INTRODUCTION

In the 1980s, Turkey initiated a liberalization and deregulation movement to introduce competition to its domestic markets and to transform the Turkish economy from an import substituting economy to export-based one. The aim was to institutionalize economic change through transition to the economic institutions of capitalism. However, the traditional institutional structure had resisted the process of institutionalization of economic change until the 2000s. Liberalization did not bring about a relaxation in the traditional and statist institutional environment. In the 1980s, institutional structure was not ready for the transition. In the 1990s, Turkey suffered from the loose political structure with coalition governments and the resistance of traditional bureaucracy and judiciary environments to the transition. As a result, the reform initiatives were not able to lead to the transition to the economic institutions of capitalism based on institutionalization in the political, bureaucratic, and legal spheres. Whereas the legal and bureaucratic institutional structure resisted the change, the political process led to a rent-seeking society (Çetin, 2010). Throughout this period including the 1980s and 1990s, network and infrastructure industries continued to remain heavily monopolies. On the other hand, over the last decade, Turkey has been

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1 See Çetin and Yilmaz (2010) for a more detailed analysis on institutional foundations of the transition to the economic institutions of capitalism in Turkey. This book presents an institutional perspective to understand the process of economic change in Turkey.
experiencing a more radical reform process including network and infrastructure industries like telecommunications, electricity, natural gas, and transportation. In general, these reform initiatives have been successful. However, the process came to Turkey with its costs. The reform process has its ups and downs, but the transformation seems irreversible (Çetin and Oguz, 2011). Telecommunications industry is not except from this trend.

Until 1994, telecommunications services in Turkey had been carried out by PTT (Posts, Telegraph, and Telephones), a state-owned company. Establishing Turk Telekom (TT) in 1994, Turkey unbundled PTT. It transferred the introduction of telecommunications services from PTT to TT. Although TT was established as a public-owned company, the aim was to privatize it in the 1990s. However, TT had not been able to privatize throughout the 1990s due to legal problems and judicial resistance to privatization\(^2\). By Law No 4502 enacted in 2000, the Turkish telecommunications market was restructured. The law established Telecommunications Authority as an independent regulatory agency. This law aimed to open the market to competition by terminating the monopoly rights of TT till the end of 2003. 55% of TT was privatized by a block sale in 2005 and 15% of its remaining share was privatized through offering to public (Bagdadioglu and Çetinkaya, 2010). A 30% share is still under ownership of the treasury. Currently, a Cabinet Decision in January 2013 aimed to privatize a 6.68% share of TT through offering to public till the end of 2013, but it didn’t yet carry out. After privatization in 2005, while TT remained a private monopoly in the fixed-line telephony services, the new firms such as TTNet in fixed-broadband internet services and Turksat in cable

\(^2\) See Çetin (2010a) for a more detailed discussion about the resistance of judiciary against almost all privatizations in public services during the 1990s. Moreover, Ardiyok and Oguz (2010) discuss the reasons for the failure of privatization of TT in the 1990s.
TV emerged as a result of the functional separation of TT. Additionally, some new entrants occurred in the different segments of the market.

An important development occurred in the regulatory institutional structure in the post-reform period. In that sense, two regulatory institutions are especially important. They are Law No 4502 enacted in 2000 and the Electronic Communications Act (ECA) adopted in 2008. While Telecommunications Authority (TA, ICTA in 2008) was established by Law No 4502, the ECA gave a full discretion to ICTA to ensure competition in the market. Accordingly, ICTA is responsible to solve interconnection and access issues, determine tariffs, manage spectrum, and other duties defined in the ECA. However, ICTA and Competition Authority share responsibilities for regulation of the market.

Although the Turkish telecommunications industry was opened to competition through privatization of TT, the reform process has brought about some issues. Regulator followed the different regulatory approaches for mobile and fixed telephony and broadband internet markets, because their different market structures traditionally mean the different competitiveness levels in each segment. While fixed voice and broadband internet wholesale markets have been regulated by the regulator, mobile voice and internet markets were deregulated. However, the dynamic technological nature of telecommunications markets has led to fixed and mobile convergence (FMC) and fixed to mobile substitution (FMS) in these traditional markets. TA failed to fit its regulatory pattern to this progress, although ECA states that competition is the rule and regulation is the exception in its fourth article. This chapter aims to analyze the effect of regulatory reform in the Turkish telecommunications industry on some market indicators. Focusing on the concepts such as convergence, substitution, market definition, and (de)regulation, the chapter particularly considers the implications of
FMS on the competition evaluation for traditional fixed voice and broadband internet markets.

