in a wide range of industries, in particular the banking sector. Telsim was a partnership between Rumeli Holding, a Turkish group owned by the Uzan family, active in a variety of sectors including energy and banking. The revenue agreements stipulated that Turk Telekom would obtain 67 percent of the revenues, and the rest would be retained by the operators (Yılmaz 2000, p. 47). All infrastructure investment were to be undertaken by the operators themselves.

²⁷ Notably *Netone*.

²⁸ There were additional hurdles that needed to be overcome for type C licenses as well. Most notably, TTAS refused to provide leased lines to ISPs that wanted to provide voice services over the internet protocol (VOIP) to corporate end-users, claiming that direct access to end-users was not included in the scope of a type C licenses. The TA intervened and forced TTAS to provide the requested leased lines. TTAS concurred but at the same time filed an objection with the administrative court, which in turn sent the file to the Council of State.

²⁹ These preparations included implementation of call-by-call selection and carrier pre-selection; as of May 2005, neither have been implemented yet.

5.1. *The duopoly period*

In April 1998, the revenue agreements were replaced with 25-year licenses. Both operators paid 500 million US dollars for the licenses.

As shown in Appendix Table A3, the subscriber base of mobile telephony increased substantially after 1998, jumping from about 3.5 million subscribers in 1998 to 16 million subscribers in 2000. Whether this jump represents a break with the past is hard to tell since the number of subscribers have doubled every year since the launch of the service in 1994. On the other hand, the change in the contractual arrangement did have two important consequences. First, it introduced competition: Whereas under the revenue sharing agreement mobile call tariffs were determined by Turk Telekom, under the license arrangement retail mobile tariffs began to be set by the mobile operators, which resulted in competition and, according to ITU data, a rapid reduction of the cost of a 3-minute call from over 1 US dollar to around 60 cents within a year in 1998 (Table A3). In addition to tariff reductions, both operators also started granting handset discounts (daily *Hürriyet*, June 14, 1998). These changes must have led to a rapid increase in demand. In addition to injecting competition, the change in the contractual framework also affected investment incentives. Compared to a license, a revenue sharing agreement is a low powered contract: it acts as a tax on earnings whereas a license arrangement makes the operator the residual claimant of earnings, especially of earnings generated by calls that terminate in the same network (which do not entail payments to other networks), providing stronger incentives for investments and network rollout. Indeed, Turkcell investments increased from 136 million USD in 1997 to over 1 billion USD in 1999 (Competition Authority, Decision No: 01-35/347-95, p. 12 Table 6).³⁰

Even before the granting of licenses, Turkcell was ahead of Telsim in terms of number of subscribers (about 69 percent in 1999 and 2000).³¹ This dominance continued thereafter and Turkcell commanded a market share (in terms of subscribers) of 65-75 percent, even after the entrance of new operators in 2001 (see below). In terms of share in revenue, the market share of Turkcell was even higher. Between 1998-2000, an average Turkcell subscriber's monthly usage was about 140 minutes against 41 minutes for an average Telsim subscriber; in terms of revenues, the market share of Turkcell was above 80 percent in that period.³²

Turkcell's growth strategy during that period entailed exclusive agreements with handset importers/distributors and retail dealers. In effect, Turkcell was able to tie the sale of handsets of some major mobile phone brands (such as Ericsson) to the purchase of a Turkcell subscription, effectively making it costly for Telsim to attract subscriptions among consumers who favour those brands. Telsim filed a complaint to the Competition Authority in September 1999, arguing that Turkcell's exclusive agreements with handset distributors and dealers distorted competition and acted as barriers that impeded Telsim's entry. The Competition Authority concluded that

³⁰ As a result, Turkcell's subscriber capacity increased from 2.3 million in 1998 to 6 million in 2000 (Turkcell, 2000, p. 28).

³¹ Competition Authority, Decision No: 01-35/347-95, Table 1.

³² Competition Authority, Decision No: 01-35/347-95, p. 9 Tables 2 and 3.

Turkcell's practices amounted to infringement of the Law on Protection of Competition (Box 3).

Box 3: Turkcell's restrictive practices in mobile telephony and mobile handset markets

In January 2000 the Competition Board launched an investigation against Turkcell. The investigation was prompted by complaints from Basari Elektronik, a distributor of Nokia mobile handsets, and Telsim. According to the conclusions of the investigation Turkcell had used exclusionary agreements with handset distributors and dealers to restrict competition both in the mobile telephony and in the handset market.

Mobile handsets in Turkey were often sold with operators' SIM cards and subscriber lines, a practice that apparently developed to prevent sale of handsets that were not compatible with the GSM standard. The investigation revealed that Turkcell's agreements with distributors of major brands of handsets such as Ericsson and Panasonic prevented these distributors from marketing Telsim SIM cards and subscriber lines. In effect, these exclusionary clauses restricted end-users' ability to use these brands of handsets with Telsim subscriber lines; in other words, these clauses made it more difficult for potential Telsim subscribers to access these handsets. Since these were popular handsets, the exclusionary clauses made it more difficult for Telsim to attract subscribers. Parallel imports did not provide a cost-effective alternative since handsets brought in through parallel imports were more expensive and it was difficult for dealers selling parallel imports to obtain technical services that were made available to authorized distributors. Turkcell effectively penalized distributors that did not accept exclusionary agreements by reducing the amount of business Turkcell did with these distributors and/or by reducing handset subsidies. The Competition Board argued that because Turkcell had a large market share, distributors were compelled to accept Turkcell's terms in the vertical agreements.

Turkcell also had close ownership ties with KVK, the distributor of Ericsson handsets. It was found that Turkcell provided subscriptions sold by KVK a wider range of handset and other subsidies (such as financing certain taxes) than those sold by other distributors. Hence, it was decided that Turkcell used its dominance in the market for subscribers to leverage its market power in the market for mobile handsets.

Turkcell was also found to impose on dealers marketing Turkcell SIM cards the retail prices of these cards. These restrictions on retail prices were also seen in violation of the Competition Law.

Source: Annex 1

5.2. *New entry*

Towards the end of the 1990s the government decided to award 3 new licenses for mobile communications, this time on the GSM 1800 standard. 2 licenses were going to be sold through competitive tenders and one license was going to be given to Turk Telekom which would establish a subsidiary to operate in the mobile market.³³

³³ Even though the type of authorizations to be granted for the provision of mobile telephony services is often referred to as licenses, in the language of the Authorization Ordinance summarized in section 2.2 above, these were concession agreements.

The two licenses were to be auctioned sequentially, and the price at which the first license was sold was to act as the reserve price of the auction for the second license. The first tender was held in April 2000 and the license was won by a consortium of Is Bank, a Turkish commercial bank, and the mobile phone arm of Telecom Italia, at an unexpectedly high price of 2.5 billion US dollars. At this high reserve price, no bidder participated in the second auction and the second license was not sold.³⁴ The third license was sold to Turk Telekom at the same price paid by Is-Tim. Is-Tim started operations in March 2001 under the brand name Aria. Turk Telekom's subsidiary, Aycell, started operations in December 2001.

Tables A3 and A4 in the Appendix provide some preliminary data on the overall impact of new entry into the mobile telephony market. Table A3 shows that mobile penetration continued to increase, with the number of subscribers increasing from 16 million in 2000 to 28 million in 2003, and penetration rate increasing from 25 to 40 percent, surpassing penetration in fixed line telephony. Decline in tariffs looks relatively modest, about 17 percent between 2000 and 2002. However, new entry did little to shake the dominance of Turkcell, whose market share in terms of subscribers remained at 68 percent by the end of 2003.³⁵

One should note that Aria and Aycell's entry occurred during macroeconomically turbulent times. Turkey went through a financial crisis in November 2000, and then a deeper one in February 2001, when a currency peg was abandoned, a major devaluation occurred, resulting in a deep recession with GDP contracting by more than 9 percent in 2001. The impact of the crisis on the telecommunications sector was severe: revenues in the mobile industry actually declined from 3.5 billion USD in 2000 to 2.8 billion in 2001 and 2002. It must have been especially difficult for new entrants to capture market share in a period of declining consumer incomes.

Several aspects of the evolution of competition after new entry are particularly worth examining in some detail. The first was the strategic response of incumbents to new entry. The second was developments with respect to domestic roaming, or inability of the government or the TA to effectively impose roaming obligations on the incumbents.

Tariffs and Interconnection

New entry into an industry such as mobile telecommunications faces a number of difficulties. Consumers who have subscriptions to incumbent operators face costs in switching to new operators. Switching is especially costly if it also entails a change in the mobile phone number. Many countries have imposed number portability to reduce these costs and enhance competition, but this regulation does not yet exist in

³⁴ The second highest bid was 1.35 billion USD, see Ugur (2002). The Turkish GSM auction made it into the economics literature; Binmore and Klemperer (2001) presented it as an example of bad auction design because it allowed strategic behaviour: the winner of the first bid prevented entry into the second auction by bidding a price higher than what the license would be worth if there was going to be an additional player, and therefore, higher competition. Other people argued that Is-Tim simply made a mistake.

³⁵ At the end of 2003 Turkcell had 19 million subscribers (Turkcell 2003) out of a total of 27.9 million GSM subscribers (<http://www.tk.gov.tr/Yayin/istatistikler/istatistik/WEB-2003-4-GSM.htm>). Turkcell's market share in terms of revenues would probably be higher.

Turkey. In addition, especially in a country where uncertainty is always high, existing and potential subscribers may require a premium to choose a new entrant over the incumbent, whose track record is more established.

Another factor that makes it difficult for new operators or operators with a small subscriber base to attract new subscriptions from existing or potential subscribers is the presence of network externalities. Network externalities occur when the welfare obtained from the consumption of a good or a service increases with the number of other consumers of that good or service. In the context of the mobile industry, network externalities arise because it is often cheaper to call other subscribers of the same network (“on-net calls”) than to call people who subscribe to a different network (“off-net calls”). If on-net and off-net charges were the same, then from the point of view of the caller, calling a subscriber in her own network would be similar to calling a subscriber in the competing network, and therefore the extent of externalities in alternative networks would not be very different. As a result, a consumer would be less hesitant to choose a new network (or switch to a new network if she already has a subscription) with a small subscriber base. Conversely, when off-net calls are more expensive than on-net calls, then, everything else constant, an average end-user would prefer to subscribe to a network with the larger subscriber base.

Just before Aria entered the market in March 2001, the two incumbent mobile operators renewed their interconnection agreement and increased charges for terminating calls originating in the other operators’ network from 1.4 US cents/min to 20 US cents/min. In effect, that meant that off-net calls were going to be more costly than on-net calls. In addition, in March 2001, a few days before Aria’s entry, Turkcell launched a new calling package significantly reducing the price of on-net calls while increasing the price of off-net calls. The new package, called Biz Bize Cell, had a lower monthly subscription charge than the standard package that existed before (70 cents as opposed to 1.9 dollars).³⁶ The usage charges are shown in Table 9. Compared to the “standard” package that existed before, the new package reduced the price of on-net calls from 18 to 7 cents while off-net charges were increased from 16 to 22 US cents. Charges on off-net calls remained very high throughout the period.

Having a large subscriber base, the impact of higher mobile termination charges on Turkcell customers was not going to be very high anyway. High termination charges had a stronger impact on the new entrants. Aria and Aycell signed interconnection agreements with the incumbents at 20 cents/min. as well. These lasted until 2003, when the Access and Interconnection Ordinance came into effect and which required that existing agreements be revised in light of the ordinance. This time the parties failed to reach an agreement. The TA intervened and in September 2003 determined interconnection charges, setting termination charges for calls terminating at Aria and Aycell networks at 233,000 TL/min, which, at the prevailing exchange rate was about 17 cents/min. Termination charges for calls terminating at Turkcell and Telsim networks were set at 178,000 TL, or about 13 US cents/min. In the European Union, in 2002 the weighted average of mobile termination charges was 16 eurocents/min (19 US cents/min) for SMP operators, and about 19 eurocents/min (22.8 US cents/min) for non-SMP operators (European Commission 2003, Figure 22). Note however, that

³⁶ The monthly subscription fee of both packages actually remained more or less constant in TL terms thereafter. Because of depreciation of the TL, they decreased over time in US dollars.

the mobile terminations charges reported for Europe are peak-charges whereas a peak/off-peak distinction does not exist in Turkey. A comparison with averages of peak/off-peak rates in Europe would yield a smaller gap. It should also be noted that the variability of mobile termination charges across countries in Europe is very large (a minimum of 9.58 to a maximum 31.7 euro cents, European Commission 2003b, Figure 22). Still, compared to interconnection in the fixed line business, one can conclude that the TA has adopted a more pro-entry attitude in the mobile business. The decision of the TA is notable both for tariff levels which are lower than European averages, and for the asymmetry it creates between the incumbents and the new entrants. On both counts, the decision possibly favors the new entrants over the incumbents.³⁷

The initial reduction in Turkcell's usage charges is probably an expected reaction to anticipated increase in the number of players in the mobile telephony market. In hindsight, especially given the fact that the imposition of roaming obligations never became effective (see the discussion below), Turkcell must have realized that the threat of competition from new entry was weaker than it initially anticipated. Seeing that, in time it adjusted its usage charges upwards, increasing them to over 9 cents/min in June 2001 and to above 12 cents/min in 2001-2002. Note from Table 9 that off-net charges increased steadily, reaching levels that were higher than what existed before entry occurred. The increase in tariffs were possibly also influenced by the crisis. Increases in interest rates and large devaluations increased the company's financial expenses; the fact that Turkcell could respond by price increases without substantial loss in market share probably reflects the fact that it was not under severe competitive pressure.

