DISSERTATION FOR THE UNIVERSITY OF LIVERPOOL

The impact of regulatory policies on competition in the fixed telecommunication industry in Turkey

by

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Abstract

Liberalisation and Privatisation can offer some benefits such as lower prices, quality, productivity, open competition, and investment. As of 2004, liberalisation process started in the fixed telecom industry in Turkey. Also, incumbent telecom operator's monopoly situation was ended. Therefore, the largest commercial business groups of Turkey such as Borusan Holding, Koc Holding, Sabanci Holding, and Yildiz Holding started to make massive investments to set up their own telecom companies during the liberalisation process. However, after a certain time, these commercial groups decided to quit the fixed telecom industry. As a consequence, there may have been some challenges in competition or liberalisation process. Therefore, the purpose of this dissertation was to investigate if the regulatory arrangements have been applied fairly and in an impartial manner.

In the study, the Author used both qualitative and quantitative research methodologies. In essence, the Author conducted a primary research to gather qualitative data in order to understand people perceptions and feelings towards Turkish telecommunication reform performance. Furthermore, the Author aimed to collect quantitative data in order to measure dependent variables of the telecom reform performance among some OECD countries.

According to primary research results, the service quality has increased and the service prices have decreased during reform process. In addition, the majority of participants declared that there is a heavy tax burden for telecommunication services. The questionnaire also raised topics of independency, transparency, and fairness of the regulatory authority for discussion. In addition, in the questionnaire,

38.6% of participants disagreed and 28.1% of participants agreed that the incumbent operator has obeyed the competition rules since liberalisation and privatisation process. Also, according to secondary study results, there is a gap regarding performance rates between OECD countries and Turkey.

The originality of this study lay in the fact that within the Turkish fixed telecommunication industry there has been a limited number of studies. The study aimed to aid in improving telecom standards performance by putting forth the impact and results of regulatory arrangements in the fixed telecommunication industry. Therefore, this paper can be an important resource for sector managers, entrepreneurs, telecom professionals, and academicians.

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Chapter 1: Introduction

1.1 Background

Telecommunications, electricity and railways industries can be described as a monopoly. Some activities such as road transportation, generation of electricity, and value added services are regarded as potentially competitive. Therefore, the main issue is to build the necessarily regulated environments in order to foster competition for these activities (Laffont and Tirole, 1994). The competitive market conditions can provide new companies to challenge incumbent businesses. Thriving companies can grow in the sector and inefficient companies may exit from the area. There are two primary policies to raise and encourage competition. “First, product market regulation should be set in a way that does not hamper competition and, second, an effective antitrust framework needs to be in place that safeguards a level playing field among firms” (OECD, 2015a). In order to achieve regulated market conditions, ‘Liberalisation’ and ‘Privatisation’ are two necessary actions. These actions can include a liberalised trade offering some benefits such as lower prices, higher quality services, productivity, open competition, and investment (OECD, 2015b). The objective of the regulation is to build competitive environment in the regulative sectors. Atiyas (2001, p.42, own translation from the Turkish text) states that regulation and competition are complementary elements with each other. To work the market mechanism, the property relations should be defined in the economics literature. Also, Vickers (1997, p.15) stated that competition policy has three aspects such as (1) “structure”, (2) “liberalisation”, and (3) “conduct regulation” in the regulated industries. The structural policy is directly related to the privatised monopoly firms in terms of limitation and the use of rights. Liberalisation policy

focuses on the reduction of legal barriers entering the market. The conduct regulation is directly related to pricing behaviour of monopolies.

1.2 Overview of Turkish Telecommunication Industry

In Turkey, the telecommunication tasks such as rights, obligations, and duties were given to the public monopoly company called the Post, Telegraph and Telephone (PTT) under Law no. 406 in 1924. PTT monopoly situation in the telecommunication industry had continued until 1994 by Law no. 406. The government made a radical change by separating telecommunication services from PTT in 1994. However, there was no regulatory authority in the sector until 2000. Law no. 4502 amending Law no. 406 changed the framework of the telecommunication industry by establishing a national regulatory authority called the Telecommunications Authority (TA) in 2000. Not until the end of 2003 the closing date of monopoly situation of Turk Telekom was determined by Law no. 4502. As of the year of 2004, the liberalisation process started in the fixed telecom industry in Turkey. As a consequence, incumbent telecom operator's monopoly situation was ended (ATIG, 2015, p.1, own translation from the Turkish text). Also, 55% of Turk Telekom, which is the incumbent operator, was privatised in 2005 (Bagdadioglu and Cetinkaya, 2010). TA was then subjected to new telecom regulations by the Electronic Communications Law No. 5809 and the name was changed to the Information Technologies and Communications Authority (ICTA) in 2008. Consequently, the government gave an assurance to be aligning with the EU acquis because Turkey is a candidate member of the EU (Akdemir, Basci and Togan, 2007; Bagdadioglu and Cetinkaya, 2010; Burnham, 2007).

1.3 Problem Statement and Objectives of Study

The telecom regulatory framework of Turkey has to conform to the guidelines that of "Chapter 19 of the EU acquis" (Burnham, 2007, p.199). These guidelines point out that individuals and organisations should offer low-price and high-quality telecom services (Burnham, 2007). Also, Jungmittag and Welfens (2009) stated that the liberalisation contributes to price reductions and service volumes in the telecommunication industry. Thus, a competitive environment is necessary to provide these benefits. The national regulatory authority is obliged to make the necessary regulations to encourage competition. On the other hand, European Commission's 2009 progress report for Turkey pointed out that four key concerns such as (1) the market share of alternative operators continues to be low, (2) the Electronic Communications Law of 2008 is not suitable with the EU acquis, (3) there is a problem in terms of fixed-line and broadband services, and (4) the high tax rate is a major obstacle in the telecommunication sector (EC, 2009, cited in Bagdadioglu and Cetinkaya, 2010, p.728-729). For example, the largest commercial business groups of Turkey such as Borusan Holding, Koc Holding, Sabanci Holding, and Yildiz Holding started to make massive investments to set up their own telecom companies along with the liberalisation process in the fixed telecom industry. However, after a certain time, these commercial groups decided to quit the fixed telecom industry. As a consequence, it can be deducted that there may have been some problems in competition or liberalisation process to achieve business results. It is crucial to find these reasons in terms of sector development and new investments. One of the objectives of this study is to be a useful guide for entrepreneurs who aim to do business in the fixed telecom industry in Turkey. Also, it may serve as an additional source for existing alternative operators to consult to and it may remind the impact of

the regulation issues on the competition. Therefore, this study aims to explore the impact of regulatory policies on competition in the fixed telecommunication industry in Turkey.

1.4 Research Objectives and Questions

The liberalisation process started in the fixed telecom industry in Turkey in 2004. However, when the situation of the fixed telecom industry since 2004 is examined, it is observed that the market share of alternative operators is well below the European Union (EU) average. There may be many factors to impact this result. The regulatory policies may be one of them. The Author aimed to explore if the regulatory arrangements have been applied fairly and in an impartial manner. According to Train (1991) regulatory authority should design appropriate mechanisms and build an accurate framework to encourage telecom firms to achieve results. Also, "to work, competition requires certain conditions. Most important, the market must contain many firms with none dominant, allow free entry and exit, and exhibit no externalities" (p.1). Therefore, the Author asks the main research question as 'Have the regulatory arrangements been applied fairly and in an impartial manner to ensure raising competition and the development of the market?' The Author seeks the answer to the main question by asking two more additional questions. The answers to the following questions will be a source of the above research question. In this context, the first question, 'compared with OECD[1] countries, is the liberalisation process in Turkey inefficient?'

[1] OECD is an acronym for The Organisation for Economic Co-operation and Development, which is founded in 1961 to foster economic development of the countries. To receive more information, please visit http://www.oecd.org

The second question, ‘what are the internal and external factors that affect the regulation process?’ In this context, first, the Author synthesized available literature regarding regulated telecommunication industry and aimed to reveal the affecting factors on regulation practices. Second, the Author conducted a qualitative research with related people and used a questionnaire in order to have an objective approach. Third, the Author collected quantitative data from publicly available websites for a secondary research study. Fourth, the Author analysed qualitative and quantitative data in order to achieve results. Finally, the Author explained these study results and brought a logical explanation on the subject.

1.5 Theoretical Framework

Political, Economic, Social, Technological, Environmental, and Legislative (PESTEL) design provides a comprehensive framework for the analysis and evaluation of various factors, which have an impact on competition (Dockalikova and Klozikova, 2014). Stewart, Harte and Sambrook (2011) pointed out that it is hard to explore a theory without any limit or boundary. Therefore, the framework of the study is restricted to telecom regulation aspects. In the study, PESTEL factors were taken into account as a theoretical framework in order to discover and analyse the macro-environmental factors that have an impact on the competition in the telecommunication industry (Dockalikova and Klozikova, 2014). Also, Liberalisation and Privatisation are two necessary actions in order to achieve regulated market conditions. These actions can include a liberalised trade offering some benefits such as lower prices, higher quality services, productivity, open competition, and investment (OECD, 2015b). Therefore, the theoretical framework of this study also considers these fundamentals (1) lower prices, (2) higher quality services, (3)

productivity, (4) open competition, and (5) investment.

1.6 Organisation of Chapters

This study presents the impact of regulation on the fixed telecom industry in Turkey. In this chapter, the Author starts with an Introduction in order to explain the background, the overview of Turkish telecommunication sector, the study aims, the research questions, the theoretical framework, and the organisation of chapters. The rest of the paper proceeds as follows. Chapter Two provides a detailed literature review of the impact of regulatory policies on competition in the telecom industry. Chapter Three provides the details of the research process and a defence of the selected methodology. Then, Chapter Four shows the presentation of the results and includes the analysis of data. Finally, Chapter Five contains conclusions and recommendations of the study.

Chapter 2: Review of the Literature

2.1 Introduction

In this Chapter, the Author seeks some pre-answers to the research questions in the relevant literature. This Chapter provides a theoretical basis for the study and necessary background information for the research process by including relevant literature. Easterby-Smith, Thorpe and Jackson (2012) stated, “a good literature review will ensure that the research undertaken fits in with the existing wider research within the focal area” (p.103). Chapter Two is the literature-based research, and it is regarded as the first step of the triangulation method for the study because the affecting factors such as internal and external are identified by the Author in this chapter. The literature-based research can provide the reader with a perspective to understand the similar case problems and solutions. At the end of this chapter, the reader will have a general idea about the impact of regulatory policies on competition in the fixed telecommunication industry. The reader can find some useful information and relative data about the research questions of the study. Also, the affecting factors in the regulation process such as internal and external are discovered in this chapter. These factors may be negative, positive, or neutral. Therefore, the Author aims to identify these -internal and external- factors as negative, positive, or neutral. In the following Chapters, the Author seeks to verify and confirm these hypotheses.

2.2 The Affecting Factors and Comparisons

Lam and Shiu (2010) provided a contribution to the existing literature with a study in 2010. In the study, they researched the relationships between telecommunication development, economic growth, and productivity growth of the telecom market

across the world. In essence, their paper examines the impact of mobile telecommunication on telecom market productivity and economic growth. The findings showed that there is a bidirectional relationship between telecommunications development and gross domestic product (GDP) in the high-income countries. The other findings are that the upper-middle income countries achieved a higher average total factor productivity (TFP) growth than others, and also, competition and privatisation can provide a higher TFP growth for countries. In terms of fixed line operators, TFP growth of stated-owned operators were “1.046”, TFP growth of partially privatised operators were “1.072”, and TFP growth of fully privatised operators were “1.086” (p.194). The empirical results showed that liberalisation and privatisation processes improved the efficiency in the telecommunication industry (Lam and Shiu, 2008, cited in Lam and Shiu, 2010, p.187). Also, developed countries had achieved better results than emerging countries in terms of liberalisation and privatisation development. As a consequence, the former may have better efficiency than the latter (Madden and Savage, 1999; Ros, 1999, cited in Lam and Shiu, 2010, p.187). In conclusion, ‘*the degree of privatisation*’ should be regarded as one of the internal factors. There is an opposing view, Torres and Bachiller (2013) argued that privatisation leads to efficiency in the telecommunication industry. However, the liberalisation process does not improve the efficiency of telecom operators.

Fink, Mattoo and Rathindran (2003) analysed the impact of policy reform in basic telecommunications on sectoral performance between 1985 and 1999. This study includes 86 emerging countries. In this study, the findings showed that privatisation and competition provide some significant improvements in telecom performance.

The most important thing is the sequence of reform matters. If competition is introduced after privatisation by the national regulatory authority, penetration will remain at a lower level. As a consequence, *'the sequence of reform matters'* should be regarded as an internal factor.

Burnham's study provides a correlation between economic development and modern telecommunication technologies. Also, this study defines *'the effect of the European Union framework regulation'* as an external factor that affects on regulation practices. Turkey is one of the candidate members of the European Union (EU). Therefore, the telecom regulatory framework of Turkey has to conform to guidelines that "Chapter 19 of the EU acquis" (Burnham, 2007, p.199). These guidelines point out that individuals and organisations should have a low-price and high-quality telecommunication access and services (Burnham, 2007). In addition to that, according to Burnham (2007) modern technology is a crucial element in the economic development process. Therefore, modern telecommunication technologies may be regarded as an external factor that impacts regulation practices. Burnham (2007) added, "the issues involved in the rapid deployment of this technology are complex and frequently highly controversial" (p.197). Burnham (2007) also stated that price competition is a key performance indicator in the liberalised telecom industry. In spite of the indicator, Burnham pointed out that telecom service prices in Turkey are higher than OECD countries. One of the causes for which is the heavy tax burden over telecommunication services. As a consequence, *'the impact of modern and new technologies'* should be regarded as an external factor and *'the impact of tax policy'* should be regarded as an internal factor that impact on competition in the telecommunication industry. Burnham (2007), As well as

Jungmittag and Welfens (2009), also stated that telecom prices fall with the reform process. However, there is an opposing view here. Shew (1994, cited in Boliek, 2007, p.49) pointed out that there was no evidence regarding subscriber or consumer benefits from price regulation in the reform process in the mobile telecommunication industry in the United States. Interestingly, Shew added that the threat of regulation may be more advantageous for consumers or subscribers. However, these arguments are not compatible with the current primary research results of this existing study.

Bagdadioglu and Cetinkaya (2010) highlighted Turkish telecommunication reforms and progress in terms of EU acquis in their study. This study examined Turkish telecommunications reform by using the evidence in the sequencing literature. They stated that Turkish telecommunication reform progress conforms with the proper change structure suggested by the sequencing literature. In this context, at first, Turkish Telecommunications Authority was established in 2000. Second, the telecommunication sector was liberalised in 2003. Third, the incumbent operator was privatised in 2005. However, despite the implementation of the proper reform structure, the European Union progress reports stated that telecom market had not been functioning satisfactorily in Turkey. According to Bagdadioglu and Cetinkaya, the primary cause for this result is the delay in reform implementation. This study recommended that there is a necessity to build a close cooperation with the existing government and the regulator authority to reinforce the autonomy and establish a more independent and transparent decision-making process. As a consequence, the existing government policy should be “responsive”, “consistent”, “credible”, and “coherent” in order to achieve results (p.734). However, the existing government

policies do not include these aspects, which determine *'the degree of independence of regulatory institutions'* and should be regarded as one of the internal factors. On the other hand *'the effect of the European Union framework regulation'* should be regarded as an external factor.