1. The dynamic nature of telecommunications

In order to analyze the regulatory process in a telecommunications industry, understanding the dynamic nature of industry is especially important. In telecommunications industries, the main component determining this dynamic nature is technology, because telecommunications industry has a rapid technological change. This technological change leads to dramatic developments in the structure and nature of the industry. Technological improvements in wireless and cellular broadband services bring about alternative to the traditional fixed services. Consumers prefer mobile services including the new technologies rather than the traditional fixed services (Spulber and Yoo, 2009).

Concepts such as convergence, substitution, and market definition are critical to understand the change and to evaluate the effect of this change on the market structure and analysis. While convergence means introduction of fixed and mobile services that are traditionally different as one service, substitution refers to usage of mobile services instead of traditional fixed services. The presence of convergence and substitution challenges the traditional structure of telecommunications industry and changes the market definition. Accordingly, an important part of the market analysis and definition in telecommunications is convergence. It is measured by substitution. Understanding the power of FMS also includes two main components. Whereas the first is change in the number of subscriptions and penetration rates, the second is cross-demand elasticities. In this chapter, we only use the first one due to the insufficiency of needed
data to test elasticities. FMS is based on the observation that the number of fixed subscriptions decreases, while the number of mobile subscriptions increases. Such interaction between mobile and fixed use rates is a clear indicator of FMS (Vogelsang, 2010).

Accordingly, continued development of FMC and FMS blur the boundaries between fixed and mobile markets. In particular, the presence of FMS leads to mobile operators taking on roles traditionally provided by fixed incumbents. For example, when more traffic in fixed-line voice market move onto mobile services, the importance of mobile services increases at the expense of fixed-line services. Under such an environment, FMC occurs first and then the dynamics of market give rise to FMS. When FMC and FMS result in new services and entrants, service providers’ shares of subscribers and their market shares increase in favor of mobile operators.

As a result, new services and technologies, blurring boundaries, and changing consumer behaviors force the improvement of traditional business models and bring about convergence and substitution in the markets. Although substitution of traditional fixed line voice telephony services by mobile telephony is the main driver of these developments, broadband industry characteristics also affect the development of convergence and substitution between fixed and mobile services. However, the influence of competition on FMC and FMS varies significantly among countries (Briglauer et al., 2011). For that reason, the regulatory relevance of FMS is an issue that has to be dealt with on a country specific level and market definition is therefore expected to differ among countries (Crandall et al., 2002).

2. Privatization and deregulation in the Turkish telecommunications industry
The privatization of TT was the cornerstone in terms of deregulation and competition in the Turkish telecommunications market. Turkey preferred to privatize TT as the state-owned monopoly in the fixed line market first and then liberalization and deregulation of the market. The aim was to increase the revenues from the privatization of TT (Oğuz, 2013; Bagdadioglu and Cetinkaya, 2011; Atiyas and Dogan, 2010). However, the privatization of TT has a long and interesting story. By Law No 4000 enacted in 1994, TT that was unbundled from PTT (Posta Telephone Telegraph), a state-owned company, was restructured as a state economic enterprise. Governments aimed to privatize TT in the 1990s. The initial attempts in the 1990s had been unsuccessful. Law No 4000 aimed to privatize 49% of TT. Some of the articles in this law were controversial in terms of the constitutional review. The law granted the Ministry of Transportation the authority to undertake the privatization of 49% of TT. The related article was annulled by the Constitutional Court, on the basis that such authority to the Ministry amounted to a transfer of legislative authority to the executive and that such procedures had to be specified in law. Then Law No 4107 enacted in 1995 also aimed to privatize 49 of TT (Atiyas and Dogan, 2010). The main reason for Law 4107 was to provide a break-down of how 49% of TT was to be privatized: 10% to the General Directorate of Posts for free, 34% to strategic and institutional investors, and 5% to TT’s employees and small investors (OECD, 2002). Critical articles of this law were also defeated by the Constitutional Court. This time, the reason was to grant too much administrative discretion to the Privatization High Council in determination the valuation and sale conditions of TT (Atiyas and Dogan, 2010).