For its part, Aria launched a promotional campaign between March-December 2001 where on-net and off-net calls carried the same charges: no fixed fees and usage charges of 282,400 (including VAT). In US dollars, this meant a usage charge that varied between 15-19 cents per minute excluding VAT. The package also had a quantity discount: when total calls exceeded 55 call minutes, usage charges decreased to 127,000 TL/min (7-9 cents/min). Clearly off-net calls were charged below cost since termination charges alone were 20 cents/min. At the end of the year, Aria had reached a market share of 4 percent. Throughout 2002, Aria's tariffs were between 420,000-640,000 TL/min (11-15 cents/min) and its market share stagnated between 4-5 percent. In 2003 it launched a new campaign where both on-net and off-net calls were charged the same low rate of 120-000 TL/min (6-7 cents/min) but this lasted only 3 months. Aria ended its policy of not discriminating between on-net and off-net calls in March 2003.

Why Aria did not object to high termination charges back in 2001 remains a puzzle. At the time, even though the TA had not yet issued a regulation on interconnection, law No. 4502 did endow it with the power to intervene if parties in an interconnection negotiation could not reach an agreement. Aria chose not to file a formal application. One possible explanation is that Aria thought that high termination charges would

³⁷ Whether mobile termination rates should be regulated is currently a contentious issue. There is also a discussion in the literature about whether there is any economic justification for imposing asymmetric termination charges to different operators. Some economists argue that there may be some economic justification to allow higher termination charges for calls terminating at operators with small number of subscribers, but only for a limited amount time. See for example Littlechild (2004).

imply high revenues from calls originating from rival operators.³⁸ It is also well known that high termination charges also act as a collusion device, making it possible to sustain high retail prices. However, in a largely asymmetric market, one would expect that from the perspective of the smaller network the (negative) network externality effect dominates the (positive) collusion effect.

The Competition Authority investigated whether the Turkcell and Telsim's increase in termination charges before new entry was a violation of competition law. Apparently, even though the technical analysis prepared by the investigation committee concluded that it was, the Board decided that it was not.

National Roaming³⁹

The licenses of the new entrants required that their coverage areas cover 50 percent of the population in 3 years and 90 percent in 5 years through their own investments without any support from national roaming. Is-Tim considered that it had a right to obtain roaming services from the incumbents during the transition period. This right was contained in Article 6 of Law 4502,⁴⁰ which requires "mobile telecommunication, data operators or operators of other services and infrastructure as determined by the Authority are also required to satisfy reasonable, economically proportionate and technically feasible roaming requests of other operators". In addition, article 35 of the concession agreement between Is-Tim and the TA states that an operator may sign roaming agreements with other operators and requires the regulator "to provide a necessary, sufficient and fair competitive environment since Is-Tim entered the market".⁴¹ Finally, it was also widely acknowledged in the industry that Is-Tim had received a verbal promise from the Ministry of Transport regarding roaming rights.

What is interesting in developments with respect to national roaming is that this represents a case where policy-making bodies, including the Ministry and the Telecommunications Authority, had strong intentions to make roaming services available to Is-Tim, but the incumbents were able to frustrate those intentions by using the legal system. Turkey is among the few countries where policy makers developed an explicit policy of mandatory national roaming. Given that availability of roaming services especially during the initial years of new entry is seen as an important factor that helps speed up the development of effective competition (more on this below), it is useful to examine developments in some detail.

Is-Tim held negotiations with the incumbents between November 2000 and March 2001 but an agreement could not be reached. Based on Art. 6 of Law No. 4502, Is-Tim applied to the Ministry of Transport for a resolution.⁴² In May 4, 2001 the TA told the parties to reach an agreement within 4 weeks or else the TA was going to determine the terms and conditions of an agreement. The parties failed again and in

³⁸ This was suggested by a former official of Aria.

³⁹ Dutz, Us and Yilmaz (2003) provides an account of developments with respect to Aria's efforts to obtain roaming services. Another source that provides detailed information is the decision of the Competition Authority, Decision no. 03-40/432-186.

⁴⁰ Alternatively, Art. 10 of Law 406, as amended by Law No. 4502.

⁴¹ Quoted in Dutz, Us and Yilmaz (2003).

⁴² In the meantime, again based on the same article, the TA had issued in September 2000 Principles and Procedures to be followed in Mediations Regarding Disagreements on National Roaming. See Box 2 above.

October 2001, as required by Law No. 4502, the TA determined the terms and conditions of the roaming agreement and asked the parties to accept these terms or else reach an agreement on their own terms by November 2001. Is-Tim announced that it accepted the terms and conditions determined by the TA. Turkcell and Telsim filed applications with the court and obtained preliminary injunction decisions on the terms and conditions. Turkcell then applied for international arbitration at the International Chamber of Commerce's (ICC) International Court of Arbitration with the request that Turkcell had no obligation to sign a roaming agreement with the terms and conditions determined by the TA. Telsim also applied for international arbitration. In March 2002 the TA issued the Ordinance on Principles and Procedures for Making Roaming Agreements and asked again Turkcell to sign a roaming agreement with Is-Tim in 30 days. Turkcell again obtained injunctions and applied for international arbitration for a second time.

In March 2003 Is-Tim filed a lawsuit with the ICC against the TA asking for about 3 billion USD in damages because promised roaming rights had not been made available. The CEO of TIM was quoted as saying that if the regulatory framework regarding roaming remains as it is, TIM might consider withdrawing from Turkey. The lawsuit was subsequently withdrawn when, following negotiations between the Italian Prime Minister Berlusconi and the Turkish Prime Minister Erdogan, in June 2003 it was announced that Is-Tim and Aycell would merge to form a new company with TIM and Turk Telekom holding ownership of 40 percent each and Is-Bank holding the remaining 20 percent. The new company, TT&TIM was established in February 2004; in June 2004 the company created Avea, a new brand name under which services would be provided.⁴³

In the meantime, Is-Tim filed a complaint with the Competition Authority in December 2001 claiming that Turkcell and Telsim had abused their dominant position by refusing to provide roaming services. While the main legal issue in the developments described above was whether the TA had the authority to impose roaming obligations (presumably which were not specified in the licenses Turkcell and Telsim had obtained in 1998), here the issue was whether refusal to provide roaming was a violation of Competition Law. The Competition Board decided that the standing injunctions did not prevent investigating the roaming issue under the competition act and decided to launch an investigation. The Authority concluded the investigation a year and a half later, in June 2003 and found both Turkcell and Telsim in violation of the Competition Law, fined Turkcell USD 15.4 million and Telsim USD 6.1 million (Box 4).⁴⁴

Box 4: The essential facility doctrine and mobile infrastructure: the roaming case

⁴³ One wonders in hindsight what the Ministry or the TA could have done differently to circumvent the incumbents' legal tactics. Given the nature of the judicial system, possibly not much. One official from the TA suggested that availability of judges more knowledgeable about regulatory issues could have changed the course of events. One possible remedy is to make Telecommunications Board decisions appealable only at Council of State, the high administrative court, rather than at regular courts, which is currently the case.

⁴⁴ In the meantime, the International Court of Arbitration rejected Turkcell's application (Radikal, December 17 2003).

In its roaming Decision, the Competition Board first investigated whether Turkcell and Telsim have joint dominance over the GSM infrastructure market. Joint dominance is defined as ability of operators to behave as a single operator by coordinating their actions. The Board then argued that Turkcell and Telsim had effectively refused providing roaming services and that this refusal amounted to an abuse of dominant position by denying access to an essential facility.

Normally the essential facility argument is used for cases where the competing firm lacks a realistic ability to duplicate a facility that it needs to provide its services. In the roaming case Is-TIM eventually had to duplicate facilities in question by its license condition. Hence the Board argument had to be that full roll out of the facility would take time and that the passage of time would make it more difficult for Is-TIM to attract subscribers. The Board listed technical, legal and economic difficulties that would prohibit the installation of infrastructure in a short period of time (say one year). Although not always made in the most clear and economically consistent manner (see the discussion in Annex 2), the argument was that delays in attaining full coverage would seriously increase the cost of attracting subscribers, and the resulting delay in revenues would jeopardize the viability of the company and reduce its ability to compete with the incumbents.

Source: Annex 2.

The Competition Board's decision on roaming arrangements will have little effect on the development of competition in the mobile telephone services market. With the merger of Aria and Aycell, roaming has become a non-issue and it will remain a non-issue until further new entry, which is not likely to take place in the near future.

While one's initial reaction to the reduction in the number of players is that competition would be affected negatively, the reverse may be true in the Turkish case, if the newly established company has better chances of acquiring market share, thereby eroding the dominance of Turkcell.⁴⁵

Telsim was recently taken over by the Turkish Deposit Insurance Fund (TDIF). The TDIF intervened and took over Imar Bank, a bank owned by the Uzan Family that also owns Telsim. There were allegations of corruption as a result all holdings of the Bank were taken over by the TDIF. It is expected that the Telsim will be privatized once the sale of Turk Telekom is accomplished.

One important policy problem that possibly hinders the expansion of mobile calls is taxation. Currently taxes on mobile calls include a value added tax of 18 percent and a special consumption tax of 25 percent. The special consumption tax was levied after the earthquake in 1999 as a special measure but has remained intact since then.

Table A4 provides some international comparisons of mobile telephone charges as of August 2004, obtained from OECD (2004). A low user consumer is assumed to make 25 calls per month and a high user is assumed to make 150 calls per month. There are wide variations among OECD countries. The data for Turkey refer to a Turkcell package. It seems charges for a low user in Turkey are broadly in line with averages

⁴⁵ McKinsey Global Institute (2003) concludes that the establishments of separate networks by each mobile operator would substantially reduce the productivity of capital in that segment. The merger of Aria and Aycell may result in significant productivity gains in that respect.

among OECD countries. For high users, Turkey is among more expensive countries. This might mean that Turkcell provides less steep discounts to high volume users.⁴⁶

6. Internet and Broadband

Private ISPs have been operating since the second half of the 1990s, and Turk Telekom's internet subsidiary, TTNNet, was launched in 1998. TTNNet both operates the internet backbone and provides internet access services (dial-up, ADSL as well as Cable TV, which is now being separated from TTAS, see below) to end users. As of January 2005, there are 114 ISPs who have obtained general authorizations from the TA. Table 10 shows that internet penetration has increased substantially since the end of the 1990s. However, it is still very low in international comparison. Table 11 presents two indicators of internet penetration: Internet subscribers per 100 inhabitants and internet users per 100 inhabitants. The second indicator presumably measures the presence of public internet access points, such as internet cafes. It is interesting to note that in international comparisons Turkey fares better according to the first measure than the second measure, pointing to a relative scarcity of public places where internet can be accessed. For example, Turkey has a higher proportion of internet subscribers than Bulgaria, Romania, Argentina and Mexico but the proportion of internet users is lower than all of these countries.

Internet access costs in Turkey are cheaper than many other countries, a point already made in several reports including OECD (2002b), Basci et. al. (2003). Basci et. al report that connection prices are below one half of the EU average and less than a quarter of (what were in 2002) accession countries.⁴⁷ By contrast, PC use in Turkey is lower than most accession countries, possibly an important factor behind low internet penetration rates mentioned above. Generally for regular dial-up services for residential use TTNNet tariffs are known to be lower than those of independent ISPs, and it may be that it is TTNNet tariffs that are reflected in international statistics. In fact, it is believed that most of active ISPs operate in the business segment of the internet market because it is difficult to compete with TTNNet tariffs. For residential users low internet charges in Turkey may also reflect the existence of competition in the sector since the 1990s.