On the subject of framework regulation, Gual and Trillas (2006) aimed to measure and to analyse telecommunication reforms with two-dimensional aspects in their study. In this context, one of the two-dimensional reforms is an "entry barriers", and the other one is "regulatory independence" (p.249). They directly focused on entry barriers and the degree of independence of regulatory institutions. In their study, institutional and political data are analysed to determine telecommunications policies. The findings showed that "entry barriers are positively associated with the degree to which countries have an interventionist legal tradition" (p.249). However, they did not find any link between entry barriers and the partisan ideology of existing governments. In the same study, they also found that countries, which have larger incumbents, are more prone to building independent regulatory authorities. Nevertheless, the existing or reforming government may be regarded as an internal factor to impact on regulatory policies. In this context, their paper may be useful to understand the importance of entry barriers and regulatory independence on fair competition. It can be said that, Gual and Trillas (2006) made a contribution to the literature with this paper. In their paper, they first measured and analysed the determinants of regulatory independence. Second, they examined privatisation as one of the elements of the independence set. Third, they examined the impact of the judicial traditions. Gual and Trillas' study plays a crucial role on detecting internal

factors that impact on competition. In conclusion, *'the degree of independence of regulatory institutions'* should be regarded as one of the internal factors.

Laffont, Rey and Tirole (1997) examined and analysed unregulated network competition in the transition and mature stage in the telecommunication industry. Their study included non-discriminatory and termination based discriminatory pricing, and also competition for consumers in linear or nonlinear prices. Laffont, Rey and Tirole pointed out that there is the price discrimination based on call termination in the study. Their study also examined access charges for effective competition in the mature stage and barriers to enter to the industry. In conclusion, their study showed that an incumbent operator might use the reciprocal access charge as a powerful tool to keep its market share against the new entrants. In terms of Turkish Telecommunication market, competition may be regarded as a new issue and does not have a long history. In this sense, there may be some similar approaches and regulatory authority should have fair methods and policies. On the other hand, according to many telecom observers, "regulation will soon give way to competition policy" (p.701). In conclusion, *'the degree of independence of regulatory institutions'* should be considered one of the internal factors.

Gasmi and Recuero Virto (2010) examined the determinants of telecom reforms in emerging countries. Their study had two goals. First, it aimed to identify the key determinants of policies such as privatisation, liberalisation, and the restructure of regulation. Second, it sought to estimate these policies' relation to the deployment of telecommunications infrastructure. In the telecommunication industry, developed and developing countries aimed to enhance operators' performance. In this sense, some level of privatisation had been realised, and the regulatory and legal framework had

been redesigned in order to achieve efficiency, quality of service, and tariff equality. However, there were more challenging tasks for developing countries than developed countries. For instance, some of the significant challenges were inefficient institutions, weak economic performance, and poor infrastructures. Their econometric analysis on 86 emerging countries between 1985 and 1999 suggested that sectoral, financial, and institutional factors were crucial determinants of the reform process. In conclusion, two important issues rose such as *'the degree of independence of regulatory institutions'*, and *'the degree of privatisation'.*

Li, Qiang and Xu (2005) investigated the determinants of regulatory reforms in emerging countries between 1990 and 1998. According to their study's findings, regulatory reforms were attributable to differences in the political structure and the configurations of interest groups. Interest groups are regarded as the great number of urban consumers, a larger financial service industry, and trade-intensive businesses. If countries have strong pro-reform interest groups, regulatory reforms will have more chance to achieve results. If incumbent companies make big investments, regulatory reforms will have less chance to achieve results. However, democracy factor can facilitate the actions of interest groups. The findings showed that the regulation of telecommunication industry was not clear until the 1990s, because the incumbent operator acted as an arbitrator in the regulation regime. However, with the effect of privatisation and corporatisation, there was a necessity to create independent and separate regulatory institutions. For example, there were ten independent regulatory institutions in the world in 1990; however, the number was 84 by 1999. Also, the regulator institutions have broad authority regarding regulatory issues in some countries whereas in other countries, the regulator institutions have

to share responsibility with the telecommunications ministry, and also the operators. As a consequence, these factors directly affect the realisation of telecommunication reforms. According to their study, *'the degree of independence of regulatory institutions'* is emerging as the main headline. Li, Qiang and Xu's study provides a supporting perspective and evidence in terms of regulatory reforms.

Jungmittag and Welfens (2009) stated that the liberalisation contributed to price reduction and service volumes in the telecommunication industry. Their study pointed out the economic impact of international telephony services. The International Telecommunication Union[1] (ITU) had regulated international call pricing, and national or incumbent operators have to cooperate with these practices and rules. According to their study, falling costs should encourage competition and enlarge market volume. Also, inadequate and unequal regulatory practices can impair innovative developments and investment decisions. As a consequence, two important issues rose such as *'the degree of independence of regulatory institutions'* as an internal factor and *'the effect of the ITU framework regulation'* as an external factor. Their paper provided a broad perspective in terms of market size and price based competition in the telecom market.

[1] ITU is an acronym for the International Telecommunication Union, which was formed in 1865 to coordinate, promote, improve and assist the worldwide technical standards in the information and communication technologies industry. To receive more information, please visit http://www.itu.int

Cowhey and Klimenko (2000) examined the primary consequences of the World Trade Organisation[2] (WTO) agreement on telecommunication services in emerging countries. The findings showed that the WTO agreement changed market expectations in terms of pricing, supplying, demand growth in the telecommunication industry. Also, the WTO-enforced regulatory code had reduced the risks for investors. Moreover, one of the most important outcomes of the study was that enforceable regulatory code was a crucial tool to provide policy consistency and flexibility during the introduction of competition process for emerging countries. As a consequence, *'the effect of the WTO agreement'* may be regarded as one of the external factors.

There is an opposing view, according to Ozdemir (2008) "Turkey's membership of the WTO and the GATS also paved the way for privatisation and the abolition of foreign ownership restrictions" (p.66). However, in this current study, the Author did not find a clear evidence for this argument. In the primary research, the Author investigated this argument. According to results, 8.8% of participants said *'disagreed'*, 29.8% of participants said *'neither agreed nor disagreed'* with the national regulation process, and reforms in the telecom industry have been affected by international regulatory and reform institutions such as OECD, EU, WTO, and ITU. Therefore, there is still room to prove this argument.

[2] WTO is an acronym for the World Trade Organisation, which was formed in 1995 to regulate international trades. WTO has got 161 members. To receive more information, please visit https://www.wto.org

2.3 Discussions

In this chapter, the dissertation problem has been examined. As a consequence, eight items in total have emerged as affecting factors to the competition. In essence, two crucial factors have primarily emerged such as *'the degree of independence of regulatory institutions'*, and *'the degree of privatisation'*. These two factors may be regarded as the most important factors. However, the Author of course took all these factors into account for the primary and desk research processes. According to Spiller and Cardilli (1997) there were three necessary actions to achieve and complete the reform process in the telecommunication industry as (1) the privatisation of the state-owned monopoly company, (2) the introduction of competition, and (3) the establishment of independent regulatory agencies. In this context, two crucial items emerge: liberalisation and privatisation. Therefore, to create a steady liberalisation process, first there should be a fully independent regulatory agency, and second privatisation process should be completed and there should not be any discrimination between the incumbent operator and alternative operators. Turk Telekom is an incumbent operator in Turkey, and 30% of Turk Telekom belongs to the Turkish Treasury Undersecretaries, which is affiliated to the Prime Ministry of Turkey. In this case, Turk Telekom is 'a partially privatised operator', not 'a fully privatised operator'. Also, the Shareholders' Agreement and the Articles of Association state that Turkish Treasury Undersecretaries has a private 'Class C' share. According to the Shareholders' Agreement, Class C share approval is required for the following matters: (1) "any proposed amendments to the Articles of Association", (2) "the transfer of any of the Company's registered shares", and (3) "the registration of any transfer of the Company's registered shares in the shareholder ledger" (Turk Telekom, 2015). As a consequence, the existing Turkish

government has got a power on the incumbent operator for important matters. On the other hand, the Regulatory Authority called ICTA has subordinated to the telecommunications ministry called the Ministry of Transport, Maritime Affairs and Communication (MoTMAC) in Turkey (UBAK, 2015). As a consequence, first of all, there is still a state power on the incumbent operator. Second, there are some questions about the competition. Finally, third, it is hard to mention about a fully independent regulatory agency in Turkey. Therefore, in the questionnaire, the participants are asked a question about the practice of the principle of neutrality of ICTA.

2.4 Literature Gap

Many empirical academic studies have been written regarding telecom reform process for the last two decades. However, these studies have focused on a few specific subjects from the list of economic growth, price regulation, the sequence of reform processes, the effect of international institutions, modern technologies, political barriers, and so on. For example, Lam and Shiu (2010) focused on the relationships between telecommunications development, economic growth, and productivity growth in the telecommunications sector for more than 100 countries. Especially, this paper examined the impact of mobile telecommunication industries. Whereas, the Author in this current study targeted the impact of regulatory policies on competition in the fixed telecommunication industry. Fink, Mattoo and Rathindran (2003) only focused on the impact of reform policy changes by asking these two questions such as what and how. Also, they examined the sequence of reform processes. Burnham (2007) provided a correlation between economic development and modern telecommunication technologies. On the basis of this study are only

interviews and published sources whilst, the Author did not take economic development into account in this current study. Furthermore, modern telecommunication technologies were regarded as only one of the affecting factors in this current study. Bagdadioglu and Cetinkaya (2010) highlighted Turkish telecommunication reforms and progress regarding EU acquis in their study. According to Bagdadioglu and Cetinkaya, although the proper sequence of the reform process was implemented, there has not been sufficient development in the fixed telecommunication industry in Turkey. However, in this current study, primary research results showed only 29.9% of participants agreed that the proper sequence of the reform process was implemented. Therefore, there is a conflict with this study and Bagdadioglu and Cetinkaya's study. Gaul and Trillas (2006) focused on only entry barriers and regulatory independence in their study. They found that countries that have a larger incumbent were more prone to building independent regulatory institutions. However, in this current study, although Turk Telekom is a larger incumbent, 10.5% of participants agreed that there is a fully independent regulatory authority in Turkey. Laffont, Rey and Tirole (1997) examined and analysed unregulated network competition in the transition and mature stage regarding linear or nonlinear prices for subscribers, and also discriminatory pricing and termination-based discriminatory pricing in the telecommunication industry. Therefore, the study focused on only priced based competition. Gasmi and Recuero Virto (2010) examined the determinants of telecom reforms in emerging countries. They analysed competition levels in the analogue and digital cellular sectors, and in the local fixed-line sector. In this context, their paper stands out from this very paper. Li, Qiang and Xu (2005) examined the determinants of regulatory reforms in emerging countries between 1990 and 1998. In their study, they directly focused on differences in the

configurations of interest groups and the political structure. Whereas, the Author investigated the determinants of regulatory reforms in a broader perspective in this current study. Jungmittag and Welfens (2009) examined only the liberalisation process regarding price reduction and service volumes for international telephony services. Cowhey and Klimenko (2000) focused on the main consequences and lessons of the WTO Agreement on Basic Telecommunications Services for economic reforms in emerging countries. Whereas, WTO is a one of the determinants for this very study.

In conclusion, the previous studies, in general, focused on one or two subjects. Whereas, in this study, the Author investigated telecom reform process with a broader perspective. The Author investigated the development of the fixed telecommunication industry after liberalisation and privatisation process, and compared this development with some OECD countries' practices to find deviations and differences. As a consequence, this paper aimed to find the efficiency of the national regulation authority, and the impact on competition, industry development, and consumer welfare. Also, the Author supported the subject with the perception of people regarding the reform process and fixed telecom industry by conducting a secondary research study. Consequently, this current study shed some light on the alternative telecom market in different and broad perspectives.

2.5 Conclusions

In this Chapter, first, the purpose of the Author is to discover the external and internal factors that affect the regulation process. Second, the Author tries to compare some similar cases with developing and developed countries. As a

consequence, the Author aims to understand if the regulatory arrangements have been applied fairly and in an impartial manner in Turkey. In this context, the following eight factors have been found (see Table 2.1).

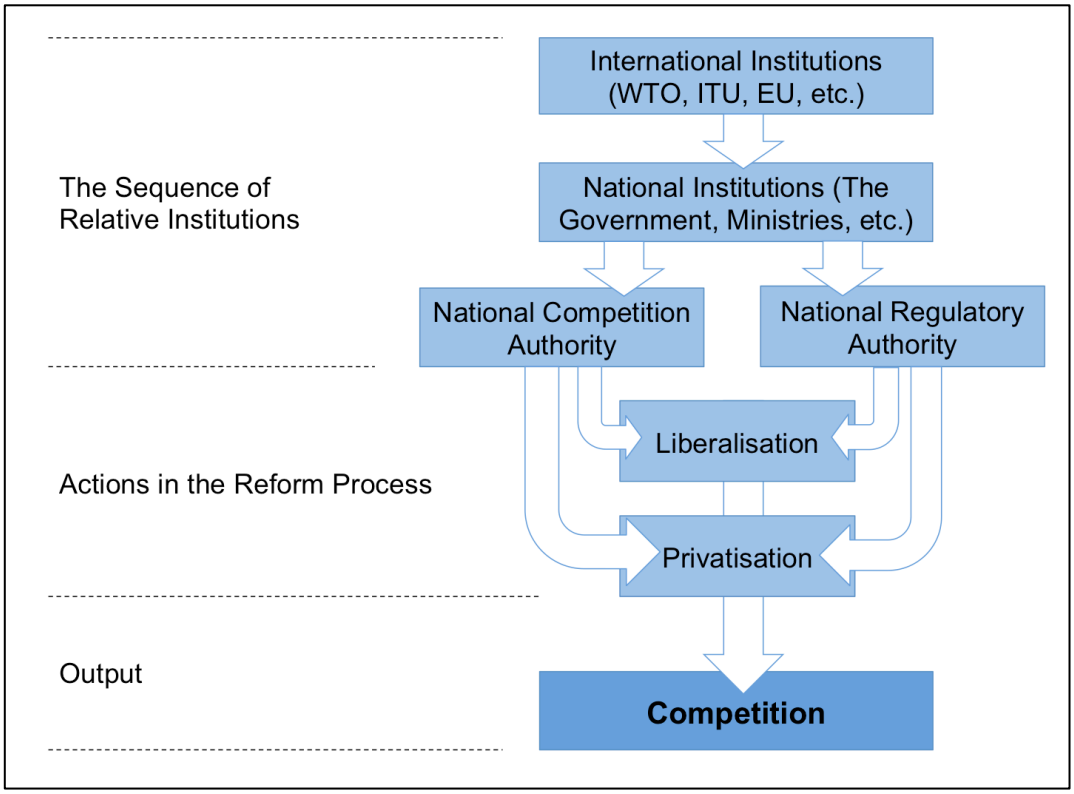
Table 2.1: The Affecting Factors on Competition

Type of Factors	The Affecting Factors
Internal Factors	*The degree of independence of regulatory institutions*
	The degree of privatisation
	The impact of tax policy
	The sequence of reform matters
External Factors	*The effect of the WTO agreement*
	The effect of the ITU framework regulation
	The effect of the European Union framework regulation
	The impact of modern and new technologies

Source: The Author (2015)

To understand the above factors, there is a necessity to draw the main components of the structure that impact on competition in the telecommunication industry (see Figure 2.1).

Figure 2.1: The Structure of Affecting Components to the Competition



Source: The Author (2015)

In principle, competition is an output in the reform process of the telecommunication industry. To create competition, the first action starts on the outside with a decision by the governments by affecting international institutions such as WTO, ITU, EU, etc. Second, there is a necessity to build the national regulatory and competition authorities by the governments. Third, the national regulatory authority should start the liberalisation and privatisation processes in order. Fourth, these processes should be observed and inspected by the national competition authority. Finally, the competition will definitely occur in the telecommunication industry. In this respect, the Author created the structure of the components that impact on competition. Also, these eight affecting factors were examined in the next chapters by the Author. Especially, the questions in the questionnaire were produced in line with these factors, as well as the desk research.

Chapter 3: Methodology

3.1 Introduction

The Author used both qualitative and quantitative research methodologies in the study. First, the Author conducted a primary research to gather qualitative data in order to understand people perceptions and feelings towards Turkish telecommunication reform performance. Second, the Author decided to collect quantitative data in order to measure the reform performance in the fixed telecommunication industry among some OECD countries.