By another law, Law No 4161, enacted in 1996, government initiated a new privatization strategy with two phased. The first phase that was the so-called Sector Reform and Company Valuation consisted of a detailed analyses of the
telecommunications industry and the value of TT. Including representatives of the Treasury, the Ministry of Transportation, and the Capital Markets Board, a Value Assessment Committee was established to develop a sale strategy. According to the strategy report presented by the Committee to the Council of Ministers, 20% of TT were to be privatized via block sale to a strategic partner. Although this law was not annulled by the Constitutional Court, the attempts were again unsuccessful due the lack of interest from international investors for the block sale of TT. The effects of economic crises in 2000 and 2001 and further pressure from international organizations like IMF, OECD, and EU forced Turkey to enact a new legislation, Law No 4673, in 2001. Although this law revised the previous sale strategy, privatization was not performed again (OECD, 2002).

With the general elections of 2002, the privatization of TT entered a new phase. The new government was a single party government contrary to the short-termed coalition governments in the 1990s. It was decisive in privatization and deregulation of the network industries like energy, transportation, and telecommunications. In November 2003, the new government decided to privatize at least 51% of TT through a block sale and the remaining as public offerings. By Law No enacted in 2004, the upper limit on foreign ownership insisted in the previous attempts was removed. In October 2004, the block sale of 55% of TT was decided by Council of Ministers and the tender process for bids began. Oger Telecoms Venture Group (a consortium led by Saudi Oger and Telecom Italia) won the tender held in July 2005 and the sale was performed (Atiyas and Dogan, 2010).

3. Institutional framework for the reform
The privatization of TT triggered new developments in the Turkish telecommunications industry and as a whole in Turkey. One of them was the transformation of public services in Turkish regulatory framework. It was a breaking point for the transition from the traditional French understanding regarding public services to a more market-oriented view of the European Union (EU). Following the EU Directive of 2002 (Directive 2002/22/EC), Law on the Provision of Universal Service, Law No 5369, enacted in 2005 redefined universal service as ‘*electronic communications services which are accessible to everyone within the territory of Republic of Turkey independently of geographical location, and which are to be offered with a predefined level of quality and minimum set of standards in return for reasonable prices affordable to everybody*’.

At the same time, this is also part of the accession process to the EU. Since the aim of the EU Directive is to adjust the telecommunications markets of member states of the EU. By means of Law No 5369, Turkey initiated to align its-own internal market with the EU telecommunications market and the related regulations of the EU member states. Accordingly, the law, in line with the EU Directive, included basic-line telephone services, public pay phones, telephone directory services to be provided in the printed or electronic media, emergency call services, and communications services distress and safety calls at sea into the definition of universal services in the Turkish telecommunications industry. The law gave government the right to expand the scope of universal services and the current government expanded the scope to include the services of information technologies, computer literacy, digital broadcasting, digitalization of public documents, provision of communications means to handicapped citizens and infrastructure of sea communications (Oguz, 2013).
In Turkey, although liberalization in the fixed line voice market started with the introduction of mobile telephone services into the market by mobile operators Turkcell and Telsim, liberalization and deregulation for the industry actually began the establishment of TA as an independent regulator in 2000. Additionally, through Electronic Communications Law (ECL), Law No 5809, enacted in 2008 forced the Turkish regulatory framework to become much more compatible with the 2002 EU framework and changed the title of Telecommunications Authority established in 2001 as Information Communications and Technology Authority (ICTA). The ECL restricted the regulatory power of the Ministry of Transport in the telecommunications industry and gave it ICTA to protect competition, to undertake market analyses for market definition, to determine operators with Significant Monopoly Power (SMP), to regulate operators with SMP, and to approve tariffs and prices, if necessary (Atiyas, 2011).

In short, the Turkish telecommunications industry became compatible with the regulatory framework and market structure of EU. Because TT was de facto privatized and the fixed line voice market was opened to competition, it is possible to de jure say that voice market is also competitive as in internet market. The ECL stipulates a competitive market structure for all segments of the industry. As an independent regulatory agency, ICTA is the sole authority that is responsible for regulation of the industry. Economic regulations such as price controls and licensing or the de-regulatory process are compatible with the EU Directives.