There are significant competition issues in the internet markets. The most important competition investigation was launched in January 2001. At issue was whether TTAS abused its dominant position in the market for infrastructure needed for the provision of internet services and in the market for internet services itself. It involved complaints about refusal to supply infrastructure elements, especially for broadband internet services, raising lease line tariffs applied to competitors of TTNNet in a discriminatory manner, below-cost retail pricing by TTNNet, appropriating from ISPs information that should be treated as commercial secrets, and excessive hikes in royalties imposed on operators engaged in data conveyance through satellite earth stations. The Competition Board reached a decision on October 2002. The

⁴⁶ OECD (2004) also provides PPP-adjusted tariffs. I have preferred to use non-adjusted data because it is likely that labour input is less likely to be a major cost element in mobile networks and therefore most inputs are possibly bought at international prices.

⁴⁷ Data used comes from eEurope+ 2003 Progress Report (June 2002).

interesting feature of the Board decision is that it deviated substantially from the findings and the proposals contained in the report prepared by the investigation committee. While the investigation committee concluded that TTAS was in violation of competition law in most of the allegations, the Board took a more lenient stand. This was a complicated case, involving activities in a number of related markets and a summary is provided in Annex 3.

The main ingredients of the Board decision are as follows: The Board decided that TTAS abused its dominant position by keeping tariffs charged to both residential and (broadband) corporate users of internet services below the cost of lines it was leasing to ISPs. Similarly, the Board found that increases TTAS imposed in royalties it collected from satellite operators was an attempt to restrict competition in the long distance data conveyance business. However, while the investigation committee interpreted TTAS' refusal to open up to ISPs broadband access through ADSL and cable modem technologies as an infringement, the Board decided that this was not the case. While the language of the decision on these specific issues of why the Board disagreed with the Rapporteurs is quite vague and terse, the main arguments seem to be that a) broadband access through cable modem and ADSL were limited anyways, and b) TTAS seemed to have plans to provide access to ISPs in the future.

It seems that the Board refrained from taking a too aggressive stand against TTAS except in cases where violations were very visible. The decision effectively allowed TTAS to prevent competition in broadband access until it was ready to take the lead and maintain its dominance (see below).⁴⁸ In a sense, the telecommunications sector has missed an opportunity to develop the broadband market, since there were even at the time a number of ISPs eager to invest in the broadband business. The question still remains what would have happened if the Board had supported the conclusions of the investigation committee. Specifically, what sort of remedies could the Board have proposed? Take for example the case of broadband access over the fixed line network. One solution could be that the Board could have requested TTAS to open its network to ISPs for broadband access and could have asked the TA to specify the specific modalities of ISP entry. The TA, in turn could have developed a plan for quick entry through bitstream access eventually leading to unbundled access to the local loop.⁴⁹ This is essentially what has been happening in the second half of 2004, except that in the meantime two years have been lost. It seems that the low level of cooperation between the TA and the CA was not conducive to such team play.

Turkey is seriously delayed in developing broadband access. Broadband is a rapidly expanding medium around the world. Table 11 shows that total broadband penetration (cable modem plus DSL subscribers divided by population) in Turkey is lower than the comparators in central and eastern Europe, and Latin America, let

⁴⁸ Incidentally, The ISPs have challenged the decision and appealed to the Council of State, the higher administrative court

⁴⁹ Under bitstream access, the copper wire leading to end-user premises is operated by the incumbent. The incumbent provides transmission capacity in such a way that allows the entrant to control the technical characteristics of the service offered to the end-user and to offer its own value added services. Under full-unbundled access to the local loop the competing operator rents the access line leading to end-user's premises and has complete control over it. Under shared access, the competing operator uses only the non-voice frequency band of the local loop to provide high-speed data services to the end-customer.

alone western Europe. There has been a push to increase ADSL availability in 2004, but not without serious competition concerns.

In 2003 Turk Telekom decided to install 60,000 ADSL ports. ISPs wanted to participate in the market and negotiated with TTAS to open up the ADSL market. However, no agreement could be reached with Turk Telekom. The Competition Authority decided that Turk Telekom should suspend acquiring new ADSL subscriptions until the Telecommunications Authority would come up with a regulation on how the ADSL ports would be made available to the independent ISPs. TA came up with a rule that 5,000 of the ports would be made available to ISPs and allocated among them according to the number of subscriptions. However, the arrangement only allowed for resale by ISPs, with a margin (that is the difference between the retail tariff TTAS charges to consumers and the wholesale price at which it provides the port to ISPs) of 18 percent. The ISP community was quite unhappy with both limited scope of participation that this arrangement allowed (they wanted bitstream access and eventually unbundled access to the local loop) and the allowed margin. As of November 2004, only 11 ISPs ended up entering into resale arrangements. The active number of ports held by independent ISPs was estimated to be around 1,000.⁵⁰

TTAS then invested in 200,000 additional ADSL ports. Some ISP asked the TA and the CA to ask TTAS to suspend new subscriptions again, until the TA would come up with a regulation regarding the last batch of ADSL ports. Initially neither the TA nor the CA took any action. The Competition Authority's logic was that it did not want to get involved in what seemed increasingly like an issue of ex-ante regulation. In addition, the CA did not want to challenge regulations issued by the TA (a reflection, perhaps, of the fact that in general Competition Authority is not authorized to challenge any administrative decision).

In October 2004 the Board of the TA came up with a new decision. This time, in addition to the resale arrangement with an 18% margin, it also opened up the possibility of bitstream access with margins amounting to 40-50 percent. This is potentially an important step. For independent operators bitstream access can be a stepping stone into the more complicated entry type of unbundled access to the local loop and can provide a useful learning experience. However, Turk Telekom has filed a suit at an administrative court against the decision, claiming that the TA is authorized to approve tariffs but not to set them.

Local loop unbundling (LLU), whereby the fixed line incumbent leases to competitors individual components of the local loop is increasingly seen as an effective means through which competition can be developed in local access. This is particularly important in the high-speed internet market, especially with the advent of ADSL technology which converts the traditional copper wire telephone lines to high speed internet lines. The TA issued a Communiqué on unbundled access to the local loop in July 2004, which is highly consistent with the EU approach. However, implementation of LLU will only start in July 2005.

⁵⁰ Later in May 2005, it was reported that Superonline, an independent ISP, reached an agreement with TT to resell 100,000 ports. See <http://turk.internet.com/haber/yazigoster.php3?yaziid=12728>

Note that the CA's position in the ADSL case reflects a tendency with respect to competition problems in areas that are being regulated by the TA, which is to refrain from taking positions that may look as intrusions into TA's domain of Authority. The Competition Authority took a similar stand in another complaint, filed this time by another ISP association in 2003, on ISDN access tariffs. The association complained that the increase of about 50% in eight months could not be justified by increases in TTAS costs, that TTAS did not execute a similar increase in retail internet prices, therefore putting ISPs into a margin squeeze. The CA responded that TTAS' ISDN tariffs were being regulated through the price cap imposed by TA, and the price changes that led to the complaint did not violate the cap. Therefore ISDN tariffs were not subject to examination under the competition law.⁵¹ This issue will be revisited in section 8 below.

7. Cable TV

Cable TV is broadly seen as an important potential competitor to the traditional fixed network. While originally in most countries the cable TV infrastructure was rolled out to provide improved TV reception, and transmission was uni-directional (from the source of programming to the TV set), in many countries infrastructure was improved and the cable TV network has become an important potential competitor to the legacy network and it has become an important medium through which broadband internet and voice services can be provided.

TTAS started cable TV (CATV) broadcasting in 1989.⁵² It invested in traditional unidirectional CATV infrastructure in 9 cities until 1994 after which investments were shelved because of tight budgetary conditions. In 1997 TTAS made revenue agreements to build and operate infrastructure in 11 additional cities, this time for higher bandwidth cables that could be used for two-way traffic of data and voice. In 1998 the operation of CATV in the original nine cities were also turned into revenue sharing arrangements. The agreements were for 10 years. Investments, maintenance and repair of the network were carried out by the operators whereas content provision and subscriber services were done by TTAS. The agreements stipulated that at the end of the 10 years the network was going to be taken over by TTAS.

CATV penetration is still very low. As of 2003 about 15 percent of all households had CATV access available but the percentage of households that had a subscription to CATV was only 6 percent (about 1 million subscriptions). The number of cable modem subscribers was about 22.5 thousand.

Internet services through cable modem are only provided by TTAS to TNet subscribers. Subscriptions are low, about 22 thousand in 2003. Neither TTAS nor the operators seem to have an incentive to invest in the cable modem technology. TTAS is now oriented towards the ADSL technology. The operators do not want to invest in

⁵¹ Competition Board Decision No. 04-01/26-8, January 2004. The Board later took a similar stand in response to a new complaint by ISPs on leased line tariffs; see Competition Board Decision No. 04-52/717-181, August 2004.

⁵² This section relies heavily on Decdeli (2004) and Competition Board decision No. 2003-2-13.

infrastructure that they are going to hand over to TTAS when the agreements are terminated (Decdeli, 2004, p. 124). TTAS has been the only licensed cable operator. There are six operators who provide CATV and cable modem services through revenue agreements with TTAS. TA has decided to provide licenses for “cable platform operators” that would be able to provide broadcasting, voice and internet services over the cable TV network or over fiber-optic cables. However, as indicated above in section 3, no licenses have been issued yet because the Cabinet of Ministers has not yet determined minimum license fees.

Both the TA and the CA have asked TTAS to open up its cable network to independent ISPs but have not been able to force TTAS to do so. In February 2005, the CA concluded an investigation into TTAS refusal to allow ISPs make use of the cable TV infrastructure and found TTAS in abuse of its dominant position.

Recently there has been a controversy over whether CATV should be separated from TTAS before TTAS is privatized. The Privatization Administration has to pre-notify and obtain the opinion of the Competition Authority before the tender conditions of a privatization are announced (if the market share of the enterprise is above 20%), and obtain an authorization from the TA in order to validate a sale (if the acquiring parties’ market share exceeds 25%). On the basis of its authority to approve tender conditions set by the Privatization Administration, the Competition Authority has provided the opinion that the Cable TV infrastructure, including all rights to own and operate it, should be organized as a separate legal entity within a year of transfer of ownership of Turk Telekom and that the control of this entity should be divested.⁵³ While the TA has not released to the public a written opinion on the issue, the president of the TA has been reported to argue that divestiture of cable TV infrastructure is not necessary, that legal separation was sufficient and that the TA could address any anti-competitive concerns.⁵⁴ The Minister of Transport finally stated to the press that the privatization of Turk Telekom had to be done according to the opinion of the Competition Authority to prevent legal problems later.⁵⁵

The cable TV network was subsequently placed under the state owned satellite company, Turksat. There is no public announcement yet about whether it is going to be privatized. There are also potential legal uncertainties about the exact boundaries and ownership of the cable TV network. These uncertainties, combined with the delays in issuing new licenses prevent the emergence of an potential source of competition to the fixed line network.

8. Assessment: The regulatory framework and the investment environment

Most investments in the telecommunications industry are sunk costs. In addition, profitability of investments by new entrants are endangered by the anti-competitive behaviour of incumbents. Hence the quality of the investment environment depends crucially on the existence of a regulatory framework that removes entry barriers and

⁵³ “The prior opinion of the Competition Board on the Privatization of Turk Telekom,” at <http://www.rekabet.gov.tr/word/gorus/telekom.doc>

⁵⁴ Interview in Hurriyet, 31.10.2004.

⁵⁵ After the statement of the Minister, the President of TA was also quoted as stating that the Competition Authority had primary authority on the matter. [Turk.internet.com](http://www.turkinternet.com), November 11, 2004.

curtails anti-competitive behaviour by incumbents. A good regulatory framework would be guided by clear policy objectives, would design the necessary regulations in a competent manner and implement these regulations effectively, thereby minimizing regulatory uncertainty. Overall, it would achieve the stated objective of developing competition in the telecommunications industry.

The review presented in the previous sections suggests that the regulatory framework in Turkey has not lived up to these standards. Since the termination of the monopoly rights of TTAS, the weaknesses in the regulatory framework have manifested themselves in the slow pace of development of competition, and a large amount of uncertainty about whether regulation will be effective in curbing anti-competitive behaviour in the future. In the rest of this section, these weaknesses will be examined and some recommendations will be provided on how to resolve them.