3.2 Research Approach

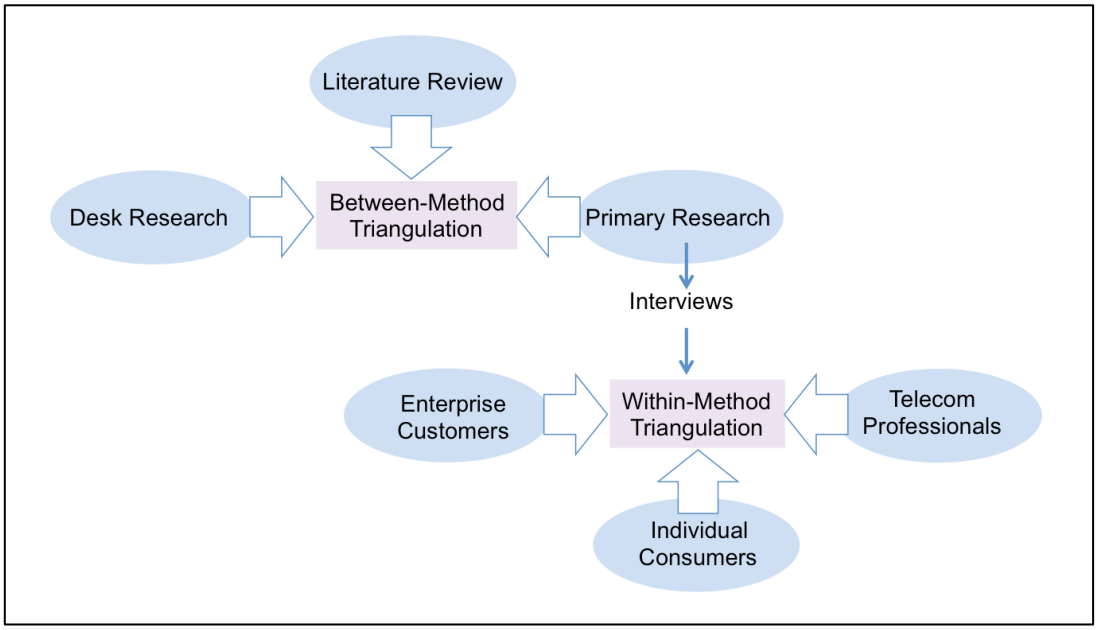
Ontological and epistemological approaches are crucial in order to achieve results for this study. Easterby-Smith, Thorpe and Jackson (2012) stated, constructionist research methods are related to the nominalist and relativist ontologies. According to this approach, there are some assumptions and there is no absolute truth. Easterby-Smith, Thorpe and Jackson (2012) added, “the researcher needs to gather multiple perspectives through a mixture of qualitative and quantitative methods and to gather the opinions and experiences of diverse individuals and observers” (p.26). The ontological approach of this study is regarded as relativism, and the epistemological approach of this study is regarded as constructionism. There are ‘words’ as qualitative data and ‘numbers’ as quantitative data.

In this study, triangulation and comparison methods were used to achieve results. The triangulation method approach is considered more than one particular approach to get richer data and to compare the results of the research process (Wilson, 2014). According to Denzin via Flick (2002, cited in Wilson, 2014, p.74) there are four

different types of triangulation methods (1) “data triangulation”, (2) “investigator triangulation”, (3) “theory triangulation”, and (4) “methodological triangulation”. The latter, methodological triangulation is divided into two different categories such as (a) “within-method”, and (b) “between-method”. In the study, both methods are crucial to achieve approach integrity because the Author aims to achieve more reliable results. As a consequence, the author decided to use both of them in the study.

This study has got basically three pillars. The first pillar is a review of the literature. In this context, the Author aimed to find out the factors that affect competition in the fixed telecommunication industry. The second pillar is a study of the desk research. In that section, the Author aimed to gather quantitative data from the public websites of the global and local organisations and institutions such as ITU, OECD, World Bank, and ICTA. The third pillar is the primary research. In that section, the Author aimed to understand perceptions and feelings of the people in terms of competition in the reform process, and also, the Author intended to compare the outcomes of these studies. In this way, the Author used ‘between-method’ triangulation approach for the study. Moreover, in the primary research, the Author decided to use ‘within-method’ triangulation method by using interviews. In this context, the Author had interviewed with telecom professionals, enterprise customers, and individual consumers. In conclusion, the Author had used both between-method and within-method triangulation types for the study (see Figure 3.1).

Figure 3.1: The Use of Triangulation Methods in the Study



Source: The Author (2015)

The use of triangulation method is crucial for this study because the Author aims to be more confident of the study results and to reach more reliable results. According to Denzin (1978, cited in Jick, 1979, p.602) triangulation is a combination of methodologies of the same phenomenon for a study. Smith (1975, cited in Jick, 1979, p.602) stated that triangulation comes from navigation and military strategy, and multiple reference points are necessary to locate an object's exact position. Jick (1979) pointed out that various viewpoints could provide greater accuracy in terms of fundamental principles of geometry. In this context, the researchers can improve the accuracy of their arguments by collecting more reliable data from different resources. As a consequence, triangulation method provides several useful opportunities to the researchers such as more reliable results and the creation of inventive methods.

3.3 Qualitative Research Design

The Author conducted a qualitative research in order to understand and measure people perception in terms of competition in the reform process of fixed telecom industry. In this context, (1) Fixed Line Telephony Services, (2) Broadband Internet Access, and (3) Fixed/Local Number Portability are within the study scope. These services were taken into account while participants answered research questions in the questionnaire. Wholesale/carrier services are out of the framework of this study because they are not regarded as a part of the regulation process.

3.3.1 Participants and Sites

Primary research was carried out in upper management, middle management, junior management, and expert levels to gather qualitative data. The Author (The Researcher) selected the participants from his former colleagues, former business partners, former enterprise customers, and social circle. This aspect is important in order to create a flexible and comfortable environment, and to gather sincere answers. For 'Telecom professionals' segment, the participants were selected from current telecom workers, former telecom workers or telecom company business partners. For this segment, the participants included have been working for 11 years and more in the ICT industry. This is important because ICT employees should have worked during the entire telecom reform process in order to provide an accurate perspective. For 'Enterprise Customers' segment, the participants selected were responsible for telecom issues or services within the company. For 'Individuals Consumers' segment, the participants chosen were personally responsible for their own telecom costs. For each ICT participant, the Researcher started the topic addressing participant "as a Telecom Employee" or "as a Former Telecom

Employee" or "as a Telecom Business Partner". For each Enterprise Customer participant, the Researcher started the talk by using "as an Enterprise Customer that is responsible for telecom services". For Individual Consumer participants segment, the Researcher started the talk by using "as an Individual Consumer".

The participants were informed regarding what the researcher wants from them and how the researcher uses the information. The researcher also pointed out that the privacy of participants is protected. The interviews were held with the enterprise customers and telecom professionals' in-house locations such as meeting rooms. For individual consumers, interview locations were selected from public and comfortable locations such as cafes, restaurants, etc.

3.3.2 Role of the Researcher

The Author has had fifteen years work experience and strong business relationships in the telecommunication industry. This past working experience was useful to obtain necessary permissions, and to conduct interviews with telecom professionals and customer base. He is currently working as a freelance consultant/advisor in the industry, and he has the flexibility to gather secondary data, to conduct interviews, and to carry out the research. However, the Author had experience in Alternative Fixed Telecom Operators such as *Borusan Telekom* and *Vodafone* for entirely ten years. Therefore, there could be some doubts towards the principle of neutrality of the Author. His own assumptions and prejudices were kept separate from the information obtained during the interviews. Therefore, the Author took into account this situation, and retained his position as an unbiased participant-observer during data collection.

The results of the study being rewarding invited more telecom managers and practitioners to be part of the project. Following the interviews the Author aimed to put his views on the interpretation phase after analysing the data collected.

The research questionnaire mainly consists of two parts. In the first section, the participants were informed by the Researcher regarding who or what they were, why they were chosen, and ethical concerns. In this context, the Researcher prepared a letter called 'Informed Consent Communication'. In the second section, there are the questions of the questionnaire (see Appendix I and Appendix II).

3.3.3 Data Gathering Techniques

The questionnaire method has been used in order to gather qualitative data, and the semi-structured interviews have been included. In the second section of the questionnaire, first, the Author used demographic questions in order to compare groups and subgroups, and understand differences between these groups (see Appendix II, Part A). Second, the Author aimed to use five-point Likert scale in order to carry out statistical analysis of the opinions of participants about regulatory issues (see Appendix II, Part B). The questions of the second section of the questionnaire are subject-oriented and specific. By this, the Author aimed to verify the internal and external affecting factors that emerged in the literature review. Therefore, the research questions are directly linked with the affecting factors (see Table 3.1, Table 3.2, Table 3.3, Table 3.4, Table 3.5, Table 3.6, Table 3.7, Table 3.8, and Table 3.9). In this context, first, a set of face-to-face interviews were organised with telecom and IT (Information Technologies) professionals. Second, a set of face-to-face interviews were held with enterprise customer base in the industry. Third, a set of face-to-face

interviews were conducted with selected individual consumers. First, the Author planned to collect data by using face-to-face interviews. However, this attempt took more time than expected. Therefore, additionally, the Author decided to use phone interviews and e-mail correspondence. This entire period of data collection took 41 days. The data was gathered by using face-to-face meetings, e-mail connections, and phone interviews. The Author targeted to come together with a total of 75 participants (the number of enterprise customers is 25, the number of individual consumers is 25, and the number of IT professionals is 25) to gather primary data. However, the Author was able to meet with only 57 participants (the number of enterprise customers is 17, the number of individual consumers is 19, and the number of IT professionals is 21). Therefore, the Author achieved to meet with 76% of targeted participants. The participants were selected from well-educated segments (high school and university degree), and they were residents of prominent Turkish cities of Bursa, Izmir, and Istanbul. Although the structured interview questions were predetermined, and read to the individuals, the form of interviews was an informal discussion to provide participants with a dynamic and flexible environment. The answers were processed in the paper. The entire questions in the questionnaire were completed at the end of the meeting.

Table 3.1: The First Research Question and the Relative Factor

Research Question 1	Since liberalisation and privatisation process, the quality of service has increased in the fixed telecommunication services
Relative Factor	*The impact of modern and new technologies*

Source: The Author (2015)

Table 3.2: The Second Research Question and the Relative Factors

Research Question 2	After liberalisation and privatisation process, the price of services started to decrease in the fixed telecommunication services
Relative Factors	*The impact of tax policy* *The impact of modern and new technologies*

Source: The Author (2015)

Table 3.3: The Third Research Question and the Relative Factors

Research Question 3	Since liberalisation and privatisation process, the incumbent operator (Turk Telekom) has obeyed the competition rules
Relative Factors	*The degree of privatisation* *The degree of independence of regulatory institutions*

Source: The Author (2015)

Table 3.4: The Fourth Research Question and the Relative Factor

Research Question 4	Since liberalisation and privatisation process, the national regulatory authority (ICTA) has been transparent and fair in terms of building competition
Relative Factor	*The degree of independence of regulatory institutions*

Source: The Author (2015)

Table 3.5: The Fifth Research Question and the Relative Factor

Research Question 5	There is a fully independent regulatory authority in Turkey
Relative Factor	*The degree of independence of regulatory institutions*

Source: The Author (2015)

Table 3.6: The Sixth Research Question and the Relative Factor

Research Question 6	The sequence of reform matters is correctly performed in the fixed telecom regulation process
Relative Factor	*The sequence of reform matters*

Source: The Author (2015)

Table 3.7: The Seventh Research Question and the Relative Factor

Research Question 7	There is not any heavy tax burden for telecommunication services
Relative Factor	*The impact of tax policy*

Source: The Author (2015)

Table 3.8: The Eight Research Question and the Relative Factor

Research Question 8	Turk Telekom is a partially privatised operator. However, this situation cannot hinder the reform and regulation process
Relative Factor	*The degree of privatisation*

Source: The Author (2015)

Table 3.9: The Ninth Research Question and the Relative Factors

Research Question 9	The national regulation process and reforms in the telecom industry have been affected by international regulatory and reform institutions
Relative Factors	*The effect of the WTO agreement* *The effect of the ITU framework regulation* *The effect of the European Union framework regulation*

Source: The Author (2015)

3.3.4 Pilot Study

The pilot study is crucial to identify the flaws of the questionnaire in the research process. In this context, the Author conducted a pilot study for the questionnaire with two participants in order to understand the effectiveness and performance of the research study. As a consequence, there were no critical and negative issues in the pilot study. Everything was thorough and accurate.

3.3.5 Data Analysis

As the Author mentioned previously, the type of qualitative data gathered is words. However, qualitative data may be converted into numerical data to analyse results and outcomes. By this, the Author aimed to achieve a statistical analysis to present results. Therefore, the data was examined to answer research questions and to prove ideas that had been decided in advance. As an analytical tool, the Statistical Package for the Social Sciences[1] (SPSS) was used to analyse and present the findings.

[1] SPSS is a predictive analytics software tool to predict the facts with confidence, to make more accurate decisions, to solve problems. To receive more information, please visit http://www.ibm.com/software/analytics/spss/

3.3.6 Trustworthiness of the Method

The Author used within-method triangulation for primary research design. The same questions were asked to different groups of reliable professionals in the industry. “Member Validation” techniques were also used to achieve accurate research results (Crilly, Clarkson and Blackwell, 2006, p.258). Regarding member validation methods, the research analysis was presented to the participants to evaluate and validate the findings. Also, the Author used *Reliability Analysis* of SPSS tool to improve the trustworthiness of the Study.

3.4 Quantitative Research Design

Secondary research was carried out as a desk (archival) research to collect quantitative data. The kind of quantitative data is numbers. The enormous amounts of data has been publicly available, which can be accessible online. This method gave the Author the advantage of time and speed. This stage aims to answer the research questions and to support the outcomes of the primary research. To gather secondary data, informal access methods were used for publicly accessible websites without any permission. In this context, secondary data were collected mainly from the World Bank database, OECD database, ICTA quarterly reports, ITU database, published telecom reports and telecom operators’ websites. The World Bank and ITU have got massive raw data for OECD countries in the telecommunication industry. Also, ICTA has got raw and processed data about telecom companies of Turkey.

The changes and development of the fixed telecom sector were compared with telecommunication sectors of OECD countries. The Author analysed the data for

different countries in different time frames. For example, t_0 means the starting point of the regulation, t_1 shows five years later, and t_2 shows nine years later. In addition, the data was studied to answer the main research questions and to prove the affecting factors on competition. In this context, the Author collected data about Fixed Line Telephony Services, Broadband Internet Access, and Fixed/Local Number Portability. Also, the Author took the following affecting factors into account in the desk research study *(1) The degree of independence of regulatory institutions, (2) The degree of privatisation, (3) The impact of tax policy, (4) The sequence of reform matters, (5) The effect of the WTO agreement, (6) The effect of the ITU framework regulation, (7) The effect of the European Union framework regulation, and (8) The impact of modern and new technologies.* Also, the Author aimed to support primary research results by using secondary research results (see section 4.4 Discussions and Conclusion).

The Author used 2-D Column and 2-D Line charts in order to present the results. As an analytical tool, the Author used MS Excel and SPSS to analyse and measure the findings.

3.5 Research Strategy and Methods

In the study, as previously mentioned, the Author preferred to use both qualitative and quantitative research methodologies. The Author conducted a primary research to gather qualitative data in order to understand people's perceptions and feelings towards Turkish telecommunication reform performance. Also, the Author aimed to collect quantitative data in order to measure dependent variables of the reform performance among some OECD countries. In the primary research study, the

Author preferred to use in-depth interviews (face-to-face and phone interviews) to understand people's perceptions regarding this period. In-depth interviews are regarded as unstructured and personal interviews to uncover people's feelings, beliefs, and attitudes on a topic (Malhotra, Birks and Wills, 2012). Although there were structured questions in the questionnaire, the Author prefered to use in-depth interviews to understand people's perceptions. The Author prefered to use in depth-interviews because the method provides (1) a greater depth of insights, (2) the responses directly to the participant, (3) an easy coordination, and (4) an intimate interview (Malhotra, Birks and Wills, 2012). Also, "the in-depth interview can be driven by a topic guide, made up of just a few topics covering a very broad range of issues" (p.261).