4. The Economic Rationale for Regulation of TT: The Bottleneck Monopoly
In the telecommunications industries, there may be `essential bottleneck` facilities that the incumbents firms control to the temporary or permanent disadvantage of potential competitors. In general, such actions are against competition. If an incumbent firm like Turk Telecom in the fixed-line voice market impede the access of new entrants to its own infrastructure, it violates competition. This is a bottleneck monopoly. Regulatory agencies and competition authorities have to address the problems raised by such bottlenecks (Crandall, 2000).

It is possible to say that TT is a bottleneck monopoly in the fixed line telephone market. In spite of privatization and deregulation, there is not yet a new entrance into the fixed line voice market. For that reason, regulator defines TT as a monopoly and strictly regulates it. However, this does not mean necessarily the monopoly power for TT and regulation of its market activities. Since, the reason for the absence of new entrants in the fixed line is FMC in voice services, but exactly not the monopoly power of TT on the fixed line infrastructure. As discussed in detail below, competition in telecommunications occurs through convergence and substitution of traditionally different markets. If fixed and mobile voice markets are substitute, these markets are now defined the same market. The Turkish telecommunications industry has also the same trend.

5. Deregulation and changing market structure in voice market

In that sense, a dramatic change has occurred in fixed and mobile over voice markets in the last decade. While the share of mobile voice has increased, the number of fixed voice subscriptions has increasingly decreased. However, because regulator has defined fixed and mobile voice as the different markets in spite of the change including
convergence and substitution among the markets, it has preferred to regulate fixed voice and to deregulate mobile voice. But, developments in the market have showed that competition in voice has brought about convergence and substitution of fixed and mobile voice markets that are defined as traditionally different markets. Figure 1 reflects the number of mobile and fixed subscriptions and their penetration rates. The figure shows that there are currently FMC and FMS in the Turkish voice market. The number of fixed telephony subscriptions that was 19 million in 2004 declined to 15 million in 2011 with a 21% decrease. Similarly, while penetration rate for fixed telephony was 26.7% in 2004, this rate decreased 20.6% in 2011.

Figure 1. The number of subscriptions and penetration rate in voice

![Graph showing number of subscriptions and penetration rate in voice](image)

Source: Market Analyses of ICTA.

* As of June 2012.

On the other hand, the number of mobile subscriptions increased from 35 million in 2004 to 64 million in 2011. Accordingly, penetration rate for mobile voice that was
48.5% in 2004 reached 86.68% in 2011 with a 40% increase. There are two important results of this finding. First, there is a powerful negative relationship among the numbers of mobile and fixed voice subscriptions, because fixed penetration rate decreased and mobile penetration rate increased while population in Turkey increased during the same period. This means a clear FMS in voice. Second, there is a positive relationship between disconnect rates in fixed voice subscriptions and the number of mobile subscriptions. This means a more powerful FMC and FMS in voice.

Figure 2: Development of fixed and mobile outgoing voice traffic (minutes)

Source: Market Analyses of ICTA.

On the other hand, the effects of FMC and FMS are more obvious in terms of voice traffic volumes. Figures 2 and 3 show the rates of fixed and mobile outgoing traffic volumes (in million of minutes) the market shares by years. Accordingly, the rate of mobile traffic volume exceeded the rate of fixed in 2005 and a gap between the rates had occurred in favor of mobile volume until 2011. Whereas the rate of fixed in
total volume declined from 86% in 2004 to 13% as of the end of 2011, the rate of mobile increased from 14% in 2004 to 87% in 2011. This development means FMS in voice.

Figure 3. Change in fixed and mobile traffic volume (billion minutes)

![Graph showing change in fixed and mobile traffic volume](image)

Source: Market Analyses of ICTA, 2011.

The dispersion of traffic volume between mobile and fixed calls in the call origination segment of voice market is more important to reveal FMC and FMS in voice. Figure 4 shows this situation. As depicted in the figure, from mobile to fixed calls began to exceed from fixed to mobile call in 2009. After 2009, this rate has developed in favor of mobile call origination. Again, this development means that the Turkish telecommunications market has experienced significant FMS in voice market. Since such a relationship in the call origination market of voice refers to a strong FMS.