8.1. Regulatory delays, their reasons and costs

The analysis in the preceding sections suggests that competition, investment and growth in the telecommunications industry would benefit substantially from improvements in the regulatory environment. The pace of change is slow and at this pace it may be difficult for the Turkish telecommunications industry to catch up with global developments. Hence, while the overall orientation of the regulatory framework is in the right direction, change is too slow from the perspective of potential and actual new entrants.

As of July 2005, entry into the local access business is still not possible, a year and a half after monopoly rights of Turk Telekom was supposed to have ended, and five years after the liberalizing legislation was enacted. Competition in the long distance market has been slowed down because of delays in awarding licenses, reaching interconnection agreements, legal challenges and inability to force TTAS to make the necessary technical preparations. Similarly, the development of broadband access has been delayed even though the ISP community was apparently willing to undertake investments in that field even two years ago. In all three cases delays in regulatory action played a crucial role in slowing down (or preventing) the development of competition as well as new products. These delays partly reflect TA's capacity constraints (which the TA may not be able to relax in the short run) but also its preferences.

Delays in putting out the necessary secondary legislation that would allow new entry and investments are partly explained by the fact that the institutional capacity of the TA to act as a credible and competent regulatory authority was constrained right from the start. First of all, with only two and a half years to full liberalization, the TA had too little time to prepare the necessary secondary legislation.⁵⁶ Second, the TA was severely restricted in terms of human resources. Upon its formation about 350 civil servants from the former General Directorate of Radiocommunication, most of whom were frequency management experts with no background or expertise in regulatory issues, were transferred to the TA. Hence the regulator was stuck with an obligation to

⁵⁶ This point can be better appreciated if one also remembers that at the time telecommunications regulation was a little known subject both within the bureaucracy and the academia. Hence, in order to lay down the necessary regulatory framework, the staff of the TA first was going to have to learn it themselves.

employ people not of its choosing. Indeed, the main source of fresh intellectual capacity of the TA was going to be young university graduates that were going to be recruited over the years.⁵⁷

However, the slow pace of competition is not only due to exogenous factors that limit TA's capacity but also due to conscious regulatory choices. The licensing regime is too restrictive, reflecting in part TA's concern about excessive and low quality entry, as was discussed above. The apparent unwillingness to allow entry into the local access business is possibly a conscious choice as well reflecting a desire not to reduce Turk Telekom's privatization value (see below).⁵⁸

The TA's concern about excessive and low quality entry, as well as procrastination out of concern that in the presence of irreversibilities and rigidities delaying decisions may be optimal, is understandable. However, recent experience suggests that the TA may have an insufficient appreciation of welfare costs of delays, insufficient entry and competition. These costs include at least the following: a) The social surplus foregone because of delayed competition and persistence of high market power (the static welfare cost of market power); b) passage of time aggravates the consequences of network externalities and switching costs (free consumers will become locked in incumbents' networks) and therefore creates additional entry barriers that make development of competition more difficult in the future; this creates an additional loss of welfare, and c) additional welfare is lost because delays increase perceptions of regulatory risk and investors will require higher risk premiums or higher returns to enter the sector in the future; this will reduce future entry and investments. As things stand right now, the danger is that the pace of development of competition is much too slow rather than too fast.

Of course, delays have also been caused by the resistance of the incumbent operator, Türk Telekom. It seems that so far the management of Türk Telekom has seen liberalization as a zero-sum game. The point is that the regulatory framework has not been able to curtail the delaying tactics of Türk Telekom. To the contrary, some of the components of the regime have actually helped TTAS delaying tactics.

8.2. *(Lack of) political ownership of the competitive agenda*

Another important factor that explains the delays in the development of a competitive environment conducive to investments is the attitude of the Ministry. The Ministry has often been protective of Turk Telekom, possibly because of the privatization ahead. The fact that the main purpose of privatization should not be to raise revenues but to create a viable, dynamic and competitive industry is an idea that has wide acceptance in Turkey, but the meaning of this dictum does not seem to be well

⁵⁷ Entry-level recruitment is done through an entrance exam, assuring that high quality people are attracted at the junior level. As of November 2004, out of total staff of 450 (including those employed in regional offices) only 73 were "deputy experts" and "experts", the code name for higher quality entry level civil servants (differentiated by the tougher exam they take) in the Turkish civil service tradition.

⁵⁸ It may also have to do with the fact that there is insufficient preparation in other fields that would require work to make facilities-based entry at the local level possible, most importantly rights of way.

understood by the government.⁵⁹ In the short run, there is a clear conflict between raising revenues and enhancing competition since as the prospective monopoly rents of Turk Telekom will be reduced by enhanced competition, so will its sale price. The government is probably also worried that a low sale price will generate an outcry by the opposition. However, this expectation that delay in competition would enhance the sale price is possibly wrong: If there is a widespread perception that regulations will be tightened (in the sense of encouraging competition) after privatization – a perception that does seem to exist-, then the sale price will reflect not the current but the future expected level of competition. The most important impact of delaying competition is increased regulatory uncertainty.

The government's approach to privatization seems to reflect a more general lack of appreciation of the importance of liberalization and competition in the telecommunications industry. Even though the Ministry (and the Minister) of Transport frequently underscores a commitment to liberalization, it is not clear that what this commitment should entail is clearly appreciated. This is unfortunate because experience so far strongly suggests that lack of a strong endorsement of competition by the ministry is a serious impediment to effective liberalization. Absent such endorsement, the impact of efforts by the sector regulator is going to be limited. Conversely, a strong commitment by the ministry is likely to create an environment that will be much more conducive to expansion, new entry and growth. In particular, had the ministry displayed a stronger ownership of the competitive agenda, anti-competitive actions of Türk Telekom would have been better contained.

At the very least, it can be said that from the perspective of the industry, policy preferences of the ministry are ambiguous. More likely, the ministry needs to be better convinced of the importance of competition, investment and growth in the telecommunications industry, and what it takes to achieve these goals..

8.3. Competition enforcement and their relation to ex-ante regulations

The handling of competition cases in the telecommunications industry can also be improved. In particular, analysis of the roaming decision suggests that it could benefit from tighter economic arguments (see Annex 2). In the ISP case the Board decision deviates from the economic analysis presented in the investigation report; this, of course, does not by itself reflect a flaw. However, upon examination of reasons provided by the Board, one gets the feeling that the Board simply did not want to be tough towards the incumbent.

The relation between the Telecommunications Authority and Competition Authority is too strained and there is wide perception of “a bureaucratic war of authority”. The welfare cost of this lack of cooperation is likely to be very high, possibly much higher than what the regulators perceive. The developments in the internet/broadband market discussed above strongly suggests that a more collegial atmosphere between the two agencies could have resulted in a faster development of the broadband market.

⁵⁹ The fact that privatisation without competition provides lower social benefits has long been known by policy makers. Now there is also cross-country empirical evidence to support this claim. See, for example, Fink et. al (2002).

Of course there is more to the relation between the two agencies than the degree of collegiality. There are substantial issues involved. The division of authority between the two agencies should be clarified. As mentioned above at the end of section 6, the evolving tendency of the CA is to refrain from investigating activities that are regulated by the TA. This is understandable, especially given the fact that administrative decisions are currently outside the domain of the Competition Law. It would be a pity, however, if this tendency prevents the Competition Authority from voicing its opinion on significant competition-related consequences of the Telecommunications Authority (or vice versa). It is necessary to find ways to make *ex-ante* and *ex-post* enforcement better complement each other. The problem in the current state of affairs is that the environment is not conducive to hold a productive discussion on how best to structure the relation between the two agencies so as to maximize the benefits of competition in the industry. What should be determined clearly is which agency has the final word in cases where differences of opinion persist. In any case, further thought and good intentions are needed to better structure the relations between the two agencies.⁶⁰

8.4. *Completing and improving the regulatory framework*

Besides narrowing the gap between the current regulations and the EU framework (such as in licensing) the TA faces the important task of completing the regulatory framework. Important steps in that regard include making effective cost accounting and accounting separation obligations on operators with SMP, successfully implementing the regulation on unbundled access to the local loop, imposing number portability, resolving issues of rights of way, and providing entry into the cable network business. Most of these are covered under the 2005 work plan of the TA. The EU framework is going to present a template that the TA will have to follow. As always, actual outcomes will depend not only on the adoption of these regulations, but also on how they are implemented.

Overall, it can be said that the price control and interconnection regimes of the regulatory framework in Turkey are not too distant from those of the EU. However, the licensing regime is cumbersome, costly and does not facilitate entry. Basing the licensing regime over narrowly defined activities also create legal regulatory uncertainty and creates possibilities for frivolous legal challenges. Moving to a regime of general authorisations and limiting licenses to the use of scarce resources would greatly improve entry conditions.

8.5. *Accountability and transparency*

Regulatory agencies may face pressures and incentives that prevent them from taking socially optimal decisions. Regulatory quality also depends on the extent to which regulators are accountable to the public. Enhancing accountability reduces regulatory discretion, provides regulators with instruments to resist political, administrative and industrial pressure groups, reduces the risk of mistakes and limits regulators' ability to use their authority in ways that would deviate from maximizing social welfare. There is much that can be done to enhance the transparency and accountability of regulatory agencies.

⁶⁰ It could be added that recent tendency seems to reflect a movement towards a lessening of the gap between the two authorities and a more shared understanding towards the respective roles of *ex-ante* and *ex-post* enforcement. Still, further clarification of the legal background would be welcome.

Law No. 4502 requires the TA to publish draft regulations to solicit opinions before finalizing them. That makes the TA more transparent than many other administrative agencies. However, transparency and accountability can still be much improved. First, while regulations and communiqués are published in the official gazette, it is not compulsory to make Board decisions public. The Board is only obliged to inform the interested parties. Second, the Board is not obliged to summarize or make reference to technical reports prepared by its staff; technical reports need not be made public either. This is a serious omission in the Turkish context. In most instances, when the Board is faced with a decision, it asks the relevant department in the Authority to prepare a consultative report with recommendations, to reflect the technical opinions of the staff. It is often the case that, compared to board members, staff often are less affected by influence exerted by politicians (“patronage”) or companies active in the telecommunications industry (“regulatory capture”) and can often adopt a more aggressive and pro-competitive outlook than board members. The point made here is not that political considerations should have no effect on Board decisions, indeed one may think of circumstances where they should. Rather, the point is that by making the technical analysis transparent, observers would have the opportunity to make an evaluation about whether the Board is justified in deviating from the recommendations made by the technical staff.

Third, neither board decisions, nor the draft secondary legislation, nor regulations in their final form need to be supported by “justifications”. In other words when the Authority drafts a regulation, it does not make it clear why the regulation was drafted in that particular way, or why other options were not entertained. This limits the value added of the discussion around draft regulation because comments are sent without a clear understanding of the main concern of the regulator. In addition, it allows the Board a higher degree of discretion and seriously reduces its accountability. Conversely, obliging the Board to provide the reasoning behind decisions and regulations would impose a tighter discipline on Board members, by making their decisions more accountable.

By its founding law, the Competition Authority is more transparent. It has to publish all board decisions, and, the decisions have to include both a full “justification” and a summary of the reports prepared by the lower level staff (the “opinion of the rapporteurs” or the investigation committee). Examples of differences between investigation reports and board decisions were given in the previous sections. However, even here there is room for improvement: There is no reason why the full report of the investigation committee should not be made public.

The benefit of transparency does not only lie in improving regulatory decision-making. It has a direct positive effect on investment because it makes it more difficult and costly for the regulator to behave in an arbitrary way, in other words, it increases the cost (on the regulator) of regulatory opportunism. There is also a second effect on investment: Transparency reduces uncertainty, and therefore encourages investment, by providing investors a better sense of the priorities and perceptions of the regulator. The current practice of publication of annual work plans by the TA helps improve transparency and reduce uncertainty.

The following should be made public and available on the web sites of both agencies: the opinions prepared by the departments and investigation committees (i.e. studies that precede Board decisions), all Board decisions (perhaps except for those that are purely administrative), opinions that the agencies ask from each other during investigations, comments that agencies receive before they finalize regulations. In addition, all regulatory interventions should be accompanied by “justifications”.

9. Conclusion

This paper has examined the evolution of telecommunications industry in Turkey. In particular, it has examined how the interplay between liberalization, competition policy, regulation and privatization has impacted upon the extent of competition, investment and growth.