3.6 Ethical Challenges

For the perspective of the ethical challenges, the University of Liverpool ethics norms and rules were taken into account and used for data collection and research process to solve political and ethical issues. Also, these preventions and norms were shared with participants to provide confidence and comfort. In this context, primary headers are regarded as integrity, competence, responsibility, honesty, justice, dignity, privacy, and confidentiality (Easterby-Smith, Thorpe and Jackson, 2012). Furthermore, for the secondary research, the statistical data were gathered from only publicly available sources for which, there is no impact on any organisations or individuals.

3.7 Conclusions

In conclusion, the Author first aimed to reveal the affecting factors on competition in the telecommunication reform process. Second, the Author conducted a primary research to understand people perception towards this period. Third, the Author carried out the desk research study to measure the affecting factors by using publicly available websites and databases. In this context, the Author included (1) Fixed Line Telephony Services, (2) Broadband Internet Access, and (3) Fixed/Local Number Portability within the study scope. Briefly, the Author preferred to use both 'between-method' and 'within-method' triangulation types for the study because the Author aimed to be more confident in terms of the study results, and to reach more accurate results.

Chapter 4: Presentation of Results and Analysis of Data

4.1 Introduction

In this Chapter, the Author presented the study results and analysed the collected data. As the Author mentioned before, this study has got three pillars. One of them is the literature review, which the Author presented in the second Chapter. The other pillars are primary and secondary (desk) research studies, which are presented and analysed in this chapter. Here, the Author aimed to analyse and present these studies results. In this context, qualitative data was collected by conducting primary research activity such as questionnaire method. Quantitative data was collected from publicly available resources. In this context, the Author investigated the development of the fixed telecommunication industry after liberalisation and privatisation process and compared this development with some OECD countries' practices to find deviations and differences. As a consequence, the Author aimed to find the efficiency of the national regulatory authority, and the impact on competition, industry development, as well as consumer welfare.

4.2 Primary Research Study

4.2.1 The Scope of the Primary Research Study

In the primary research study, telecommunication services were examined in three service areas (1) Fixed Line Telephony Services, (2) Broadband Internet Access, and (3) Fixed/Local Number Portability. There are two dimensions regarding regulatory aspect such as 'liberalisation' and 'privatisation'. Also, the incumbent operator's position is crucial regarding building competition in the regulated industry. Therefore, in the primary research questionnaire, the researcher shared these issues

with the participants. The participants took these issues into account while they answered the questions in the questionnaire sessions. In that study, the Author used Likert scale to carry out statistical analysis of the opinions of participants about regulatory issues. The questions of the second section of the questionnaire are direct, subject-oriented and specific. By this, the Author aimed to verify the internal and external affecting factors that emerged in the literature review.

4.2.2 The Reliability and Factor Analysis

In this section, the Author used SPSS analytics software tool to control and analyse collected raw data. According to Cronbach's Alpha method, the reliability statistics of data is 0.619 for entire nine items (see Table 4.1), and this is an acceptable range for that study because the Author targeted the range between 0.600 and 0.800.

Table 4.1: Reliability Statistics of Data

Cronbach's Alpha	N of Items
0.619	9

Source: The Author (2015)

There are nine following questions (Items) in the Questionnaire. Table 4.2 shows statement-based statistics. According to these results, If Item-1 deleted, Cronbach's Alpha score would be 0.641 (0.641 > 0.619). If Item-2 deleted, Cronbach's Alpha score would be 0.675 (0.675 > 0.619). If Item-9 deleted, Cronbach's Alpha score would be 0.650 (0.650 > 0.619). In addition, there is a single negative result as -0.115 (Item-2) in total correlation (see Table 9). This result was positive 0.115 when used with transform method, and also Cronbach's Alpha score has reached 0.660.

However, the Author decided not to change this figure, and it remained as negative 0.115. Also, the Author decided not to delete Item-1, Item-2, and Item-9. As a result, the Author decided to protect this form of collected data because the Author targeted the range between 0.600 and 0.800. According to parameters, there will not be any significant changes, if any selected item is deleted.

Item-1: Since liberalisation and privatisation process, the quality of service has increased in the fixed telecommunication services.

Item-2: After liberalisation and privatisation process, the price of services started to decrease in the fixed telecommunication services.

Item-3: Since liberalisation and privatisation process, the incumbent operator (Turk Telekom) has obeyed the competition rules.

Item-4: Since liberalisation and privatisation process, the national regulatory authority (ICTA) has been transparent and fair in terms of building competition.

Item-5: There is a fully independent regulatory authority in Turkey.

Item-6: The sequence of reform matters is correctly performed in the fixed telecom regulation process.

Item-7: There is not any heavy tax burden for telecommunication services.

Item-8: Turk Telekom is a partially privatised operator. However, this situation cannot

hinder the reform and regulation process.

Item-9: The national regulation process and reforms in the telecom industry have been affected by international regulatory and reform institutions.

Table 4.2: Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item-1	22.7895	12.133	0.077	***0.641***
Item-2	22.6140	13.170	-0.115	***0.675***
Item-3	24.1053	8.989	0.472	0.536
Item-4	24.0702	9.031	0.694	0.482
Item-5	24.5263	9.539	0.530	0.526
Item-6	23.8070	10.980	0.290	0.594
Item-7	25.3509	11.660	0.188	0.616
Item-8	24.4561	9.503	0.549	0.521
Item-9	23.2982	12.392	0.029	***0.650***

Source: The Author (2015)

The Author used Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test methods in order to achieve factor analysis results. KMO measure of sampling adequacy is 0.619, and Bartlett's test of Sphericity has got a normal result (see Table 4.3). These results are acceptable for the Author.

Table 4.3: Kaiser-Meyer-Olkin Measure and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
	Approx. Chi-Square	df	Sig.
0.619	136.305	36	0.000

Source: The Author (2015)

Table 4.4 shows component correlation matrix results. The Author also examined total variance results and found three factors. The total cumulative ratio of three factors is 65.312% (see Table 4.5). This ratio should be > 60% for acceptability. In this context, it poses no significant problems.

Table 4.4: Component Correlation Matrix

Component	1	2	3
1	1.000	-0.116	0.043
2	-0.116	1.000	0.144
3	0.043	0.144	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalisation.

Source: The Author (2015)

Table 4.5: Total Variance Explained

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.773	30.816	30.816
2	1.834	20.377	51.193
3	1.271	14.119	65.312

Extraction Method: Principal Component Analysis.

Source: The Author (2015)

In conclusion, in spite of two minor results that are out of range, the results of the reliability and factor analysis of data are prevailing for the Author in order to carry out the study.

4.2.3 The Analysis of Demographic Information

The Author used SPSS analytics software tool to analyse demographic information about the participants. Table 4.6 shows the number of valid and missing answers of data. At the table, there are 30 ICT employees. On the other hand, in the questionnaire, 21 participants were classified as ICT employees. This situation means that 9 ICT employees' work experience is not more than 11 years. Therefore, they are not regarded as the class of ICT employees, and they were counted as the individual consumer class. Also, there are the frequency and percentage values according to each demographic question (see Table 4.7, Table 4.8, Table 4.9, Table 4.10, Table 4.11, Table 4.12, Table 4.13, and Table 4.14).

Table 4.6: Frequencies of Demographic Variables

	N Valid	Missing
What is your age?	57	0
What is your gender?	57	0
How long have you been working in the current industry?	57	0
How long have you been working at the current company?	57	0
Which industry do you work for?	57	0
What is your company type? (only ICT)	30	27
Which department do you work for?	57	0
What is your position at the company?	57	0

Source: The Author (2015)

Table 4.7: The Frequency and Percentage Values, Question I

What is your age?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*25 or under*	1	1.8	1.8	1.8
	26-35	11	19.3	19.3	21.1
	36-45	31	54.3	54.3	75.4
	46-55	13	22.8	22.8	98.2
	56 or older	1	1.8	1.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Table 4.8: The Frequency and Percentage Values, Question II

What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*female*	7	12.3	12.3	12.3
	male	50	87.7	87.7	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Table 4.9: The Frequency and Percentage Values, Question III

How long have you been working in the current industry?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*2-4 years*	5	8.8	8.8	8.8
	5-7 years	5	8.8	8.8	17.5
	8-10 years	10	17.5	17.5	35.1
	more than 11 years	37	64.9	64.9	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Table 4.10: The Frequency and Percentage Values, Question IV

How long have you been working at the current company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*less than 1 year*	4	7.0	7.0	7.0
	2-4 years	15	26.3	26.3	33.3
	5-7 years	8	14.1	14.1	47.4
	8-10 years	13	22.8	22.8	70.2
	more than 11 years	17	29.8	29.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Table 4.11: The Frequency and Percentage Values, Question V

Which industry do you work for?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*ICT*	30	52.5	52.5	52.5
	finance	9	15.8	15.8	68.3
	FMCG	1	1.8	1.8	70.1
	health	1	1.8	1.8	71.9
	transportation	4	7.0	7.0	78.9
	manufacturing	5	8.8	8.8	87.7
	other	7	12.3	12.3	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Table 4.12: The Frequency and Percentage Values, Question VI

What is your company type? (only ICT)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*incumbent fixed operator*	2	3.5	6.7	6.7
	mobile operator	1	1.8	3.3	10.0
	alternative fixed operator	10	17.5	33.3	43.3
	internet service provider	1	1.8	3.3	46.6
	other	16	28.0	53.4	100.0
	Total	30	52.6	100.0	
Missing	System	27	47.4		
Total		57	100.0		

Source: The Author (2015)

Table 4.13: The Frequency and Percentage Values, Question VII

Which department do you work for?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*sales*	19	33.2	33.2	33.2
	it_operation	16	28.1	28.1	61.3
	finance	1	1.8	1.8	63.1
	hr	7	12.3	12.3	75.4
	other	14	24.6	24.6	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Table 4.14: The Frequency and Percentage Values, Question VIII

What is your position at the company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*upper management*	16	28.1	28.1	28.1
	middle management	20	35.0	35.0	63.1
	junior management	7	12.3	12.3	75.4
	expert/specialist	13	22.8	22.8	98.2
	other	1	1.8	1.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

4.2.4 The Analysis of the Questions of the Affecting Factors

The Author continued to use SPSS analytics software tool to analyse the answers to the questions of the affecting factors. Table 4.15 shows descriptive statistics for nine items of the questionnaire.

Table 4.15: Descriptive Statistics

	N	Mean	Std. Deviation
Item-1	57	4.0877	0.73874
Item-2	57	4.2632	0.69504
Item-3	57	2.7719	1.05251
Item-4	57	2.8070	0.81149
Item-5	57	2.3509	0.85547
Item-6	57	3.0702	0.77597
Item-7	57	1.5263	0.70976
Item-8	57	2.4211	0.84404
Item-9	57	3.5789	0.73064
Valid N (listwise)	57		

Source: The Author (2015)

Table 4.16: The Frequency and Percentage Values of Item-1

Since liberalisation and privatisation process, the quality of service has increased in the fixed telecommunication services.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*disagree*	3	5.3	5.3	5.3
	neither agree nor disagree	4	7.0	7.0	12.3
	agree	35	61.4	61.4	73.7
	strongly agree	15	26.3	26.3	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Based on the perception of the participants, the quality of telecom services have increased in the fixed telecommunication services since liberalisation and privatisation process. 87.7% of participants agreed (61.4% agree, 26.3% strongly agree) that the quality of telecom services have increased in the fixed telecommunication services (see Table 4.16). Also, Table 4.17 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.17: The Distribution of Answers among Groups (%), Item-1

	Valid Percent		
	ICT Employees	Individual Consumers	Enterprise Customers
disagree	4.8	5.3	5.9
neither agree nor disagree	19.0	0.0	0.0
agree	38.1	63.1	88.2
strongly agree	38.1	31.6	5.9

Source: The Author (2015)

Table 4.18: The Frequency and Percentage Values of Item-2

After liberalisation and privatisation process, the price of services started to decrease in the fixed telecommunication services.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*disagree*	1	1.8	1.8	1.8
	neither agree nor disagree	5	8.7	8.7	10.5
	agree	29	50.9	50.9	61.4
	strongly agree	22	38.6	38.6	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

Based on the perception of the participants, the prices of telecom services have decreased in the fixed telecommunication services since liberalisation and privatisation process. 89.5% of participants agreed (50.9% agree, 38.6% strongly agree) that the prices of telecom services have decreased in the fixed telecommunication services (see Table 4.18). Also, Table 4.19 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.19: The Distribution of Answers among Groups (%), Item-2

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
neither agree nor disagree	19.0	5.3	5.9
agree	42.9	52.6	58.8
strongly agree	38.1	42.1	35.3

Source: The Author (2015)

Table 4.20: The Frequency and Percentage Values of Item-3

Since liberalisation and privatisation process, the incumbent operator (Turk Telekom) has obeyed the competition rules.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*strongly disagree*	8	14.0	14.0	14.0
	disagree	14	24.6	24.6	38.6
	neither agree nor disagree	19	33.3	33.3	71.9
	agree	15	26.3	26.3	98.2
	strongly agree	1	1.8	1.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

As the Author mentioned before, Turk Telekom is a partially privatised incumbent telecom operator. In this context, the Author questioned if Turk Telekom has obeyed the competition rules in the reform process. Based on the questionnaire, 38.6% of participants disagreed (24.6% disagree and 14.0% strongly disagree) with this statement, 33.3% neither agreed nor disagreed with this statement, and 28.1% agreed (26.3% agree and 1.8% strongly agree) with this statement. Overall, there is an equal situation (see Table 4.20). Also, Table 4.21 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.21: The Distribution of Answers among Groups (%), Item-3

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
strongly disagree	19.0	5.3	17.6
disagree	28.6	21.1	23.5
neither agree nor disagree	28.6	57.8	11.8
agree	19.0	15.8	47.1
strongly agree	4.8	0.0	0.0

Source: The Author (2015)

Table 4.22: The Frequency and Percentage Values of Item-4

Since liberalisation and privatisation process, the national regulatory authority (ICTA) has been transparent and fair in terms of building competition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*strongly disagree*	3	5.2	5.2	5.2
	disagree	16	28.1	28.1	33.3
	neither agree nor disagree	27	47.4	47.4	80.7
	agree	11	19.3	19.3	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

With this question, the Author investigated if the national regulatory authority (ICTA) has been transparent and fair regarding building competition since liberalisation and privatisation process. Based on the perception of the participants, majority posed no opinion. 33.3% disagreed (28.1% disagree and 5.2% strongly disagree) with this item, 47.4% neither agreed nor disagreed with this item, and 19.3% agreed with this Item. Based on the perception of the participants, only 19.3% agreed with this Item (see Table 4.22). As a consequence, these results show there may have been a problem regarding building competition in the reform process. Also, Table 4.23 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.23: The Distribution of Answers among Groups (%), Item-4

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
strongly disagree	9.5	5.3	0.0
disagree	38.2	5.3	41.2
neither agree nor disagree	33.3	68.3	41.2
agree	19.0	21.1	17.6

Source: The Author (2015)

Table 4.24: The Frequency and Percentage Values of Item-5

There is a fully independent regulatory authority in Turkey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*strongly disagree*	4	7.0	7.0	7.0
	disagree	37	64.9	64.9	71.9
	neither agree nor disagree	10	17.6	17.6	89.5
	agree	4	7.0	7.0	96.5
	strongly agree	2	3.5	3.5	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