Figure 4. Traffic in call origination from fixed to mobile and from mobile to fixed (minutes)
As expressed by Crandall et al. (2002), because the decline of fixed line voice services and the increase of mobile voice are evidence for FMS, those developments mean that there is a smooth FMC and FMS in voice. Regulator has to define fixed and mobile voice services as the same market. They are not different services and markets in Turkey. Under these conditions, the duty of regulator is to deregulate the individual operator in the fixed voice market as in the mobile voice market. Conversely, while regulator in Turkey defines the individual operator in fixed voice as firm with the SMP and regulates it, the individual firm in mobile voice is not being regulated by regulator. This regulatory structure causes an unfair institutional environment for the market players.

6. A comparative analysis between Turkey and EU

Clearly, penetration and subscriber rates justify maturity of the fixed line market. Because penetration and subscriber rates have decreased in the UE countries as well, market developments in the Turkish telecommunications industry are in parallel with
the trend in EU or stronger than EU. For that reason, in this section, in order to understand better development in the Turkish voice market, we compare the fixed and mobile telephone markets in Turkey and EU. Figures 5 and 6 include a comparison of the change of fixed and mobile markets in terms of outgoing voice traffic. Figure 5 depicts the changes in the fixed voice markets. As depicted in the figure, while the rates of fixed outgoing voice traffic in Turkey and Central and Eastern Europe continue to decrease, that rate shows an increase in Western Europe. For Western Europe, it appears that the share of fixed and mobile outgoing voice traffic is equal each other in 2011. This suggests maturity of the fixed and mobile markets in Western Europe.

Figure 5. Rates of fixed outgoing voice traffic

![Graph showing rates of fixed outgoing voice traffic from 2009 to 2011 for Turkey, Western Europe, and Central and Eastern Europe.](source: ICTA, Statistics.)
On the other hand, in 2011, the share of mobile in the total ongoing voice traffic in Turkey approaches 90% and the share of fixed declines 10%. A similar situation is also valid for Central and Eastern Europe. That is, while the share of fixed in the total ongoing voice traffic decreases in Turkey, the share of mobile strongly increases. However, this rates for Central and Eastern Europe were 75% and 25% for mobile and fixed in 2011, respectively. When we compare Turkey and EU, we see that the change in Turkey is more radical and dramatic as per in the EU countries. The findings clearly suggest that there is a sharp competition between fixed and mobile voice markets in the Turkish telecommunications industry. This market structure strongly forces fixed and mobile voice become substitute.

Figure 6. Rates of mobile outgoing voice traffic

Source: ICTA, Statistics.
Figures 5 and 6 revealed that FMS in the Turkish voice market is stronger than in both Western Europe and Central and Eastern Europe. In that case, because the regulatory process has to track the structural features of related market and the trend of developments in the Turkish voice market refers to the different structural situation than the EU countries, the voice market has to be redefined. For that reason, although the retail fixed and mobile voice markets in EU are not defined as the same market or substitution of each other, the market definition in Turkey should be differentiated in compatible with the changing market structure. However, ICTA as regulator continues to regulate asymmetrically the Turkish voice market.

It is accepted that the main difference in the policies of regulator regarding fixed and mobile segments occurs in regulation of interconnection (Atiyas, 2011). In telecommunications industry, generally, while the whole incumbent firms prefer higher termination charges, new entrants want lower termination charges. The Turkish regulatory regime in telecommunications includes a freely agreement among parties in access their own interconnection first and then intervention of regulator, if the parties cannot reach an agreement. Regulator determines access charges for the parties in interconnection and disclosures the tariffs for those charges on annual basis.

Figures 7 and 8 show the trend of change in the fixed and mobile call termination rates in Turkey by years. As shown in the figures, after TT was privatized in 2005, interconnection rates have decreased for the incumbent firms in the fixed and mobile voice markets. This actually means the effect of privatization and deregulation on competition and prices. Clearly, after
privatization of TT and removing its monopoly rights, prices decreased both in mobile and fixed segments. However, competition has affected the mobile voice market more than the fixed voice market. As depicted in Figure 7 the decrease in mobile interconnection rates is more dramatic.

Figure 7. Fixed Interconnection Charges

Source: BTK, Interconnection Rates Statistics.

Figure 8. Mobile Interconnection Charges
On the other hand, developments in termination charges can be assessed in terms of FMS as well. Accordingly, the findings regarding the trend in termination charges show one more time that mobile voice services have become substitution of fixed voice services. In particular, this finding is meaningful when we compare Turkey and EU. Figure 9 presents a comparison between Turkey and the EU countries in terms of fixed termination rates. It is clear that the call termination rates on fixed network in Turkey is above average in EU.