The experience with liberalization so far shows that Turkey confirms what now has become conventional wisdom, namely, that the existence of an effective regulatory framework, in particular of *ex-ante* regulations imposed on incumbents, is essential to create an environment that is conducive investment, growth and competitiveness in telecommunications. The regulatory framework has to allow and facilitate entry on the one hand, and prevent foreclosure on the other.

The analysis presented in the paper suggests that the regulatory framework in Turkey overall is evolving in the right direction but there are deficiencies. Regarding *ex-ante* regulations, the paper has argued that the overall approach possibly overestimates the welfare cost of excessive entry and underestimates the cost of restricted or delayed entry. The overall policy orientation is influenced by the prospective privatization of Turk Telekom, and seems to be more preoccupied by privatization revenues rather than competition and long term growth. Regarding *ex-post* enforcement of competition law, the paper has argued that some decisions (or parts of decisions) of the CA rely on insufficiently rigorous analysis of welfare costs of foreclosure.

Given low penetration rates in fixed and mobile voice telephony and given the fact that broadband development is still in its infancy, it is likely that improvements in the regulatory regime in the telecommunications industry would have a substantial effect on investment and growth. New investments in particular would require a less restrictive approach towards entry, and more assurance that anti-competitive practices by incumbents will be effectively curtailed by both *ex-ante* regulations and enforcement of competition law.

Improvements in the regulatory environment require more effective collaboration between the TA and the CA. Given the prevalent culture, the division of authority between the two agencies needs to be clarified. However, that should not prevent the two authorities from extensive dialogue during design of regulations and investigations about anti-competitive acts. Competition in the telecommunications industry is still in its infancy, and while the EU Framework provides a benchmark, there is ample room for discretion during implementation; hence much can be gained from a lively exchange of ideas.

10. Postscript: The privatization of Türk Telekom

On July 1, 2005 a tender was held for the sale of 55 percent of shares of Türk Telekom. The highest bid of USD 6.55 billion was provided by Oger Telecom, a subsidiary of Saudi Oger. Telecom Italia is reported to be junior partner in the venture. The sale has been approved by the Cabinet of Ministers and the Competition Authority. Türk Telekom's Authorization Agreement will be replaced by a concession on which the Council of State will provide an opinion. There have been a series of potential legal challenges to the sale by groups who are opposed to the privatization of Türk Telekom.

The privatization of majority shares of Türk Telekom can generate a significant change in the regulatory and investment environment in the Turkish telecommunications industry, if it induces the government to take a more aggressive or pro-active attitude in promoting competition. Assuming that the privatization is successfully finalized, the hope is that with privatization completed and with state ownership reduced to a minority stake, the government will have incentives to be more vigilant in preventing the incumbent's anti-competitive practices and implementing the necessary regulatory framework to enable entry and new investments. The danger is that, if the current attitude of the government continues, a de-facto public monopoly will be replaced by a de-facto private monopoly, resulting in serious losses in social welfare.

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Annex 1: Vertical restraints and exclusive agreements in mobile telephony and handset markets⁶¹

In January 2000 the Competition Board launched an investigation against Turkcell. The investigation was prompted by complaints from Basari Elektronik, a distributor of Nokia mobile handsets, and Telsim, Turkcell's competitor. Telsim's complaint was that Turkcell had exclusive arrangements with distributors of certain popular handsets (especially Ericsson and Panasonic) that prevented these distributors from marketing Telsim subscriber lines and SIM cards, thereby making it difficult for Telsim to attract subscribers. Basari's complaint was that Turkcell's dealings with handset distributors were discriminatory. Turkcell was granting a subsidy called "distributor support premium" (provision of Turkcell subscriber lines and SIM cards free of charge) to handset distributors, including to Basari. However, once Basari's share in the market for mobile handsets increased, Turkcell stopped granting the subsidy to Basari while continuing to grant it to other distributors, in particular to KVK, a distributor of Ericsson handsets in which Turkcell had ownership interests. Therefore, Basari complained, Turkcell had abused its dominant position by engaging in discrimination. The Board's decision on the case was issued in July 2001. Turkcell was found in violation of both Article 4 (which prohibits agreements that restrain competition) and Article 6 (which prohibits abuse of dominant position) of the Competition Law.

Agreements that restrain competition

Turkcell was mainly working with four handset distributors (authorized distributors for Ericsson, Nokia, Panasonic, Siemens and Alcatel). Turkcell sold SIM cards to the distributors, the distributors combined these cards with handsets and sent them to dealers who in turn sold them to end-users. In most cases, these dealers also acted as centers of activation of subscriber lines (these were called Turkcell Activation Centers, TAC). There were about 600 of such centers. At the time of the investigation, Turkcell was also working with 6500 lower level dealers; starting in 2000, about 4000 of these dealers became subscriber points (SPs, points where subscribers are registered) that operated in connection to a TAC. The four distributor companies realized 81 percent of Turkcell's sales of subscriber lines and SIM cards. Hence, most dealers of Turkcell subscriptions were also acting as dealers of handset distributors. Moreover, handsets and subscriptions were sold as bundles, a practice that apparently developed in Turkey in order to prevent non-standard or incompatible handsets.

Almost all of Turkcell's subscriptions and SIM cards were sold during "campaigns". Examination of campaign protocols revealed that during these campaigns the distributors were not allowed to launch campaigns with the competing operator, Telsim. In addition, Turkcell's agreements with the TACs stipulated that TACs were not allowed to sell subscriber lines or any other products of Telsim. There were no such exclusivity clauses in agreements with SPs, however, the Board concluded that in practice, these were also working on an exclusive basis, in other words, they were not able to register subscribers for Telsim. Note that the competition issue the Board

⁶¹ Source: Competition Board Decision No: 01-35/347-95

raised was not the bundling of handsets with subscriber lines, but the practice of excluding Telsim subscriber lines.

The Board argued that because Turkcell had a large market share, distributors were compelled to accept the exclusivity clauses that Turkcell imposed, even though from a commercial point of view they probably would have preferred to have no restrictions. Based on these facts, the Board concluded that these exclusive arrangements made it impossible to sell these specific brands of handsets with Telsim subscriber lines. Hence these agreements were seen as restrictive practices that violated Article 4 of the Competition Law.

Examination of the agreements also revealed that Turkcell imposed retail prices of both subscriber activation services and the SIM cards sold by TACs. The Board decided that the former did not amount to a restrictive practice, since in that case TAC were simply carrying out subscriber services for Turkcell. Selling of SIM cards, on the other hand, was seen as an act of resale; hence imposition of price restraints on the resale of these cards was seen as a practice that restricted competition.

Instances of abuse of dominant position

Turkcell was also found to have abused its dominant position in several instances. The Board tried to show that these exclusive agreements made it difficult for potential Telsim subscribers to buy popular handset brands; this in turn made it difficult for Telsim to attract subscribers. Among interesting statistics that the Board presents, two are especially suggestive. Table 12 (p. 41) of the Decision shows that Turkcell's share in handset sales of Ericsson and Panasonic (two of the top three brands in Turkey) were very high (88 percent and 92 percent respectively) whereas its share in the sale of Nokia handsets (again, one of the top three brands) was lower (54 percent). Nokia is primarily distributed by Basari Elektronik, which unlike the rest of distributors did not have exclusive arrangements with Turkcell and carried out campaigns with Telsim as well. Hence the statistic is consistent with the idea that it was the exclusivity of the arrangements between Turkcell and the distributors of Ericsson and Panasonic that caused Telsim to have such low shares in the sale of these handsets. The second statistic is more suggestive and relates to handset subsidies provided by the operators. It turns out, for example, that while Turkcell in the first quarter of 2000 provided a subsidy of 80-90 DM for Ericsson handsets, Telsim, which could only work with parallel importers of Ericsson, had to provide a subsidy of 150 DM to parallel importers (which, according to the Competition Board, had to be given stronger incentives to import those brands). Relative to distributors, parallel importers also had more difficulty in obtaining technical services. There were other brands (such as Siemens) that had distributors in Turkey that Telsim could have made deals with, however, these brands were not popular in Turkey. Both statistics are possibly consistent with other plausible stories as well, but together with evidence on the presence of exclusive arrangements, these statistics suggest that these arrangements made it costly for Telsim to access popular handset brands and therefore made it more difficult to attract subscribers who favor those brands.

Regarding Basari Elektronik's complaint, the Board argued that as a result of Turkcell's withdrawal of handset subsidies, Basari's costs per unit of handset sold

increased by 100-200 DM and concluded that this amounted to refusal to deal and constituted an abuse of dominant position as well.

Finally, the Board showed that the ownership share of Çukurova companies in KVK was 64 percent. When one includes the ownership share of companies that had partnerships with Turkcell, the total ownership share of Turkcell and its partners in KVK amounted to 97 percent. Moreover, KVK had 50% ownership share in A-TEL, which distributed 45 percent of Turkcell's prepaid cards. Hence there were tight ownership ties between Turkcell and KVK. When Basari started to distribute Telsim SIM cards, Turkcell shifted its Nokia sales to KVK (which by that time had become an authorized distributor of Nokia handsets as well), as a result of which Basari's share in Turkcell SIM card sales decreased from about 25% to 4%. The Board concluded that Turkcell abused its dominance in two ways: by using its market power in subscriber lines to leverage KVK's market power in the handset market, and, by engaging in discrimination.

The Board levied a penalty of about 7 trillion TL (about 5 million USD), and asked Turkcell to end discrimination among handset importers and distributors, terminate its practice of imposing retail prices on SIM cards and prepaid cards, and terminate exclusivity clauses in its agreements with distributors and dealers.

Annex 2: Essential facilities and refusal to deal in mobile telephony - the roaming decision of the Competition Authority⁶²

The roaming decision of the Competition Board starts by investigating whether Turkcell and Telsim have joint dominance over the GSM infrastructure market. Joint dominance is defined as ability of operators to behave as a single operator by coordinating their actions. In particular, pre-conditions for the existence of joint dominance are: that there is no effective competition among the operators (identified as jointly dominant) and that they have a similar position vis-à-vis their suppliers, competitors and customers, as the position of a single dominant operator.

The concept of joint or collective dominance emerged in Europe especially in the 1990s and was explicitly mentioned by the EC in its “Guidelines on the Application of EEC Competition Rules in the Telecommunications Sector” (1991).⁶³ It served two important purposes. First, it was a way to formulate that dominant position could be held and its abuse could be exercised by more than one undertaking. Second, perhaps more importantly, it made it possible for antitrust law to attack anti-competitive outcomes that arise purely because of conscious parallelism or oligopolistic interdependence (that is, outcomes that do not arise because of explicit or implicit agreements, or due to prior concertation). Interestingly, it seems that in Europe the concept is still used more in abuse of dominance cases (i.e. Article 82) rather than pure oligopoly (Article 81) cases.⁶⁴

Having concluded that Turkcell and Telsim are jointly dominant, the decision then explores whether refusal to provide roaming services amounted to an abuse of dominant position by denying access to an essential facility. A facility is said to be essential if without access to it competitors cannot provide their services to customers (Bergman, 2001). According to European practice, for a facility to be deemed essential, it must be true that competing firms must lack a “realistic ability to duplicate the facility” (Bergman, 2001, p. 409). In the present case, it was argued wide geographic coverage was essential for Aria and Aycell to compete with the incumbents and that the entrants lacked a realistic ability to duplicate the necessary infrastructure to reach full coverage, hence refusal to provide roaming services was an act of abuse of dominant position.

What makes this argument interesting is that IS-TIM was obliged by its own concession agreement to build its own infrastructure anyhow. More specifically, the building of a new network was presumably not realistically impossible, as otherwise IS-TIM would not have purchased the license to begin with. Hence what the Board

⁶² Source: Competition Board Decision No. 03-40/432 186, September 6, 2003

⁶³ See Rey (2004) and Papadias (2004).

⁶⁴ There remains the interesting question about whether the existence of joint dominance was necessary for the Board’s argument. Joint dominance is normally relevant for cases where the parties are facing a competitive situation, i.e. one where it is at least in the short run economically profitable for one of the parties to provide the service in question when the other does not. As suggested at one point in the decision, this was not necessarily the case in the market for roaming services: Given that Telsim was not providing roaming services, it could be that the best response of Turkcell was not to provide roaming services either. In other words the question is whether the game that was being played was “prisoners’ dilemma” game or one an “assurance” game. The decision is not clear about that distinction and seems to have argued both.

had to argue was not that it was impossible for new entrants to duplicate the facility, but that the roll out of new infrastructure was costly and would take time. Given switching costs and network externalities in mobile telephony services, the passage of time, the argument had to go, would make it ever more difficult for IS-TIM to enter the market (and attract subscribers), and, presumably, become a viable competitor. A reading of the decision suggests that the two arguments (that roll out would take time and that passage of time would make entry more difficult) could have been better differentiated from each other.