With this question, the Author investigated if there is a fully independent regulatory authority in Turkey. Based on the perception of the participants, 71.9% disagreed (64.9% disagree and 7.0% strongly disagree) with this item, 17.6% neither agreed nor disagreed with this item, and 10.5% agreed (7.0% agree and 3.5% strongly agree) with this Item (see Table 4.24). The vast majority does not believe there is a fully independent regulatory authority in Turkey. As the Author mentioned before, Turkish Telecommunication Regulatory Authority is affiliated with the Telecommunications Ministry is called MoTMAC. This situation means there is not a fully independent telecom regulatory authority in Turkey. Therefore, these results are not very surprising. Also, Table 4.25 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.25: The Distribution of Answers among Groups (%), Item-5

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
strongly disagree	9.5	5.3	5.9
disagree	66.7	52.6	76.4
neither agree nor disagree	19.0	26.3	5.9
agree	4.8	10.5	5.9
strongly agree	0.0	5.3	5.9

Source: The Author (2015)

Table 4.26: The Frequency and Percentage Values of Item-6

The sequence of reform matters is correctly performed in the fixed telecom regulation process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*disagree*	14	24.5	24.5	24.5
	neither agree nor disagree	26	45.6	45.6	70.1
	agree	16	28.1	28.1	98.2
	strongly agree	1	1.8	1.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

With this question, the Author investigated if the sequence of reform matters is correctly performed in the fixed telecom regulation process. Based on the perception of the participants, one-fourth disagreed (24.5%) with this item, half neither agreed nor disagreed (45.6%) and one-fourth agreed (28.1% agree and 1.8% strongly agree) (see Table 4.26). Regarding these results, half of the participants have no preceding idea pertaining to the sequence of reform matters. Interestingly, to confirm it, one of the participants stated, “as the public, we are not fully aware of the process of privatisation and liberalisation with complete transparency unless we study the field of economics, or we are politically involved in the current affairs”. Also, Table

4.27 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.27: The Distribution of Answers among Groups (%), Item-6

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
disagree	28.6	10.5	35.3
neither agree nor disagree	42.8	52.6	41.2
agree	28.6	31.6	23.5
strongly agree	0.0	5.3	0.0

Source: The Author (2015)

Table 4.28: The Frequency and Percentage Values of Item-7

There is not any heavy tax burden for telecommunication services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*strongly disagree*	31	54.3	54.3	54.3
	disagree	24	42.1	42.1	96.4
	neither agree nor disagree	1	1.8	1.8	98.2
	strongly agree	1	1.8	1.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

With this question, the Author investigated if there is any heavy tax burden for telecommunication services. 96.4% of participants (54.3% strongly disagree and 42.1% disagree) did not accept that there is not any heavy tax burden on the telecommunication services (see Table 4.28). In Turkey, there are between 23% and 33% main taxes for the telecom services in the fixed telecommunication industry (Yildiz, 2014). This ratio was regarded as high based on participants in the primary

research for telecom services. Also, Table 4.29 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.29: The Distribution of Answers among Groups (%), Item-7

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
strongly disagree	42.8	63.1	58.8
disagree	52.4	31.6	41.2
neither agree nor disagree	0.0	5.3	0.0
strongly agree	4.8	0.0	0.0

Source: The Author (2015)

Table 4.30: The Frequency and Percentage Values of Item-8

Turk Telekom is a partially privatised operator. However, this situation cannot hinder the reform and regulation process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*strongly disagree*	4	7.0	7.0	7.0
	disagree	33	57.9	57.9	64.9
	neither agree nor disagree	13	22.8	22.8	87.7
	agree	6	10.5	10.5	98.2
	strongly agree	1	1.8	1.8	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

As the Author mentioned before, Turk Telekom is a partially privatised operator. With this question, the Author investigated if this situation does not constitute a problem in the reform and regulation process. 64.9% of participants disagreed (57.9% disagree and 7.0% strongly disagree) with this situation. Only 12.3% of participants agreed (10.5% agree and 1.8% strongly agree) with this situation (see Table 4.30). Also,

Table 4.31 shows a distribution of descriptive statistics among three groups in percentages.

Table 4.31: The Distribution of Answers among Groups (%), Item-8

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
strongly disagree	9.5	5.3	5.9
disagree	52.4	47.3	76.4
neither agree nor disagree	23.8	31.6	11.8
agree	9.5	15.8	5.9
strongly agree	4.8	0.0	0.0

Source: The Author (2015)

Table 4.32: The Frequency and Percentage Values of Item-9

The national regulation process and reforms in the telecom industry have been affected by international regulatory and reform institutions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*disagree*	5	8.8	8.8	8.8
	neither agree nor disagree	17	29.8	29.8	38.6
	agree	32	56.1	56.1	94.7
	strongly agree	3	5.3	5.3	100.0
	Total	57	100.0	100.0	

Source: The Author (2015)

According to results, 61.4% of participants agreed (56.1% agree and 5.3% strongly agree) with the national regulation process, and reforms in the telecom industry have been affected by international regulatory and reform institutions such as OECD, EU, WTO, and ITU. Only 8.8% of participants did not agree with this statement (see Table 4.32). Also, Table 4.33 shows a distribution of descriptive statistics among

three groups in percentages.

Table 4.33: The Distribution of Answers among Groups (%), Item-9

	Valid Percent		
	ICT Employees	Individuals Consumer	Enterprise Customers
disagree	14.3	5.3	5.9
neither agree nor disagree	28.6	21.1	41.2
agree	42.8	73.6	52.9
strongly agree	14.3	0.0	0.0

Source: The Author (2015)

As an important note, the calculation system of SPSS uses six digit numbers after commas. However, this tool shows one digit number after the comma in the tables. Although the results indicate 100.0, the total calculation can be 100.1 or 99.9 because of calculation system. Therefore, the Author made an arrangement in the tables in order to achieve total of 100.0 for each column. These arrangements do not affect the general results because these arrangements make a difference by only 0,1 percent ratio.

4.3 Secondary (Desk) Research Study

4.3.1 The Scope of the Secondary Research Study

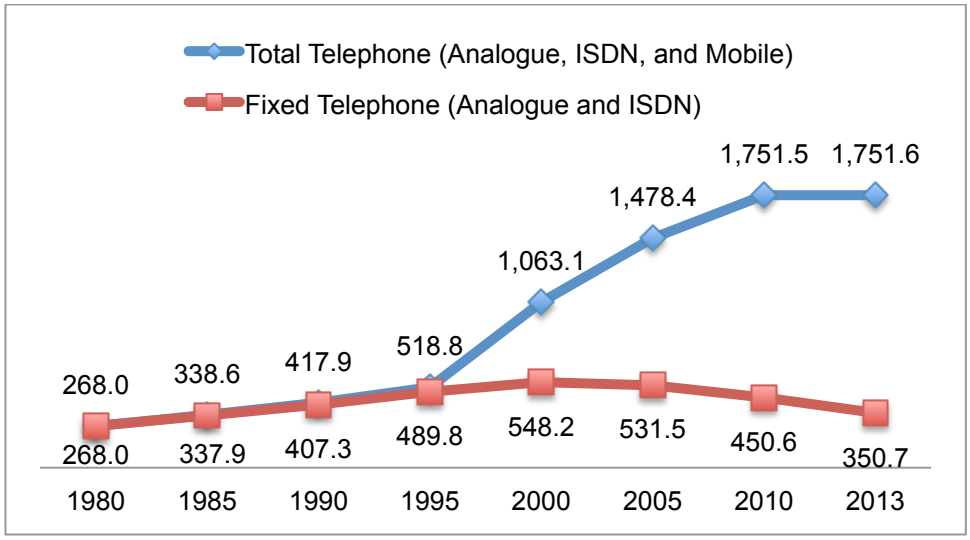
As the Author mentioned before, telecommunication services are examined in three service areas: (1) Fixed Line Telephony Services, (2) Broadband Internet Access, and (3) Fixed/Local Number Portability. Furthermore, there are two dimensions regarding regulatory aspect such as ‘liberalisation’ and ‘privatisation’ because the incumbent operator’s position is crucial regarding building competition in the

regulated industry. Therefore, the Author took these issues into account for the secondary research study.

4.3.2 Telecom Sector Overview

In today's modern world, mobile telecommunication services are more popular than fixed telecommunication services. Since 2000, the number of fixed telephone access paths has slowly decreased and are still going down. The number of fixed telephone access paths was 548.2 million in 2000. This number was 350.7 million in 2013 (see Figure 4.1). In conclusion, fixed telephone services have got a downward trend because of developing mobile technologies. Therefore, the Author took this reality into account in the study.

Figure 4.1: Telephone Access Paths of OECD Countries (Millions)



Source: The Author (OECD, 2015d)

The Author compared net profit rates for some leading telecom operators in OECD countries between 2010 and 2013. These countries are Germany, France, Italy, Spain, and Turkey. Deutsche Telekom is a leading telecom operator in Germany.

Orange SA formerly known as France Telecom is a leading telecom operator in France. Telecom Italia is a leading telecom operator in Italy. Telefonica SA is a leading telecom operator in Spain. Turk Telekom is a leading telecom operator in Turkey. The common point of these countries is that privatisation and liberalisation process are completed in the telecommunication industry. The compound annual rate of change (CARC) of net profit of Deutsche Telekom was negative 1.0% in the period of 2010–13. The CARC of net profit of Orange SA was 6.5% in the period of 2010–13. The CARC of net profit of Telecom Italia was negative 2.5% in the period of 2010–13. The CARC of net profit of Telefonica SA was 9.8% in the period of 2010–13. The CARC of net profit of Turk Telekom was 33.2% in the period of 2010–13 (see Table 4.34). According to these results, Turk Telekom has had massive net profit rate compared with the other telecom companies. These results indicate that Turk Telekom may be protected by the Turkish Government because the 30% of Turk Telekom belongs to the Turkish State. Also, Turkish Telecommunication Regulatory Authority is affiliated with the Telecommunications Ministry is called MoTMAC. For this reason, there may be some obstacles to providing a fair competition in the telecommunication industry.

Table 4.34: Net Profit Rate in the Fixed Telecom Services (%)

	2010	2011	2012	2013	*CARC (2010-13)*
Deutsche Telekom	2.7	0.9	(9.0)	1.5	*(1.0)*
Orange SA	10.7	8.6	1.9	4.6	*6.5*
Telecom Italia	12.8	(14.3)	(5.5)	(2.8)	*(2.5)*
Telefonica SA	16.7	8.6	6.1	7.9	*9.8*
Turk Telekom	40.3	33.5	41.3	17.7	*33.2*

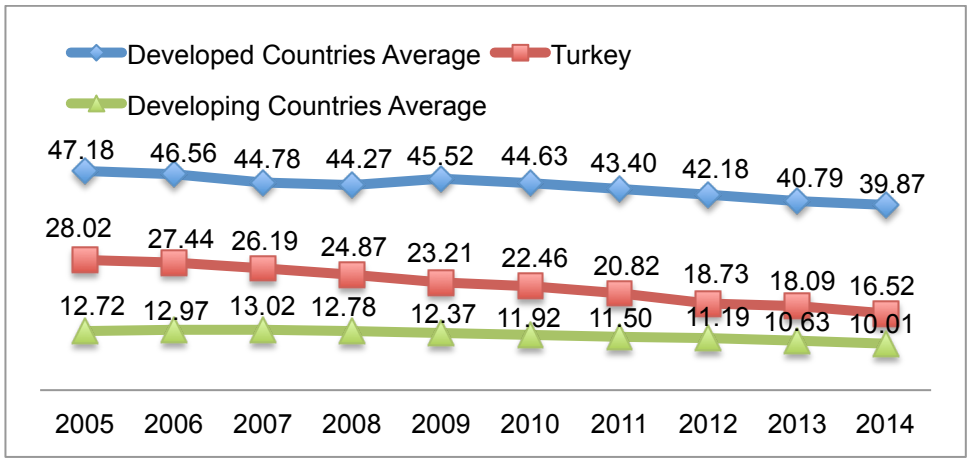
Source: The Author (ICTA, 2015a; MarketLine, 2015)

Regarding taxation, there are two monthly main taxes in the telecommunication services in Turkey. One of them is Value Added Tax (VAT), and the other one is Special Consumption Tax (SCT). In the fixed telecommunication services, VAT is 18% for entire telecom services. SCT is 15% for voice and data access (Leased Line, Virtual Private Network, etc.) services, and 5% for Internet services. In conclusion, both customers and consumers have to pay minimum 23% or maximum 33% main taxes for fixed telecommunication services (Yildiz, 2014, p.319, own translation from the Turkish text). In the primary research, the participants stated that this ratio was a burden.

4.3.3 Fixed Line Telephony Services

Turkey is a developing country and a candidate member of European Union organisation. The Author compared the number of fixed-telephone subscriptions between developed countries, developing countries, and Turkey. According to figures, the results do not seem surprising. Turkey's position is still close to the developing countries' average results (see Figure 4.2).

Figure 4.2: Fixed-Telephone Subscriptions per 100 People (2005-2014)



Source: The Author (ITU, 2015)

The Author chose ten OECD founding members from Europe region such as United Kingdom, Spain, Portugal, Germany, Greece, France, Italy, Netherlands, Sweden, and Turkey to make comparisons in terms of the development of fixed telephone subscriptions (see Table 4.35). In general, the fixed telephone services have got a downward trend. This downward trend in fixed telephone services is related to new technologies such as mobile phone services. Although privatisation in Netherlands took place in 2000, fixed telephone services have had a downward trend since 2000. Likewise, privatisation in Sweden took place in 2004. However, fixed telephone services in Sweden have had a downward trend since 2000. Turkey followed the same trend. Privatisation in 2004 had no effect on the downward trend since 2000 in Turkey. One important point is that the ratios of fixed telephone subscriptions of the mentioned countries are very similar. However, the ratio of Turkey is different (see Table 4.35). That means there are differences between countries regarding practices of the reform process in the fixed telephony services.

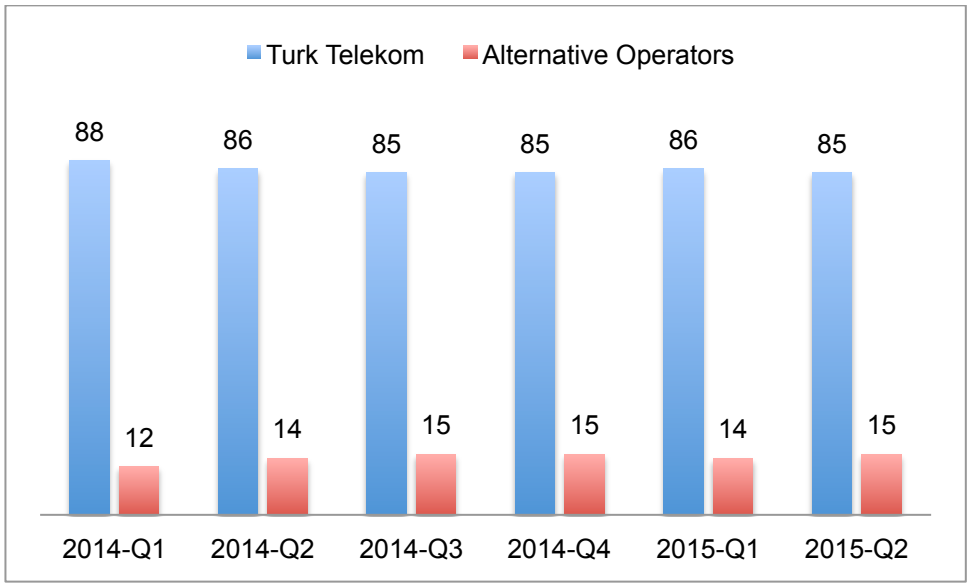
Table 4.35: Fixed-Telephone Subscriptions per 100 People (2000-2014)

	2000	2002	2004	2006	2008	2010	2012	2014
UK	59.76	58.45	57.64	55.84	55.75	53.83	52.88	52.35
Spain	42.46	42.67	41.99	45.11	45.48	43.70	41.87	40.56
Portugal	41.93	41.85	40.45	40.26	39.36	42.36	42.99	43.25
Germany	60.13	64.13	65.03	64.96	60.33	63.72	60.51	56.89
Greece	51.51	57.08	57.56	55.83	47.40	53.09	49.09	46.90
France	57.40	56.83	55.25	55.18	56.11	64.24	62.11	60.03
Italy	47.65	47.20	44.55	45.52	36.81	37.24	35.72	33.68
Netherlands	62.35	50.03	48.46	45.49	44.34	43.53	42.97	42.41
Sweden	68.26	65.64	63.33	61.03	57.80	50.46	43.83	39.67
Turkey	29.12	29.05	28.61	27.44	24.87	22.46	18.73	16.52

Source: The Author (ITU, 2015)

Figure 4.3 shows the market share of Turk Telekom and Alternative Operators based on revenue. Turk Telekom's market share was 88%, and Alternative operators' market share were 12% in the first quarter of the year of 2014. In the second quarter of the year of 2015, Turk Telekom's market share was 85%, whereas Alternative operators' market share was 15% (ICTA, 2015a, p.19, own translation from the Turkish text). Clearly, this result should be regarded as low performance in terms of fair competition.