Source: BTK, Interconnection Rates Statistics.
On the other hand, figure 10 includes a comparison of mobile termination rates in Turkey and the EU countries. The figure depicts that the rates in Turkey are lower than nearly all of the EU countries.

Those figures present a comparison of fixed and mobile termination charges in Turkey with the average of the EU countries for the same rates. Accordingly, whereas termination charges on call ending on fixed network in Turkey were highly above the EU averages, the call termination charges in the Turkish mobile voice market are rather low than the average of the EU countries. This means that the regulatory authority in Turkey is more willing to encourage entry into the mobile voice market rather than the fixed telephone market by determining the rates higher in the fixed voice and lower in the mobile voice.

7. Deregulation and competition in broadband internet

As mentioned above, in order to understand whether there is FMS in an industry, we have to consider the number of subscriptions. In that case, figure 11 depicts that FMS in broadband internet is currently obvious. As shown in the figure, especially after
entry of mobile internet into the broadband internet market was deregulated in 2010, the number of internet subscriptions from mobile phone and PC sharply increased and this number exceeded the number of fixed internet subscriptions in 2011. As of today, as the number of mobile internet subscriptions continues to increase, the number of fixed subscriptions has a stationary trend. On the other hand, the number of cable TV and fiber internet subscriptions also increases. This situation suggests that the traditional fixed internet is substituted by internet through new technology tools, because fixed internet reached a maturity in Turkey and the internet connection of new technologies such as mobile, fiber, and cable TV is more popular. As a result, we can infer that the analysis of change in the number of internet subscriptions and the changing consumer choices affirm there is FMS in the Turkish broadband internet market.

Figure 11. The Number of Internet Subscriptions

Source: Data are obtained from ICTA.
On the other hand, in order to understand better the substitution effect of change in the subscription numbers, we have to analyze how this change influences the market shares of firms. Since the main criteria that regulators take into consideration in the market analysis of telecommunications sector is the market share of incumbent firm and new entrants. Almost all regulators over the world define and regulate firms having high market share as operators with market power (Baker, 2007; Carlton, 2007). In particular, technological change in the mobile services decreases the number of subscriptions of individual firms in the traditional fixed telecommunications services. Through the number of subscriptions, this change gives rise to a dramatic decline in the market shares of fixed operators. Figure 12 depicts the market shares of operators in broadband internet. As seem in the figure, in Turkey, while the share of fixed operator in broadband internet has dramatically decreased after the first quarter of 2010, the share of mobile operators has increased. In terms of market shares, we can infer that there is currently a strong FMC in broadband internet. It also means FMS. Although the market follows such a development trend, the problem is that regulator in Turkey still defines fixed operator as individual firm with the SMP. Conversely, while the market share of fixed operator was over 90% in 2008, it decreased to 50% as of the second quarter of 2011. Obviously, the introduction of competition to the market has changed the market structure in broadband internet.

Figure 12. Change in the Market Shares of Internet Companies by Years (%)
Conclusion

Over the last decade, Turkey has been tracking a regulatory reform in its network and infrastructure industries. The aim is to institutionalize competition in the related industries in parallel to the process of economic change initiated in the 1980s. Although the 1980s and 1990s witnessed a failure story, the last decade has led to a successful process in terms of the political economy of regulatory reform. Whereas the IRAs have been the crucial players of regulatory policy-making processes, privatization, deregulation, and competition have been the prominent components of regulatory reform. It is possible to say that the post-2002 regulatory reform played a vital role in surmounting the global economic crisis occurring in USA and EU in 2008. The restructuring of telecommunications, electricity, natural gas, and airlines has brought about competitive gains for consumers, firms, and the country economy.

In telecommunications, the privatization of Turk Telekom and deregulation of entry to the market has led to competition. The markets such as fixed and mobile
internet and voice that are traditionally different have converged. Convergence has brought about a substitution between these services or goods. FMC and FMS emerging through the technological development specifically in the mobile products have caused competition in the Turkish telecommunications market. However, the regulatory process has not followed a change in parallel with the dramatic development in the market conditions. Regulator has continued to define the traditional fixed services and strongly changing mobile markets as the same market. Consequently, it preferred regulation of fixed services and heavily deregulation of mobile services. Instead, the findings and market developments suggest that regulator has to revise its market analysis and definition as per the dramatically changing market conditions and structures.

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