The Board outlined three sets of difficulties that would make the rolling out of a network in the “short-term (for example, within one year)” (p. 49) difficult:

Technical difficulties. Turkcell and Telsim took 7 years to complete the installation of their infrastructure hence IS-TIM could not be expected to complete that in a year. Also, connections between base stations are generally provided through TTAS leased lines and there could be delays due to insufficient capacity at TTAS.

Legal difficulties. These referred to increases in rents, delays in securing the necessary permission from local authorities for the installation of base stations, and delays in securing electricity.

Economic difficulties. Here the decision mentions the high license fees that IS-TIM has paid and argues that this fact may cause a new entrant not be able to compete in areas such as high technology, prices, and quality of service and product. It is also argued that compared to the incumbents IS-TIM would have higher sales and marketing expenditures. It states: “... The revenue that IS-TIM is going to raise as a result of installing the essential facility is not going to be sufficient to meet investments it has made to both to the GSM services it wants to provide and the infrastructure needed to provide these services.” One can note that the last sentence could be read as suggesting that the cost of duplicating the facility was less than the revenues it would generate, which presumably was not the intended meaning.

The economic argument about why denial of access to existing infrastructure was an abuse, even when the alternative had to be built within 5 years anyways, could have been tighter. In building its argument, the Board often cited higher costs that Is-TIM had to incur relative to the incumbents without adequately differentiating between different sources of costs, or without sufficiently identifying those additional costs that resulted from inability to obtain roaming services. For example, it cited the high license fee that Is-TIM had to pay: while it is true that Is-TIM had to pay higher license fees, this was not a result of delayed access to wide coverage.

Possibly, in addition to emphasizing switching costs and network externalities, the Board could have argued that delays in cash flow, in an environment where raising outside finance through debt or equity is extremely costly due to high interest rates, would have increased entry costs very significantly. This could have also justified the choice of one year as a reference for duration over which infrastructure needed to be available for competition to be viable. (The finance issue was raised later in the decision, apparently in response to Telsim defense that that their infrastructure could not be seen as an essential facility since it was going to duplicated anyway).

From the point of view of development of effective competition, a clearer identification of welfare costs of delay would also have been useful. In particular, in

a growing market, and given network externalities and switching costs, future market structure was going to be closely affected by competition for *new subscribers*. Availability of roaming would have made it easier for IS-TIM to attract customers from the pool of consumers not yet subscribed to any operator. With delays in coverage, and as more consumers get locked-in with the incumbents, the pool of consumers that were not subject to any switching costs was getting smaller and smaller, thus raising for the entrant the cost of gaining market share.

Another interesting aspect of the decision has to do with the relation between the Telecommunications Authority and the Competition Authority. While the investigation committee proposed specific actions to be undertaken by the parties, the Board decided that which actions should be undertaken and which should be avoided should be determined by the Telecommunications Authority.

Annex 3: Abuse of dominant position in the markets for internet services and internet infrastructure⁶⁵

Starting in 2001, as a response to news articles and a series of complaints, the Competition Authority launched an investigation into alleged abuse of dominance by TTAS in the markets for infrastructure for internet services and market for internet services proper. The complaints were filed by the Association of Internet Service Providers (TISSAD), and a number of ISPs. The allegations included the following:

- 1) TTAS doubled the tariffs of leased lines used by ISPs with no apparent increase in costs, refused to rent to ISPs Primary Rate Interface (PRI) lines and forced them instead to rent Virtual Points of Presence (VPOPs) installed under its subsidiary TNet. ISDN-PRI lines (as well as No. 7 and E1 technologies) are used to connect ISP narrow band internet traffic from TTAS switches to ISP points of presence (POPs). It was argued that the TTAS practice of refusing to lease PRI lines to ISPs forced ISPs to act as simple resale organizations and prevented them from competing against TNet in terms of quality of service.
- 2) TTAS was applying predatory pricing in the market for residential internet services
- 3) TTAS limited the amount of capacity it leased to ISPs using the cable TV infrastructure, even though it provided much larger capacity to TNet.
- 4) TTAS forced ISPs to disclose what amounted to be commercial secrets, including user IDs, names, addresses and telephone numbers of subscribers.
- 5) TTAS increased royalties applied to satellite earth station operators by 240-6300 percent. International fiber optic leased lines are extremely expensive in Turkey. Hence many ISPs use satellite connections for international transfers of data and most of the traffic conveyed by satellite earth station operators is internet traffic. It was argued that the increases in royalties were going to increase ISP costs directly and substantially.

During the course of the investigation, the Competition Authority took two preliminary injunctions. In the first, the Board asked TTAS i) to realign the tariffs of infrastructure services TTAS provided to ISPs so as to prevent any cross subsidies to internet services provided by its subsidiary TNet; ii) to end its practice of forcing ISPs to rent VPOPs and provide to the extent technically possible and in a manner that was non-discriminatory the requested technologies that could be used for the provision of internet services (such as ISDN-PRI, ISDN-BRI), and also open up to the ISPs internet access over xDSL and Cable TV technologies, and iii) to end its practice of requesting customer information from ISPs. In its response, TTAS indicated that it had increased tariffs of TNet dial-up services by 20%, that it was at the moment technically impossible to provide to ISPs access through cable TV and xDSL technologies, and that it was going to change its ISP Agreement so that customer information would no longer be requested. The Board decided that these

⁶⁵ Source: Competition Board Decision No. 02-60/755-305.

steps did not amount to a full implementation of the steps requested in the preliminary injunction and imposed a monetary fine on TTAS. TTAS challenged this decision at the Council of State (higher administrative court) but was not successful.

In its second injunction the Board asked TTAS to reverse the increase in tariffs applied to satellite service providers. TTAS complied with this request fully.

In its decision, the Board reached the following conclusions in the respective markets:

a) The market for infrastructure needed for the provision of broadband internet services to corporate users:

The tariffs of leased lines provided by TTAS to independent ISPs were significantly higher than the tariffs that TNet applied to corporate users of internet services, making it impossible for independent ISPs to survive in this market. This practice amounted to an abuse of dominant position. It was also decided that TTAS practice of requesting private information from ISPs did not carry a malign intention and was terminated after the preliminary injunction. Hence this practice did not amount to an infringement of competition law. Here the Board differed from the investigation committee who had concluded that this practice as well was an abuse of dominant position.

b) The market for infrastructure needed for the provision of internet services to residential users:

The investigation committee concluded that TTAS refusal to provide ISDN-PRI and similar lines to ISPs was an act of abuse. The Board stated that it seems possible to meet ISP requests through a new No. 7 signaling system that was going to be built as part of a project for the enlargement of TNet's network. It therefore concluded that there was no violation of the competition law in that instant. Regarding TTAS effort to induce ISPs to TNet VPOP's instead, again the investigation committee concluded that this was a breach of competition law. The Board argued that "securing the use of TTAS VPOPs by ISPs was seen as appropriate from the point of view of efficient use of existing resources" (p. 33) hence did not amount to an infringement.⁶⁶ In both cases the argument of the Board seems highly deficient. In the former, it is unlikely that the Board is pointing to a technical impossibility, as that would have been explicitly stated; in fact the wording does not make it clear why the Board disagrees with the investigation committee's conclusion. In the latter, why the Board's decision should be motivated by whether the VPOP ports of TTAS are put to any use or not is not clear at all.

On the other hand, on the allegations that TTAS was engaged in predatory pricing in the dial-up market the Board found that residential narrowband dial-up tariffs were largely below the cost of infrastructure elements that ISPs had to lease from TTAS and concluded that they reflected an abuse of dominant position.

c) Market for infrastructure needed to provide broadband internet access services to residential users:

Regarding TTAS refusal to provide to ISPs internet access through its cable TV infrastructure, the investigation committee argued that TTAS was preventing the use

⁶⁶ The decision indicates (p. 32) that the Telecommunications Authority shared this view.

of its infrastructure by ISPs other than TNet, and excuses forwarded by TTAS that such refusal was due to technical or legal reasons were without foundation. In its decision the Board did not challenge the committee's conclusion directly but indicated that cable TV services were available only to a limited number of users and that TTAS apparently had decided to open up to ISPs internet access over cable TV network, and that was going to provide the TA a business plan to that effect. The board stated that based on these findings, the actions of TTAS were not considered an infringement.

The investigation committee indicated that the price an ISP had to pay to TTAS for access to TTAS cable TV network for the provision cable modem broadband internet services was higher than retail tariffs charged by TNet for cable modem services. The Board concluded that this could not be seen as an infringement because TTAS was not yet ready to provide cable TV infrastructure to ISPs.

The Investigation Committee also argued that TTAS' refusal to allow ISPs access to the local loop prevented the development of competition in the broadband internet ADSL market. The Board, however, indicated that TTAS had only a limited number of ADSL ports and that it was in preparation to purchase new ports. It therefore concluded that there was no infringement.

As discussed in the main text, it took another 18 months for TTAS to start increasing the number of ADSL ports and another six months for the TA to come up with a commercially viable scheme of bitstream access to open up the ADSL market to independent ISPs.

d) The market for satellite-based international data transfer:

During the period of investigation satellite earth station operators did not have licenses and were operating through revenue agreements with TTAS. Even though they did not use any TTAS facilities, their revenue agreements required them to pay royalty fees to TTAS. In May 2001 TTAS increased royalty fees by 230-6400 percent depending on bandwidth. The royalty fees were going to be terminated as soon as station operators obtained their licenses at which time operators would become competitors to TTAS in the long distance data conveyance market (which occurred in March 2002). The Board concluded that the increase in royalty fees was part of a strategy by TTAS to wipe out potential competitors in the long distance conveyance market. It also noted that by maintaining very high tariffs on its international fiber optic lines on the one hand and by increasing royalty fees on data transfers through satellites on the other, TTAS was increasing the cost of international internet access of ISPs.

The Board imposed on TTAS a monetary fine of 1.1 trillion Turkish Liras (about 691 million USD at the prevailing exchange rate).