Figure 4.3: Telephony Services Market Shares based on Revenue (%)

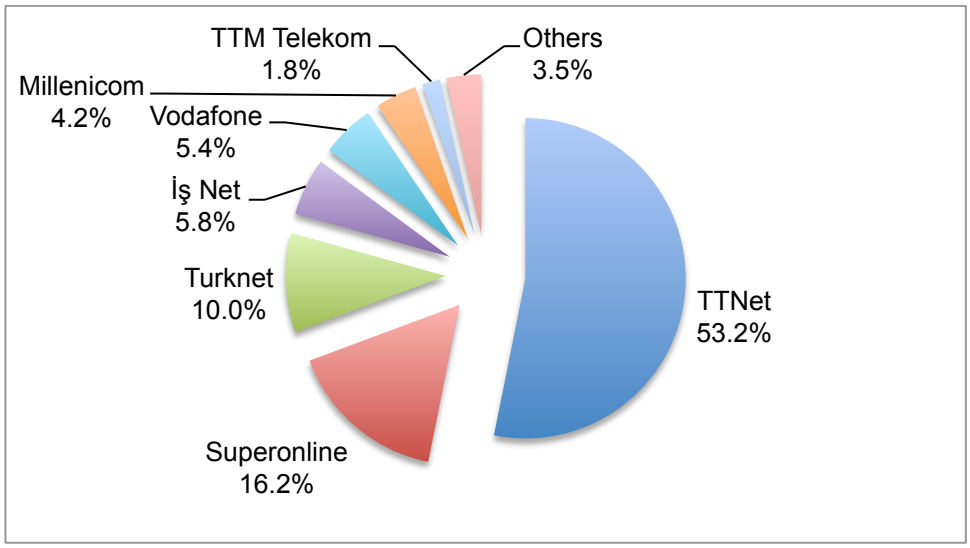


Source: The Author (ICTA, 2015a)

Turk Telekom is the incumbent operator in Turkey. After liberalisation, many alternative operators started to appear in the fixed telecommunication industry. One of them is TTNet. Interestingly, TTNet is a subsidiary of Turk Telekom. As the Author mentioned before, one-third of Turk Telekom belongs to the Turkish government. In this context, there may be some fair competition problems. Therefore, the Author compared Alternative operators' market share. Figure 4.4 shows alternative

operators market shares in terms of the number of subscribers in the fixed telephony services as of the second quarter of 2015. In this picture, TTNet has got 53.2% market share (ICTA, 2015a, p.15, own translation from the Turkish text). This picture raises concerns regarding fair competition in the fixed telecommunication industry. Also, there is a necessity to compare fixed broadband Internet market share between alternative operators to provide an appropriate perspective.

Figure 4.4: Alternative Operators Market Shares in terms of the Number of Subscribers in Fixed Telephony Services (Q2-2015)



Source: The Author (ICTA, 2015a)

In the liberalisation and privatisation process, new technological instruments were developed such as VoIP, which meant service quality could be improved. However, as an indication, the Author preferred to examine the customer complaints in order to understand reality in the fixed telecommunication industry. Table 4.36 shows the comparisons of the number of fixed telephone complaints and the number of fixed telephony services.

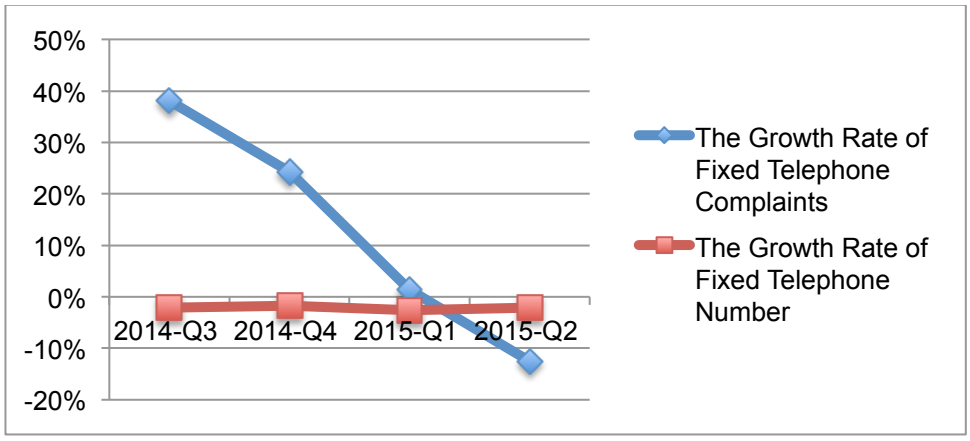
Table 4.36: The Comparisons of Fixed Telephone Service Complaints and The Number of Fixed Telephony Services (between 2014-Q2 and 2015-Q2)

	2014-Q2	2014-Q3	2014-Q4	2015-Q1	2015-Q2
The Number of Fixed Telephone Service Complaints	1,081	1,492	1,854	1,879	1,644
The Number of Fixed Telephone Subscribers	13,010,147	12,741,947	12,528,865	12,200,495	11,937,673

Source: The Author (ICTA, 2015a)

To understand better, the Author preferred to compare both the growth rate of fixed telephone number and the growth rate of fixed telephone complaints. Figure 4.5 shows that the growth rate of fixed telephone complaints started to decrease as of the year of 2014. In conclusion, the service quality may be regarded as better ever before for fixed telephony services in the fixed telecommunication industry.

Figure 4.5: The Growth Rate of Fixed Telephone Number and The Growth Rate of Fixed Telephone Complaints



Source: The Author (ICTA, 2015a)

The other factor for the viability of competition in the telecommunication industry is Interconnection price. In this context, the regulatory authority has got an important role in order to offer accurate rates of interconnection prices. As of 1 October 2004, Turkcell[1] mobile interconnection price was 15.60 Kr[2]/Minute. That price was 2.50 Kr/Minute as of 1 July 2013. As of 1 October 2006, Vodafone[3] mobile interconnection price was 15.20 Kr/Minute. That price was 2.58 Kr/Minute as of 1 July 2013. As of 1 October 2006, Avea[4] mobile interconnection price was 17.50 Kr/Minute. That price was 2.96 Kr/Minute as of 1 July 2013. Long-distance (intercity) interconnection prices are two rates such as *interconnection places* (11 cities) and *rest of Turkey*. As of 1 October 2004, long-distance interconnection price for these 11 cities was 4.10 Kr/Minute. That price was 1.71 Kr/Minute as of 1 June 2012. As of 1 October 2004, long-distance interconnection price for rest of Turkey was 5.90 Kr/Minute. That price was 2.24 Kr/Minute as of 1 June 2012 (ICTA, 2015b). Therefore, it is possible to talk about a serious interconnection price decline in the fixed voice services.

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[1] Turkcell is a leading and the largest mobile telecom operator in Turkey. To receive more information, please visit http://www.turkcell.com.tr

[2] Kr is the currency abbreviation for Turkey. 100 Kr is made up of 1 Turkish Lira (TRY).

[3] Vodafone is the second largest mobile telecom operator in Turkey. To receive more information, please visit http://www.vodafone.com.tr

[4] Avea is the third largest mobile telecom operator in Turkey. To receive more information, please visit http://www.avea.com.tr/web/

4.3.4 Broadband Internet Access

Privatisation is one of the most important actions in the reform process of the telecommunication industry. According to Wallsten (2001, cited in Flacher and Jennequin, 2008, p.368), privatisation can provide an “ambiguous effect” for the telecommunication industry. Bortolotti, D’Souza, Fantini, and Megginson (2002, cited in Flacher and Jennequin, 2008, p.368) stated that privatisation directly affects the incumbent operator profitability. Having said that Malatesta (2001, cited in Flacher and Jennequin, 2008, p.368) pointed out that this effect depends on regulatory policies. Also, privatisation increases productivity (Bortolotti et al., 2002; Li and Xu, 2002, cited in Flacher and Jennequin, 2008, p.368). In this context, the Author decided to make some comparisons between OECD countries in order to measure privatisation effect on productivity. The Author chose ten OECD founding members such as United Kingdom, Spain, Portugal, Germany, Greece, France, Italy, Netherlands, Sweden, and Turkey to make comparisons in terms of the Internet (Mobile and Fixed) Services. First, the Author identified the date of privatisation of countries in the telecommunication industry (see Table 4.37). Second, the Author measured the Internet services development between privatisation date and the following nine years (see Table 4.38). Finally, the Author aimed to present the differences in terms of Internet development between these countries (see both Table 4.37 and Table 4.38).

Table 4.37: Internet Users Rate in the Privatisation Date

Country Name	Privatisation Year	Internet Users per 100 People						
		1984	1995	1996	1997	2000	2004	2005
United Kingdom	1984	NA	1.90	4.12	7.39	26.82	65.61	70.00
Spain	1984	NA	0.38	1.33	2.80	13.62	44.01	47.88
Portugal	1995	NA	1.49	2.98	4.95	16.43	31.78	34.99
Germany	1996	NA	1.84	3.05	6.71	30.22	64.73	68.71
Greece	1996	NA	0.75	1.40	1.85	9.14	21.42	24.00
France	1997	NA	1.64	2.58	4.26	14.31	39.15	42.87
Italy	1997	NA	0.52	1.02	2.28	23.11	33.24	35.00
Netherlands	2000	NA	6.47	9.65	14.07	43.98	68.52	81.00
Sweden	2004	NA	5.10	9.04	23.73	45.69	83.89	84.83
Turkey	2005	NA	0.08	0.19	0.47	3.76	14.58	15.46

Source: The Author (The World Bank, 2015a; Torres and Bachiller, 2013)

Table 4.38 shows the development of Internet (mobile and fixed) users per hundred people. In this context, t_0 represents the starting point of the privatisation, t_1 shows five years from privatisation, and t_2 shows nine years from privatisation.

Table 4.38: The Development of Total Internet (Mobile and Fixed) Users per 100 People

	t_0	t_1	t_2
Greece	1.40	10.94	24.00
Portugal	1.49	16.43	31.78
Italy	2.28	28.04	37.99
France	4.26	30.18	46.87
Turkey	15.46	39.82	51.04
Germany	3.05	31.65	68.71
Netherlands	43.98	81.00	89.63
Sweden	83.89	91.00	94.78

Source: The Author (The World Bank, 2015a)

In this Table (Table 4.38), the United Kingdom and Spain were out of scope because the privatisation process that started in 1984 in these two countries. Those days, there was no usage of Internet in the world. Therefore, It was not possible to make an accurate assessment for these two countries in terms of Broadband Internet Services. According to Table 4.38, at the time t_0, the best performing countries were Sweden with 83.89, Netherlands with 43.98, and Turkey with 15.46. At the time t_1, the best performing countries were Sweden with 91.00, Netherlands with 81.00, and Turkey with 39.82. At the time t_2, the best performing countries were Sweden with 94.78, Netherlands with 89.63, and Germany with 68.71. Regarding fixed broadband Internet services, Table 4.39 shows the development of fixed Internet services. In this context, t_0 means the starting point of the privatisation, t_1 shows five years later, and t_2 shows nine years later. Best performing countries were Netherlands, Sweden, and France. In terms of Turkey, there are no good performing results. After nine years, the penetration rate was 11.69% (Table 4.39). These results show there is no good performance for the reform process in terms of fixed Internet services in the fixed telecommunication industry.

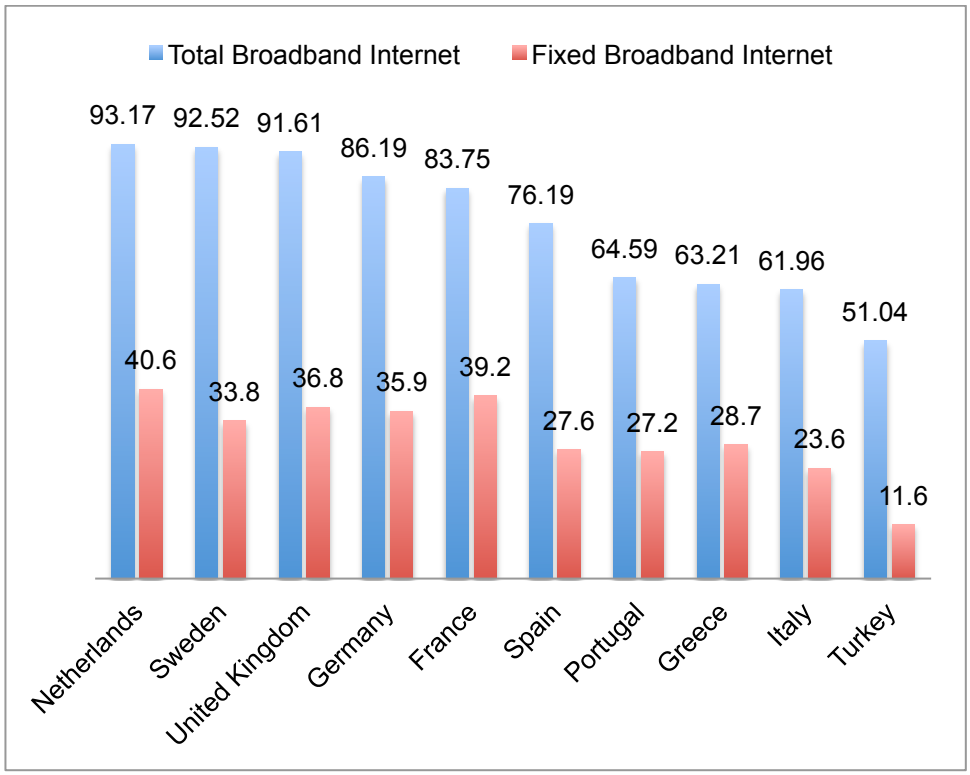
Table 4.39: The Development of Fixed Internet Users per 100 People

	t_0	t_1	t_2
Greece	0.00	0.00	1.45
Portugal	0.00	0.24	8.00
Turkey	2.35	9.84	11.69
Germany	0.00	2.51	12.87
Italy	0.00	1.48	17.02
France	0.00	2.76	25.32
Sweden	15.70	31.63	32.57
Netherlands	1.64	25.15	37.01

Source: The Author (The World Bank, 2015b)

In the year of 2014, in terms of total broadband Internet, Netherlands took first place with 93.17 users per 100 people, Sweden took second place with 92.52 users, and United Kingdom took third place with 91.61 users (see Figure 4.6). The number of Fixed Broadband Internet shows very similar results with the number of Total Broadband Internet. Turkey rated at the end of the list for both segments (see Figure 4.6).

Figure 4.6: The Comparisons for Internet Users per 100 People (2014)

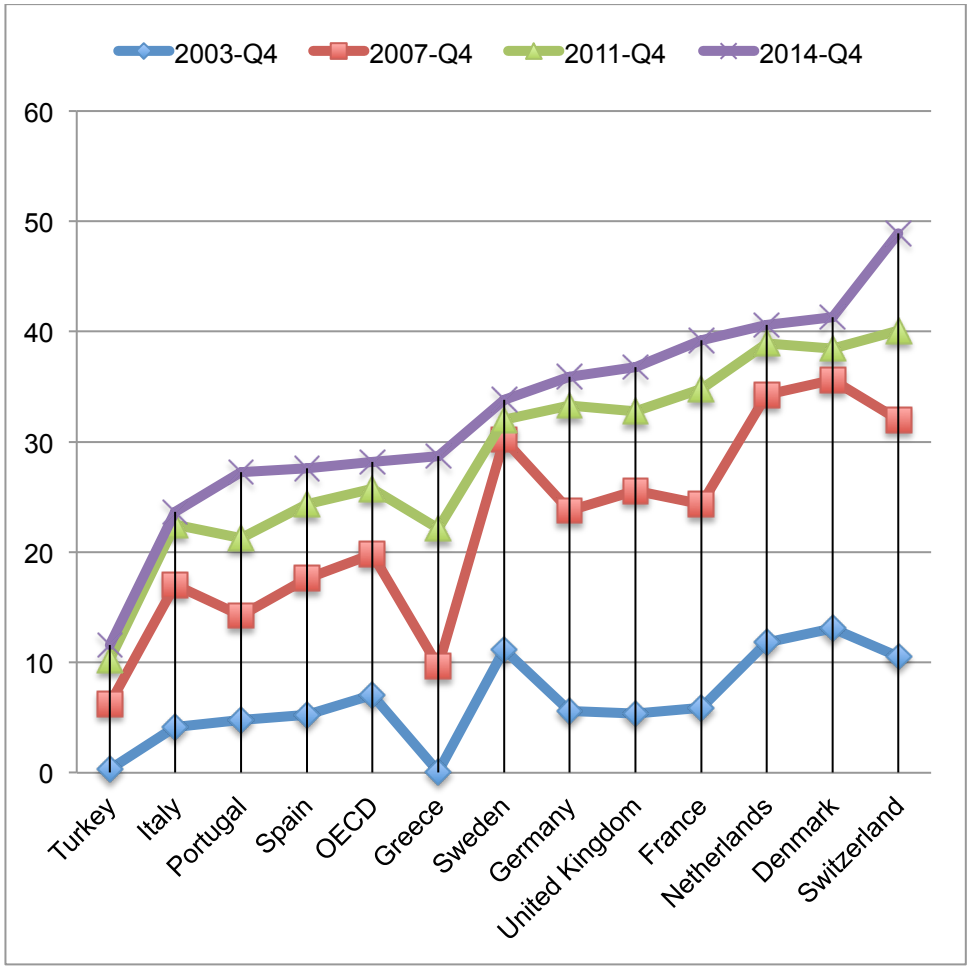


Source: The Author (The World Bank, 2015a; OECD, 2015c)

The number of Fixed-line broadband subscriptions was 357,641,000 as of December 2014 in the OECD area. The Author chose twelve OECD countries (Turkey, Italy, Portugal, Spain, Greece, Sweden, Germany, United Kingdom, France, Netherlands, Denmark, and Switzerland) in order to compare and analyse historical development towards fixed-line broadband penetration. At the top, Switzerland took first place with

48.89 percent rate as of December 2014. Denmark was second with 41.32 percent rate. The Netherlands was third with 40.63 percent rate. OECD Average was 28.20 percent rate. Turkey reached 11.56 percent rate (OECD, 2015c). In general, there was a growing trend in terms of fixed-line broadband services unlike fixed-line telephony services (see Figure 4.7).

Figure 4.7: Fixed-line Broadband Penetration Rates (%)



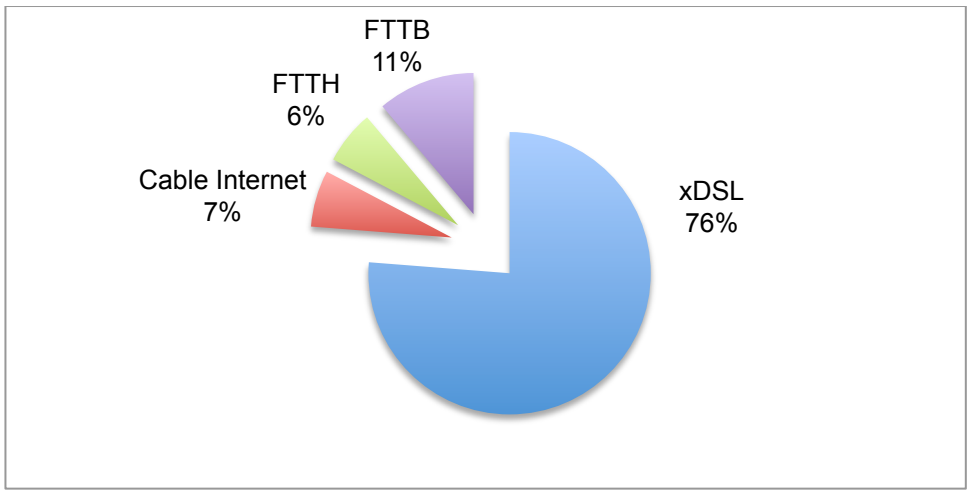
Source: The Author (OECD, 2015c)

Network Infrastructure is crucial to achieve a good service quality in the telecommunication services. In this context, Fiber Optic technology is the most important factor in the fixed telecommunication industry. As of the second half of the

year 2015, the number of total Fiber Optic (Cable Internet[5], FTTH[6], FTTB[7]) subscribers reached 2,139,277. The number of xDSL[8] subscribers was 6,864,772 (ICTA, 2015a).

Figure 4.8 shows the distribution of technological infrastructure in detail. The xDSL services work on copper cable infrastructure, and this service quality is not as good as Fiber Optic infrastructure. FTTB, FTTH, and Cable Internet services work on Fiber Optic infrastructure. This situation means service quality is better than xDSL services.

Figure 4.8: The Distribution of Technological Infrastructure



Source: The Author (ICTA, 2015a)

[5] Cable Internet is a type of broadband Internet access service. This service provides network connectivity from the service provider to a subscriber.

[6] FTTH is an acronym for fiber-to-the-home. In this service type, fiber optic cable directly reaches the boundary of the living space such as home.

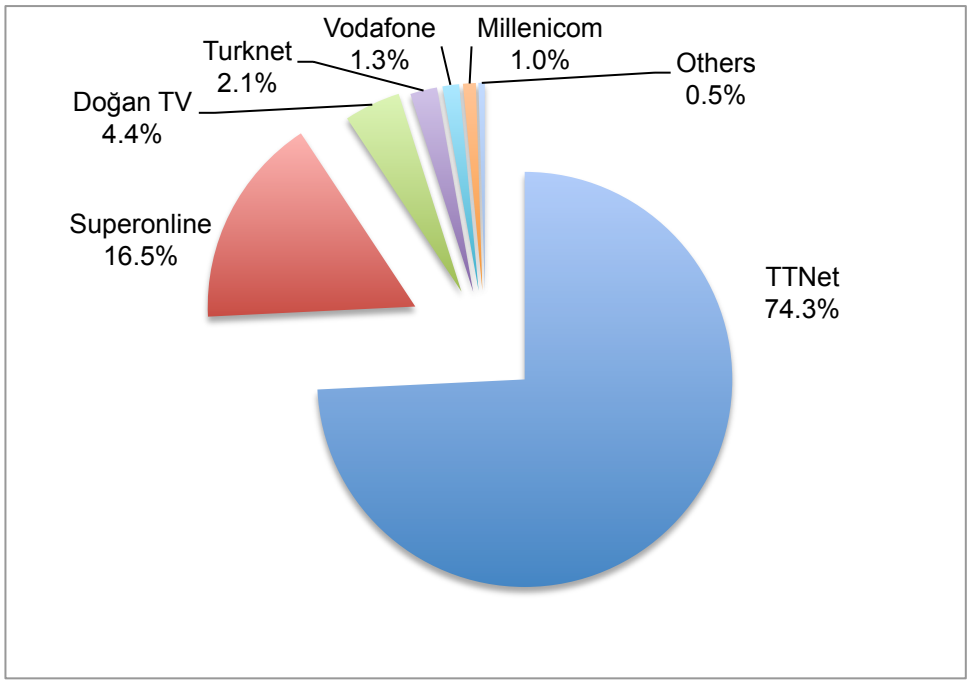
[7] FTTB is an acronym for fiber-to-the-building. In this service type, fiber optic cable directly reaches the boundary of the building.

[8] xDSL is an acronym for any type of Digital Subscriber Line. This technology uses telephone lines in order to transmit digital data.

As the Author mentioned before, Turk Telekom is the incumbent operator in Turkey. After liberalisation, many alternative operators started to appear in the fixed telecommunication industry. One of them is TTNet, which is a Turk Telekom group company. As the Author mentioned before, one third of Turk Telekom belongs to the Turkish government. Therefore, there may be some fair competition problems. In this context, the Author compared market shares between alternative operators regarding fixed telephony services. As a consequence, TTNet, which is a Turk Telekom group company, has got 53.2% market share. Also, the Author pointed out that there is a necessity to compare fixed broadband Internet market share between alternative operators. Figure 4.9 shows alternative operators market shares regarding the number of subscribers in the fixed broadband Internet services as of the second quarter of 2015. In this picture, TTNet has got 74.3% market share (ICTA, 2015a, p.31, own translation from the Turkish text). In conclusion, there must be some competition problems according to these results in the alternative market regarding the reform process.

In the liberalisation and privatisation process, new technologies have been developed such as fiber optic broadband Internet, Metro Ethernet, VPN, etc. This situation means that service quality increased. However, as an indication, the Author preferred to examine the customer complaints to understand reality in the fixed telecommunication industry. Table 4.40 shows the comparisons of the number of Internet service complaints and the revenue development of fixed Internet services.

Figure 4.9: Alternative Operators Market Shares in terms of the Number of Subscribers in Fixed Internet Services (Q2-2015)



Source: The Author (ICTA, 2015a)

Table 4.40: The Comparisons of The Number of Internet Service Complaints and The Revenue Development of Fixed Internet Services.

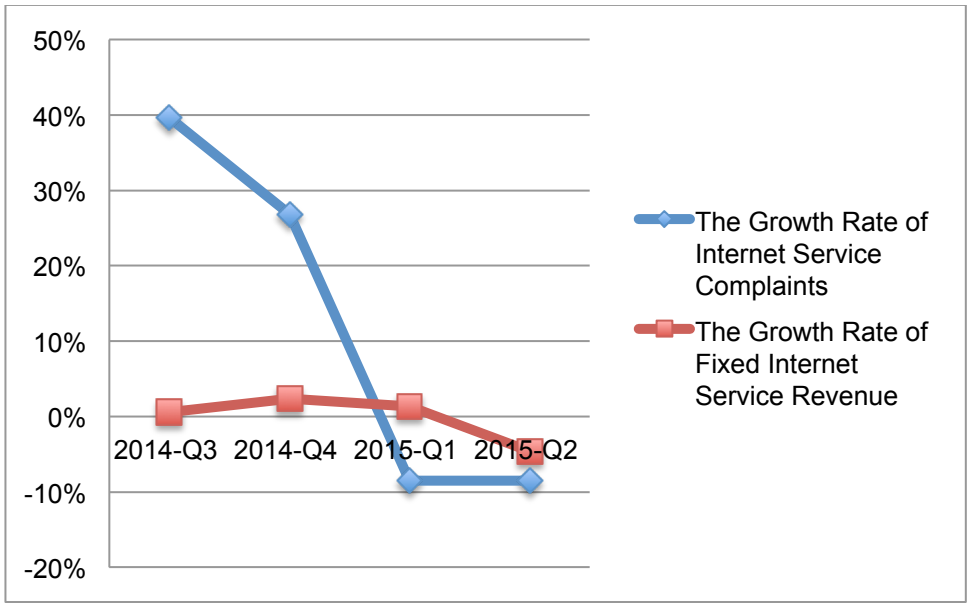
	2014-Q2	2014-Q3	2014-Q4	2015-Q1	2015-Q2
The Number of Internet Service Complaints	4,577	6,392	8,108	7,421	6,787
The Revenue of Fixed Internet Services ('000 TRY[9])	1,178,104	1,184,990	1,213,093	1,229,591	1,172,756

Source: The Author (ICTA, 2015a)

[9] TRY is the currency abbreviation for the Turkish Lira of Turkey.

To understand better, the Author decided to compare both the growth rate of fixed Internet service revenue and the growth rate of Internet service complaints. Figure 4.10 shows the growth rate of Internet service complaints decreased as of the year of 2015. In conclusion, the service quality has improved for Internet services in the fixed telecommunication industry.

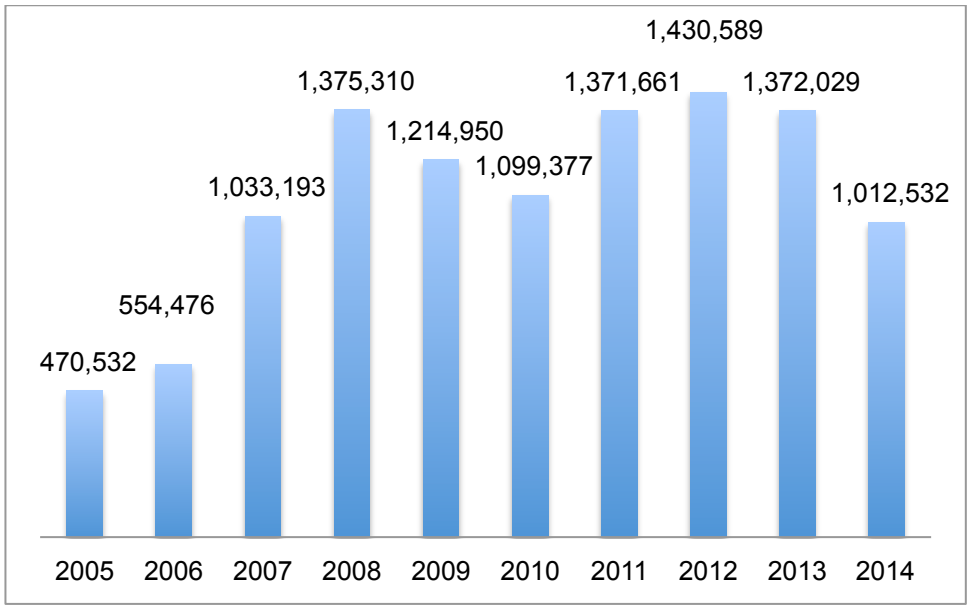
Figure 4.10: The Growth Rate of Fixed Internet Service Revenue and The Growth Rate of Internet Service Complaints



Source: The Author (ICTA, 2015a)

The Author also examined the incumbent operator (Turk Telekom) investments for its infrastructure after the privatisation. As of 2005, Turk Telekom increased its infrastructure investment to increase service quality and compete against its rivals such as alternative operators (see Figure 4.11). In a sense, this investment may be regarded as a positive indicator to increase service quality in the fixed telecommunication industry.