Figure 1:
Türk Telekom montly fixed fee and local call charges

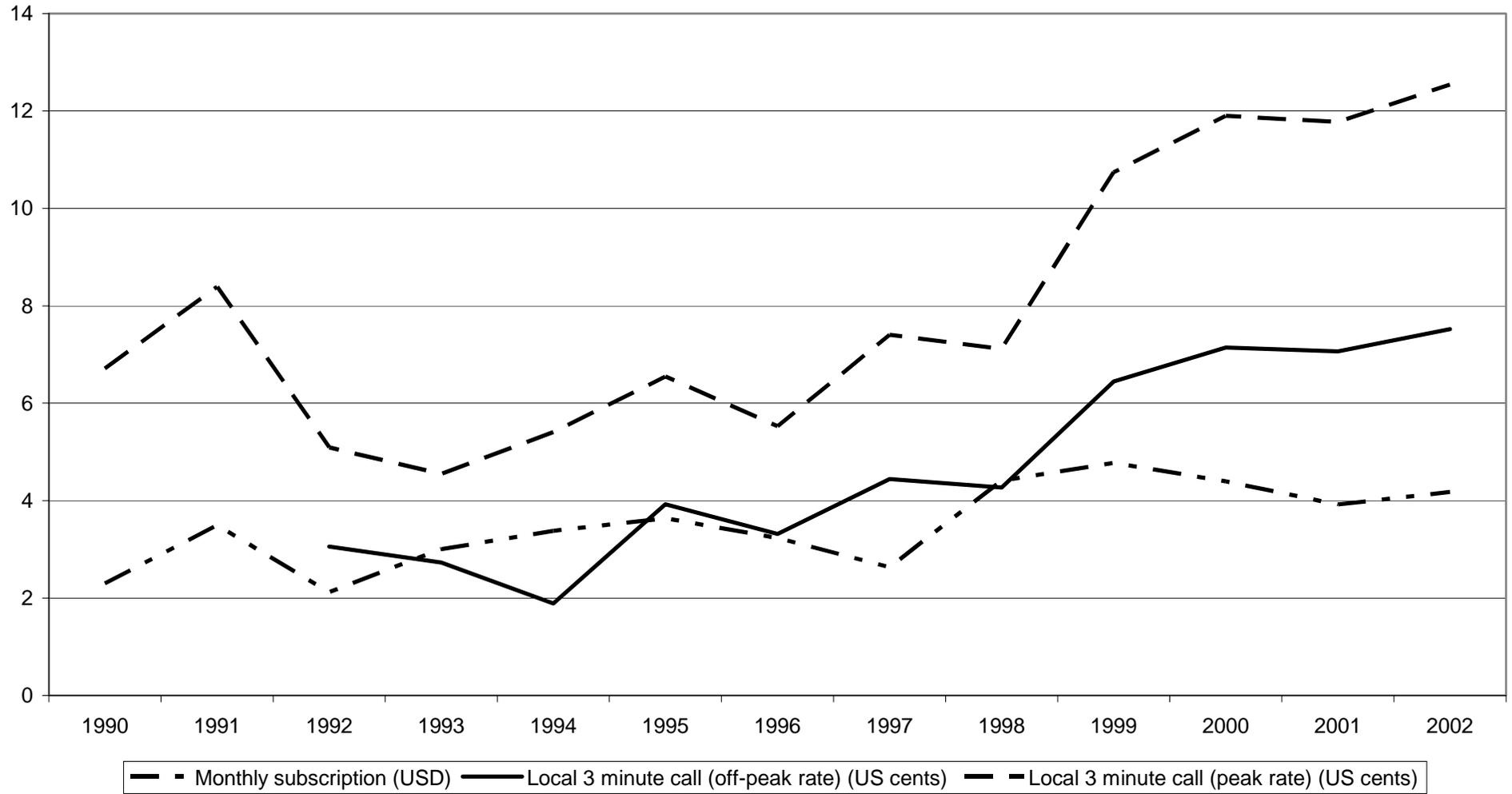


Table 1: Indicators for Turk Telekom

		1980-85	1986-90	1991-95	1996	1997	1998	1999	2000	2001	2002	2003
Source	Fixed Line Penetration											
ITU	Number of main lines (1000)	1636	4822	10782	14286	15744	16960	18054	18395	18904	18915	18917
ITU	Main telephone lines per 100 inhabitants	3.4	8.9	18.1	22.8	25.2	26.7	28.1	28.2	28.5	28.1	27.7
ITU	% of households with a telephone				74.4	..	81.8			87 (1)		
Revenues and profits												
ITU	Telephone service revenue (million US\$) (Revenue from fixed telephone services)	425	1,232	2,375	2,534	3,219	3,823	3,648	4,640	3,876	4,209	
OECD	Total PTO Revenue (million USD)	486	1,343	2,359	3,066	3,983	5,017	5,462	6,215	5,888		
OECD	Total PTO Revenue as % of GDP	0.7	1.3	1.5	1.7	2.1	2.5	3.0	3.1	4.0		
Treasury	PTO operating profits				611	1163	1383	603	853			
Treasury	PTO profits				613	1426	2015	1081	716			
Investment												
OECD	PTO Investment (million USD)	275	637	685	433	546	604	617	711	361		
OECD	PTO investment as % of total revenue	56	55	29	14	14	12	11	11	6		
OECD	PTO investment per access channel	300	148	62	30	35	36	34	39	19		
Fixed Line Quality												
ITU	% of telephone faults cleared by next working day	NA	NA	93.6	95	94	90	89				
ITU	Telephone faults per 100 main lines	NA	39.4	56.6	61.0	58.4	56.1	55.7	55.4	48.4	37.4	30.4
ITU	Waiting list for main lines (1000)	1,742	1687	1,014	753	413	464	500	418	199	143	77
ITU	% digital main lines	NA	34	64	78	82	83	84	87	89	90	90
OECD	Waiting time for new connection			10 (2)	8	8	8	8	7	7		
Productivity/Profitability												
ITU	Revenue per main line (US\$)	265	252	229	177	204	225	202	252	205	223	
OECD	Total PTO revenue per employee in USD	7,100	15,575	26,649	40,659	54,431	68,878	75,373	85,828	84,186		
OECD	Access channels per PTO employee	24	57	133	189	215	233	249	254	271		

Source:

ITU World Telecommunications Indicators:

OECD Telecommunication Indicators database:

Treasury (n.d.)

(1): E-Europe+ 2003, as reported in Başcı and Kandemir (2003)

(2) 1993-95 only

Table 2: Comparative fixed line telephony indicators (2002)

	Main telephone lines per 100 inhabitants (ITU)	Telephone faults per 100 main lines (ITU)	Waiting list for main lines (1000) (ITU)	% digital main lines (ITU)	Revenue per main line (US\$) (ITU)
Western Europe					
Austria	48	5.7	0	100	512
Belgium	49	5.9	..	100	746
Switzerland	74	..	0	100	533
Cyprus	69	25.5	3,615	100	610
Denmark	69	8.0	..	100	
Germany	65	..	0	100	395
Greece	49	12.0	7,575	97	
Finland	52	..	0	100	340
France	57	..	..	100	387
Ireland	50	7.6	..	100	603
Italy	48	..	..	..
Luxembourg	80	7.0	0	100	
Netherlands	62	..	..	..
Norway	73	..	0	100	459
Portugal	42	10.2	..	100	420
Spain	43	..	..	..
Sweden	74	..	..	100	
United Kingdom	59	11.0	0	100	517
Average	59	10.3	1,243	100	
Eastern and Central Europe					
Bulgaria	37	3.5	145,787	20	121
Czech Republic	36	8.3	25,096	100	268
Hungary	36	..	7,775	90	345
Poland	30	..	..	..
Romania	19	23.0	542,060	72	176
Slovak Republic	27	..	..	..
East Asia					
Korea (Rep. of)	49	1.5	..	95	240
Malaysia	19	40.0	65,884	100	362
North America					
Canada	64	..	0	..	407
United States	65	11.7	..	98	1128
Latin America					
Argentina	22	..	..	100	386
Brazil	22	3.0	200,000	98	318
Mexico	15	1.9	..	100	679
Turkey	28	37.4	142,894	90	223

Source: ITU

Add Indicators from OECD

Entries in red refer to data for 2001

Table 3: International comparison of connection charges, monthly fees and cost of 3-minute local calls (USD, 2002)

	Business telephone connection charge	Residential telephone connection charge	Business telephone monthly subscription	Residential monthly telephone subscription	Cost of a local 3 minute call (peak rate)
Western Europe					
Austria	86.79	86.79	19.81	13.57	0.19
Belgium	62.25	62.25	15.28	15.28	0.14
Switzerland	0.00	0.00	16.19	16.19	0.15
Cyprus	55.57	55.57	9.26	9.26	0.03
Germany	41.94	41.94	11.15	11.15	0.09
Denmark	114.18	114.18	12.58	12.58	0.08
Spain	89.62	89.62	11.02	11.02	..
Finland	100.94	100.94	11.13	11.13	0.13
France	43.51	43.51	14.27	11.84	0.12
United Kingdom	173.63	111.93	24.06	14.18	0.18
Greece	27.68	27.68	9.42	9.42	0.07
Ireland	122.63	122.63	21.22	21.22	0.14
Iceland	86.19	86.19	13.21	13.21	0.09
Italy	109.75	109.75	15.53	11.36	0.11
Netherlands	..	..	14.67	14.67	0.11
Norway	95.24	95.24	19.92	19.92	0.15
Portugal	67.76	67.76	11.18	11.18	0.11
Sweden	..	..	..	12.10	0.11
Average	79.86	76.00	14.70	13.29	0.12
North America					
Canada	63.87	35.48	25.77	12.52	0.00
United States	72.35	42.39	43.59	23.38	0.00
Central America					
Mexico	374.73	120.99	21.20	16.76	0.16
Central and Eastern Europe					
Bulgaria	48.08	48.08	6.49	3.37	0.02
Czech Republic	106.90	106.90	12.19	9.13	0.13
Hungary	290.82	130.87	16.09	11.94	0.13
Poland	73.35	73.35	8.56	8.56	..
Romania	10.44	10.44	5.40	5.40	0.11
Slovak Republic	25.41	25.41	5.06	5.06	0.12
Average	92.50	65.84	8.96	7.24	0.10
East Asia					
Malaysia	13.16	13.16	11.84	5.79	0.03
Korea (Rep. of)	47.96	47.96	4.16	4.16	0.03
Turkey	4.64	4.64	4.18	4.18	0.13

Source: ITU World Telecommunications Indicators
 Note: cells marked in red reflect 2001 values

Table 4: Trends in international collection charges per minute at peak rates

Average rate to all other OECD countries, USD, 1995-2000

	1995	1996	1997	1998	1999	2000	Change 1998- 2000 (%)
Western Europe							
Austria	0.94	1.06	1.01	0.52	0.52	0.37	-28
Belgium	0.77	0.88	0.8	0.68	0.69	0.63	-8
Finland	0.63	0.68	0.67	0.61	0.65	0.56	-7
France	0.81	0.89	0.7	0.37	0.48	0.28	-23
Germany	0.93	0.65	0.7	0.6	0.56	0.38	-37
Greece	0.78	0.81	0.73	0.61	0.61	0.32	-48
Italy	0.77	0.69	0.76	0.69	0.92	0.31	-55
Netherlands	0.89	0.78	0.87	0.39	0.34	0.21	-46
Portugal	1.14	0.97	0.86	0.72	0.68	0.47	-36
Sweden	0.7	0.66	0.57	0.49	0.55	0.23	-54
United Kingdom	0.59	0.61	0.5	0.52	0.57	0.54	3
Central and Eastern Europe							
Czech Republic	..	..	..	0.97	0.59	0.51	-47
Hungary	..	..	..	0.5	0.46	0.34	-33
Poland	..	..	..	0.69	0.64	0.56	-19
North America							
Canada	0.94	0.96	0.96	0.94	0.84	0.34	-64
United States	1.15	1.23	0.39	0.35	0.35	0.27	-23
Central America							
Mexico	2.78	1.95	1.65	1.58	1.44	1.55	-2
East Asia							
Korea	..	..	..	0.92	1.02	1.08	17
OECD average	1.07	0.98	0.91	0.77	0.69	0.52	-32
Turkey	1.28	0.83	0.97	1	0.68	0.84	-16

Source: OECD (2000) Table 7.15

source: oecd comm outlook 2001 t715 int calls.xls

Table 5: OECD basket of international telephone charges, August 2002

	Business		Residential	
	Excluding VAT		Including VAT	
	USD	USD PPP	USD	USD PPP
Western Europe				
Austria	0.85	0.99	1.29	1.50
Belgium	0.56	0.63	0.66	0.75
Finland	0.87	0.84	1.12	1.09
France	0.37	0.42	0.73	0.82
Germany	0.46	0.52	0.69	0.78
Greece	0.86	1.23	1.30	1.86
Italy	0.86	1.16	1.24	1.67
Netherlands	0.35	0.40	0.50	0.58
Portugal	0.79	1.24	1.09	1.70
Sweden	0.38	0.38	0.60	0.60
United Kingdom	1.28	1.29	1.75	1.76
Central and Eastern Europe				
Czech Republic	0.78	1.70	1.08	2.34
Hungary	1.05	2.18	1.68	3.50
Poland	1.56	2.89	2.44	4.53
North America				
Canada	0.67	0.83	0.92	1.14
United States	0.51	0.51	0.97	0.97
Central America				
Mexico	3.07	4.21	3.73	5.11
East Asia				
Korea	2.31	3.61	2.75	4.29
OECD average				
	0.94	1.29	1.28	1.78
Turkey	1.62	3.38	2.00	4.17

Note: Average call charge for one single call, weighted by traffic.

Source: OECD (2003)

Table 6: Reduction in TTAS International Call Tariffs July-August 2004

	July	August
Region I	771,429	244,125
Region I discount	617,143	-
Region II	1,200,000	511,034
Region II discount	771,429	-
Region III	1,800,000	912,561
Region III discount	1,440,000	-
Region 4	3,085,714	1,666,417
Region 4 discount	2,400,000	-

August rates refer to the StandardHatt package

Region I: USA, CANADA, most of Western Europe

Region II: Mostly Central and Eastern Europe, Caucases

Table 7: Standard Interconnection Tariffs set by the Telecommunications Authority

Effective during	Call Origination and call termination on TT network				Call termination on GSM network (for SMP operators)	
	Intra access area		Extra access area		TL/min	Eurocent/min
	TL/min	Eurocent/min	TL/min	Eurocent/min		
01.10.2004 - 31.12.2004	41,000	2.3	59,000	3.3	156,000	8.8
01.01.2005 - 30.09.2005	34,000	1.9	51,000	2.9	148,000	8.3
01.10.2005	20,000	1.1	37,000	2.1	140,000	7.9
Turk Telekom proposal	50,000	2.8	70,000	3.9		

Note: net of taxes

1 euro= 1,778,000 TL

Table 8: Interconnection Charges: EU vs Turkey
(Eurocents/min)

	Local	Single Transit	Double Transit
EC Best Practice Recommendation 1998	0.6-1.0	0.9-1.8	1.5-2.6
EC Best Practice Recommendation 1999	0.5 - 1.0	0.8-1.6	1.5-2.3
EC Best Practice Recommendation 2000	0.5 – 0.9	0.8 - 1.5	1.5 – 1.8
EU weighted average 2003	0.62	0.96	1.66
EU-15 weighted average 2004	0.59	0.91	1.54
EU-23 weighted average 2004	0.65	1	1.61
Turkey - 2004		2.3	3.3
Turkey Jan-Sept. 2005		1.9	2.9
Turkey after September 2005		1.1	2.1

Source: EC (1998, 1999, 2000, 2003), Table 6.

Table 9: Turkcell Tariffs, post-paid packages

Date launched or changed	Standard Cell Package					Biz Bize cell package				
	On-net		Off-net		On-net discount	On-net		Off-net		On-net discount
	TL/min incl. VAT	cents/min ex VAT	TL/min incl. VAT	cents/min ex VAT	cents/min ex. VAT	TL/min incl. VAT	cents/min ex VAT	TL/min incl. VAT	cents/min ex VAT	cents/min ex. VAT
1-Mar-00	131,830	19.50	164,790	24.40	16.50					
23-Aug-00	165,000	21.60	210,000	27.50	18.30					
3-Jan-01	178,250	22.80	226,800	29.10	19.40					
3-Mar-01	199,700	18.80	254,000	23.90	16.00					
15-May-01	259,610	19.20	330,200	24.40	16.40	99,000	7.30	295,000	21.80	7.30
13-Jun-01	261,829	18.00	280,000	19.30	15.40	135,000	9.30	399,000	27.50	9.30
28-Aug-01	289,790	17.40	371,711	22.40	16.60	150,000	9.00	449,000	27.00	9.00
17-Nov-01	328,419	18.40	421,260	23.60	17.50	175,000	9.80	510,000	28.60	9.80
12-Feb-02	328,419	20.20	421,260	25.90	19.20	210,000	12.90	590,000	36.30	12.90
12-Jun-02	430,000	23.70	518,000	28.60	21.90	229,000	12.60	645,000	35.60	12.60
1-Mar-03	450,000	23.90	545,000	28.90	22.00	239,000	12.70	679,000	36.00	12.70

Table 10: Internet and Broadband data for Turkey

	1995	1996	1997	1998	1999	2000	2001	2002	2003
% of homes with a Personal Computer	..	..	..	6.5	..	12.3	..	..	..
% of homes with Internet	..	..	..	1.2	..	6.9	..	..	..
Cable modem Internet subscribers	..	..	..	..	..	0	8,097	18,206	41,000
DSL Internet subscribers	..	..	..	..	..	0	2,818	2,999	15,500
International Internet Bandwidth (Mbps)	..	..	..	..	300	578	620	1,132	2,200
Internet hosts	5,549	17,507	35,027	48,873	78,878	69,923	106,556	154,585	359,188
Internet users per 100 inhabitants	0.08	0.19	0.48	0.71	2.33	3.06	6.04	7.28	8.05
Personal computers	920,000	1,100,000	1,300,000	1,700,000	2,200,000	2,500,000	2,700,000	3,000,000	..

Source: ITU World Teecomunications Database, 2004

Table 11: Internet and Broadband: International Comparison, 2002

	Cable modem subscribers per 100 inhabitant	DSL subscribers per 100 inhabitants	internet subscribers per 100 inhabitants	Internet users per 100 inhabitants
Western Europe				
Austria	3.17	1.88	14.90	41.47
Belgium	3.41	5.01	16.36	32.83
Cyprus	0.00	0.82	11.05	29.37
Denmark	2.89	5.71	48.02	51.28
Germany	0.05	3.83	25.44	43.62
Greece	0.00	0.00	6.11	13.48
Finland	1.04	4.23	23.28	50.89
France	0.47	2.28	15.19	31.38
Ireland	0.06	0.07	28.19	28.03
Italy	0.00	1.51	23.02	35.24
Luxembourg	0.03	1.28	NA	37.00
Netherlands	4.94	2.28	27.79	50.63
Norway	1.15	3.19	30.82	50.26
Portugal	2.01	0.50	49.97	19.35
Spain	0.84	2.36	9.65	19.31
Sweden	26.31	4.71	35.64	57.31
United Kingdom	1.62	1.45	22.17	42.31
Average	2.82	2.42	24.23	37.28
Eastern and Central Europe				
Bulgaria	0.00	0.00	0.11	8.08
Czech Republic	0.15	0.00	16.21	25.63
Hungary	0.31	0.43	4.39	15.76
Poland	NA	0.32	4.16	23.00
Romania	0.08	0.01	2.19	10.15
Slovak Republic	0.00	0.00	2.49	16.04
East Asia				
Korea (Rep. of)	7.78	13.42	22.66	55.19
Malaysia	0.00	0.08	10.92	31.97
North Aneria				
Canada	5.69	5.50	NA	51.28
United States	3.94	2.24	NA	55.14
Latin America				
Argentina	NA	0.18	3.91	11.20
Brazil	0.08	0.35	4.54	8.22
Mexico	NA	0.07	2.01	9.85
Turkkey 2002	0.03	0.00	4.61	7.28
Turkey 2003	0.06	0.02	5.13	8.05

Source: ITU, World Telecommunications Database

Table A.1: Basic Telephone Charges of Turk Telekom

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Connection charge (million TL)	0.4	0.8	0.8	2.0	3.0	5.0	10.0	19.0	12.5	12.5	12.5	7.0	7.0
Connection charge (USD)	153.3	201.4	122.2	182.1	101.3	109.1	122.8	125.1	47.9	29.8	20.0	5.7	4.6
Monthly subscription (USD)	2.3	3.5	2.1	3.0	3.4	3.6	3.2	2.6	4.4	4.8	4.4	3.9	4.2
Local 3 minute call (off-peak) (US cents)			3.1	2.7	1.9	3.9	3.3	4.4	4.3	6.4	7.1	7.1	7.5
Local 3 minute call (peak) (US cents)	6.7	8.4	5.1	4.6	5.4	6.5	5.5	7.4	7.1	10.7	11.9	11.8	12.5

Source: ITU World telecommunication Indicators Database

Table A2: Cost of OECD Residential and Business baskets

	Residential Basket						Business basket					
	Fixed Charge		Usage Charge		Total Charge		Fixed Charge		Usage Charge		Total Charge	
	USD	USD PPP	USD	USD PPP	USD	USD PPP	USD	USD PPP	USD	USD PPP	USD	USD PPP
Western Europe												
Austria	205.09	238.48	134.30	156.16	339.39	394.64	347.62	404.21	364.12	423.39	711.74	827.60
Belgium	209.38	237.93	193.56	219.96	402.94	457.88	173.04	196.63	617.72	701.96	790.76	898.59
Denmark	209.55	199.57	140.87	134.17	350.42	333.73	167.64	159.65	412.18	392.55	579.82	552.21
Finland	181.08	175.81	221.51	215.06	402.59	390.86	151.95	147.52	564.67	548.22	716.62	695.74
France	159.81	179.56	219.32	246.43	379.13	425.99	203.10	228.20	577.74	649.15	780.84	877.35
Germany	163.72	183.95	205.26	230.63	368.98	414.58	141.14	158.58	723.45	812.86	864.58	971.44
Greece	144.73	206.75	179.48	256.40	324.21	463.15	122.65	175.21	438.63	626.61	561.28	801.83
Ireland	244.78	257.66	136.73	143.93	381.51	401.59	202.30	212.94	549.00	577.90	751.30	790.84
Italy	185.32	250.43	165.14	223.16	350.46	473.59	190.28	257.14	543.80	734.86	734.08	992.00
Netherlands	210.24	244.47	128.70	149.66	338.95	394.12	176.67	205.44	417.62	485.60	594.29	691.03
Norway	278.81	232.34	185.20	154.34	464.01	386.68	224.85	187.37	496.09	413.41	720.93	600.78
Portugal	181.90	284.21	235.88	368.57	417.78	652.78	152.85	238.84	625.26	976.96	778.11	1215.80
Spain	180.19	250.27	179.79	249.70	359.98	499.97	155.34	215.75	500.16	694.67	655.50	910.42
Sweden	179.39	179.39	124.42	124.42	303.81	303.81	163.83	163.83	365.35	365.35	529.19	529.19
Switzerland	201.58	167.99	147.09	122.57	348.67	290.56	187.35	156.12	578.63	482.19	765.97	638.31
United Kingdom	222.38	224.63	88.41	89.30	310.79	313.93	294.85	297.82	560.36	566.02	855.21	863.85
Eastern and Central Europe												
Czech Republic	210.93	458.55	66.88	145.39	277.82	603.95	272.38	592.13	546.39	1 187.81	818.77	1 779.94
Hungary	169.28	352.66	153.56	319.92	322.84	672.58	200.82	418.38	480.67	1 001.39	681.49	1 419.76
Poland	149.85	277.51	240.95	446.20	390.80	723.71	122.83	227.47	673.62	1 247.44	796.45	1 474.91
Slovak Republic	87.86	251.03	190.54	544.39	278.40	795.42	79.50	227.14	644.86	1 842.44	724.35	2 069.58
North America												
Canada	226.05	279.08	45.49	56.16	271.54	335.23	318.59	393.32	240.74	297.21	559.33	690.53
United States	163.37	163.37	242.74	242.74	406.11	406.11	274.29	274.29	561.14	561.14	835.43	835.43
Korea	68.53	107.07	121.79	190.30	190.32	297.37	62.30	97.34	363.88	568.56	426.18	665.90
Mexico	239.87	328.59	169.11	231.66	408.98	560.25	279.16	382.41	1 061.45	1 454.04	1 340.61	1 836.45
Turkey	44.51	92.73	182.05	379.26	226.55	471.99	37.72	78.58	626.72	1 305.67	664.44	1384.25
OECD	182.78	230.57	158.18	211.30	340.96	441.87	197.64	249.64	522.46	709.35	720.10	958.99

Note: Both baskets include local and domestic long distance calls and excludes calls to mobile phones

Source: OECD (2003) Tables 6.9 and 6.11

Table A3. Mobile Telecommunications In Turkey

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Penetration										
Cellular mobile subscribers (Digital, 1000)	81	333	693	1,483	3,382	8,000	16,041	19,503	23,374	27,888
Cellular mobile subscribers (Total,1000)	175	437	806	1,610	3,506	8,122	16,133	19,573	23,374	27,888
Cellular mobile subscribers per 100 inhabitants	0.3	0.7	1.3	2.6	5.5	12.6	24.7	29.5	34.7	40.8
Revenues										
Revenues (USD, 1000)	60,590	142,763	302,180	621,506	416,985	2,303,847	3,484,559	2,819,831	2,816,250	NA
Revenue per subscriber (USD)	347	327	375	386	119	284	216	144	120	NA
Tariffs										
Connection Charge (USD)	338	262	184	153	..	29	..	..	..	..
Cellular - cost of 3 minute local call (TL)	26,000	48,000	90,000	225,000	150,000	225,000	372,000	721,500	744,000	NA
Cellular - cost of 3 minute local call (USD)	0.88	1.05	1.11	1.48	0.58	0.54	0.59	0.59	0.49	NA

Source: ITU World Telecommunications Indicators, 2004

Table A4: Mobile Telephone Charges, OECD Basket (USD, August 2004)

	Low user	High user
Belgium	274	1080
Czech Republic	131	1054
Denmark	148	622
Finland	137	676
France	267	993
Germany	304	1321
Greece	230	732
Hungary	119	1033
Italy	208	965
Netherlands	281	913
Poland	119	968
Mexico	116	725
Korea	169	518
Turkey	165	1042

including tax
OECD (2005) Table 6.13, 6.15