Figure 4.11: The Amount of Turk Telekom investments (‘000)



Source: The Author (ICTA, 2015a; ICTA, 2015c)

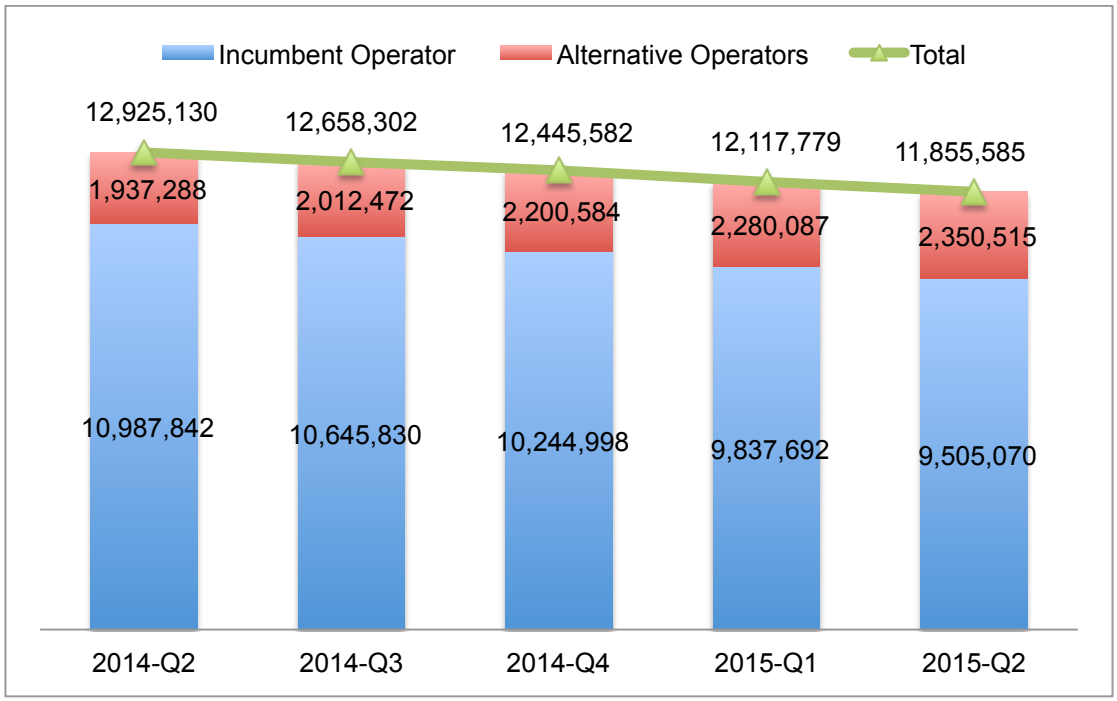
4.3.5 Fixed Line Number Portability

In Turkey, even if the liberalisation process started in the fixed telecom industry in 2004, fixed line number portability started on September 10th, 2009. There was nearly a 6-year delay. As a consequence, the total of number portability was 895,434 until August 27th, 2015. The total number of subscribers (including pay phone/public telephone) in fixed line telephone services was 11,937,673 in the second quarter of 2015 (ICTA, 2015a, p.14 and p.27, own translation from the Turkish text). In this context, the ratio of the number portability was 7.5% in the 11th year of the liberalisation process. Moreover, as the Author mentioned previously, the start date of fixed number portability was September 10th, 2009. As of August 27th, 2015, the total number of fixed number portability was 895,434. On the other hand, the start date of mobile number portability was November 9th, 2008. However, the total number of mobile number portability aggregated 85,402,278 as of June 31st, 2015.

Interestingly, there is a hundredfold difference between these outcomes (ICTA, 2015a, p.27 and p.43, own translation from the Turkish text). This result indicates the serious problems regarding competition.

The Number of Public Switched Telephone Network (PSTN), Integrated Services Digital Network (ISDN), and Voice over Internet Protocol (VoIP) telephone lines of the *Incumbent Operator* was 9,505,070 in the second quarter of 2015. The Number of PSTN, ISDN, and VoIP telephone lines of the *Alternative Operators* was 2,350,515 in the second quarter of 2015 (ICTA, 2015a, p.14, own translation from the Turkish text). In this context, Alternative Operators had 24.73% market share in the 11th year of the liberalisation process (see Figure 4.12). In spite of the fact that Alternative Operators increased their market share, this percentage rate is regarded as low.

Figure 4.12: The Number of Total (PSTN, ISDN, and VoIP) Telephone Lines



Source: The Author (ICTA, 2015a, p.14, own translation from the Turkish text)

In conclusion, both the figures of number portability and the number of phone subscribers of alternative operators are low levels in the fixed telecommunication industry. This indication points out some troubles in terms of the reform process.

4.4 Discussions and Conclusions

In this study, the main research question is 'Have the regulatory arrangements been applied fairly and in an impartial manner to ensure raising competition and the development of the market?' The Author used two more sub-research questions to find an answer to the main research question. These are, first, compared with OECD countries, is the liberalisation process in Turkey limited or inefficient? And, second, what are the internal and external factors that affect the regulation process? Therefore, the main framework for this study was based on these two questions. In the literature review, the Author examined and explored the internal and external factors and made some comparisons between OECD countries. In the primary research, the Author aimed to measure the perception of people towards telecom reforms. In this context, the Author used direct questions that are related to the internal and external factors. In the secondary research, the Author compared Turkey's situation with OECD countries. Also, the Author used some indirect methods to clarify the internal and external factors. In conclusion, the first sub-research question mainly focused on some comparisons with OECD countries and development telecom services. The second sub-research question focused on the perception of people towards internal and external factors, which has an effect on competition in the fixed telecom industry.

The Author pointed out two crucial affecting factors as: '*The degree of privatisation'*, and '*The degree of independence of regulatory institutions'*. In this context, there are the following four research questions (a, b, c, and d) in the primary research.

a. Since liberalisation and privatisation process, the incumbent operator (Turk Telekom) has obeyed the competition rules.

In the primary research, based on the perception of the participants, 38.6% of participants disagreed (24.6% disagree and 14.0% strongly disagree) with this statement, 33.3% of participants neither agreed nor disagreed with this statement, and 28.1% of participants agreed (26.3% agree and 1.8% strongly agree) with it (see Table 4.20). Regarding the perception of the participants, there is an equal situation. Furthermore, in the secondary research, the Author pointed out TTNet is a subsidiary of Turk Telekom, and it has got 74.3% xDSL market share (see Figure 4.9) and 53.2% market share for fixed telephony (see Figure 4.4). Turk Telekom seems to have obeyed the competition rules. However, TTNET may be protected by Turk Telekom. As a consequence, the primary and secondary research results are consistent with each other.

b. Since liberalisation and privatisation process, the national regulatory authority (ICTA) has been transparent and fair in terms of building competition.

In the primary research, regarding the perception of the participants, 33.3% of participants disagreed (28.1% disagree and 5.2% strongly disagree) with this item, 47.4% of participants neither agreed nor disagreed with this item, and 19.3% of participants agreed with this Item. Regarding the perception of the participants, there

are only 19.3% of participants agreed with this Item (see Table 4.22). In the secondary research, as of second quarter of 2015, Alternative operators have got only 15% market share for fixed telephony services (see Figure 4.3). This rate is regarded as a low level in the tenth year of the liberalisation process. As a consequence, the primary and secondary research results are consistent with each other.

c. There is a fully independent regulatory authority in Turkey.

In the primary research, regarding the perception of the participants, 71.9% of participants disagreed (64.9% disagree and 7.0% strongly disagree) with this item, 17.6% of participants neither agreed nor disagreed with this item, and 10.5% of participants agreed (7.0% agree and 3.5% strongly agree) with this Item (see Table 4.24). In the secondary research, the Author pointed out that Turkish Telecommunication Regulatory Authority is affiliated with the Telecommunications Ministry. In conclusion, telecom regulatory authority is regarded not as fully independent in Turkey owing to the primary and secondary research results, which are consistent with each other.

d. Turk Telekom is a partially privatised operator. However, this situation cannot hinder the reform and regulation process.

In the primary research, based on the perception of the participants, 64.9% of participants disagreed (57.9% disagree and 7.0% strongly disagree) with this item. Only 12.3% of participants agreed (10.5% agree and 1.8% strongly agree) with this

situation (see Table 4.30). Also, the secondary research results supported this primary results outcomes.

The other crucial affecting factors, first, '*The impact of tax policy'*, and second, '*The impact of modern and new Technologies'*. In this context, there are the following three research questions (e, f, and g) in the primary research.

e. Since liberalisation and privatisation process, the quality of service has increased in the fixed telecommunication services.

In the primary research, based on the perception of the participants, 87.7% of participants agreed (61.4% agree and 26.3% strongly agree) the quality of telecom services have improved in the fixed telecommunication services (see Table 4.16). In the secondary research, it is found that the customer complaint about Internet services had a downward trend (see Figure 4.10). Also, the Author found that Turk Telekom has increased its technology investments to improve customer satisfaction since liberalisation process (see Figure 4.11). This research question is directly related to '*The impact of modern and new Technologies'.*

f. After liberalisation and privatisation process, the price of services started to decrease in the fixed telecommunication services.

This research question is directly related to both '*The impact of tax policy'*, and, '*The impact of modern and new Technologies'.* In the primary research, based on the perception of the participants, 89.5% of participants agreed (50.9% agree and 38.6 strongly agree) that the prices of telecom services have decreased in the fixed

telecommunication services (see Table 4.18). In terms of tax policy, there is no significant finding regarding price decreasing. However, new technologies such as VoIP and Fiber Optic technologies offered efficiency. Therefore, after liberalisation and privatisation process, the price of services started to decrease in the fixed telecommunication services.

g. There is not any heavy tax burden for telecommunication services.

In the primary research, based on the perception of the participants, 96.4% of participants disagreed (42.1% disagree and 54.3% strongly disagree) with this statement (see Table 4.28). Furthermore, in the secondary research, the Author found that there is a heavy tax burden up to 33% in the fixed telecommunication industry (Yildiz, 2014, p.319, own translation from the Turkish text).

One of the affecting factors is '*The sequence of reform matters'.* In this context, there is the following research question (h) in the primary research.

h. The sequence of reform matters is correctly performed in the fixed telecom regulation process.

In the primary research, regarding the perception of the participants, 24.5% of participants disagreed, 45.6% of participants neither agreed nor disagreed, 28.1% of participants agreed, and 1.8% of participants strongly agreed for this item (see Table 4.26). Interestingly, half of the participants had no preceding knowledge pertaining to the sequence of reform matters.

Finally, the last affecting factors are '*The effect of the WTO agreement', 'The effect of the ITU framework regulation'*, and *'The effect of the European Union framework regulation'.* In this context, there is the following research question (i) in the primary research.

i. The national regulation process and reforms in the telecom industry have been affected by international regulatory and reform institutions.

In the primary research, regarding the perception of the participants, 61.4% of participants confirmed (56.1% agree and 5.3% strongly agree) the national regulation process, and reforms in the telecom industry have been affected by international regulatory and reform institutions such as OECD, EU, WTO, and ITU (see Table 4.32).

In conclusion, the Author used some research questions in the questionnaire in order to measure the affecting factors. These questions are directly related to the affecting factors.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

The objective of the dissertation was to determine which factors have an effect on competition in the fixed telecommunication industry in Turkey. In this context, first, the Author examined these affecting factors in the relevant literature studies. Then, the Author conducted a primary research using a questionnaire. Finally, the Author preferred to use desk research study to gather raw data. As a consequence, the Author identified the affecting factors, which affect on competition in the fixed telecommunication industry.

5.2 Review of Results

The main research question is 'Have the regulatory arrangements been applied fairly and in an impartial manner to ensure raising competition and the development of the market?' The Author sought the answer to the main question by asking two more additional questions. The answers to the following questions were a source for the above research question. In this context, the first question compared OECD countries in terms of the liberalisation process in Turkey regarding its efficiency. The second question, what are the internal and external factors that affect the regulation process?

According to the study results, there is a gap regarding performance rates between OECD countries and Turkey. However, it is not easy to conclude that reform process is inefficient. Few factors were found which could affect competition in the reform process. Based on these affecting factors, the research questions were prepared in

the questionnaire of primary research. In essence, not all affecting factors were directly related to the reform process, but some can be regarded as indirectly related. However, the Author decided to include all affecting factors into the study because this is crucial in terms of the future research studies as the researchers can include data presented in this paper regarding reform process efficiency. According to primary research results, the service quality has increased and the service prices have decreased during reform process. Having said that, the majority of participants (96.5%) declared that there is still a heavy tax burden for telecommunication services.

The questionnaire also raised topics of independency, transparency, and fairness of the regulatory authority for discussion. Also, in the questionnaire, 38.6% of participants disagreed, 33.3% neither agreed nor disagreed, and 28.1% agreed that Turk Telekom has not obeyed the competition rules since reform process.

5.3 Limitations and Recommendations

This paper investigated the impact of regulatory policies on competition in the fixed telecommunication industry in Turkey. The Author conducted a primary research with limited participants (N=57). Also, the secondary research was executed by using publicly accessible web resources. Therefore, this study may be regarded as confined. In addition to this, the Author targeted only fixed telecommunication industry. On the other hand, it is not easy to distinguish separate fixed and mobile worlds due to common use of technology. There is a convergence regarding fixed and mobile technologies. This fact is one point that the researchers should take into

account for forthcoming studies. In the future studies, these topics and resources may be extended.

Moreover, the Author mentioned of the factors that are not directly related to the reform process. In this context, the Author found the following affecting factor *'the impact of modern and new technologies'* as an example. Especially, the researchers may take the impact of emerging digital and new technologies into account while generating their further studies. This is the second essential fact to be considered. In conclusion, in terms of regulation practices, the future studies should take these points into account such as (1) convergence in the communication technologies, and (2) emerging digital technologies.

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Appendices

Appendix I. Informed Consent Communication

Dear...

My name is Kemal Karabayır, and I am enrolled at a Master of Science (MSc) degree programme in Global Marketing at the University of Liverpool.

I entered the programme in order to develop masters-level depth of knowledge, research skills and deeper theoretical knowledge in terms of marketing, leadership, organisational behaviour, and finance. Thus, I am required to conduct a research project as a final assessment for this programme. This research study will be useful to reflect on critical issues between my work experience and my scholarly learning to these issues. In this context, I would like to discuss the impact of Turkish regulatory policies on competition in the fixed telecommunication industry. This information may or may not be divulged in the context of my research. Additionally, all information will be anonymised, and there will not be any proprietary information sharing without your specific consent.

Your participation is very valuable for this study, and I greatly appreciate for your great support and help. Thank you very much in advance.

Best Regards,
Kemal Karabayır

Appendix II. The Questionnaire Model

Part A: Demographic Questions

1) What is your age?

( ) 25 or under ( ) 26-35 ( ) 36-45 ( ) 46-55 ( ) 56 or older

2) What is your gender?

( ) Female ( ) Male

3) How long have you been working in the current industry?

( ) Less than 1 year ( ) 2-4 years ( ) 5-7 years ( ) 8-10 years
( ) More than 11 years

4) How long have you been working at your current company?

( ) Less than 1 year ( ) 2-4 years ( ) 5-7 years ( ) 8-10 years
( ) More than 11 years

5) Which industry do you work for?

( ) ICT ( ) Finance ( ) FMCG ( ) Energy ( ) Health ( ) Transportation
( ) Textile ( ) Manufacturing ( ) Other

6) Which of the following best describes your company? (for only ICT industry workers)

( ) Incumbent Fixed Operator ( ) Mobile Operator ( ) Alternative Fixed Operator
( ) Internet Service Provider ( ) Other

7) Which department do you work for?

( ) Sales ( ) Marketing ( ) IT & Operation ( ) Legal ( ) Finance ( ) HR
( ) Other

8) Which of the following describes your role in industry the best?

( ) Upper management ( ) Middle management ( ) Junior management
( ) Expert/Specialist ( ) Other

Part B: Questions to uncover the degree of affecting factors

Please put **"X"** for the most appropriate statement, which corresponds most closely to your desired response.	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1) Since liberalisation and privatisation process, the quality of service has increased in the fixed telecommunication services.					
2) After liberalisation and privatisation process, the price of services started to decrease in the fixed telecommunication services.					
3) Since liberalisation and privatisation process, the incumbent operator (Turk Telekom) has obeyed the competition rules.					
4) Since liberalisation and privatisation process, the national regulatory authority (ICTA) has been transparent and fair in terms of building competition.					
5) There is a fully independent regulatory authority in Turkey.					
6) The sequence of reform matters is correctly performed in the fixed telecom regulation process.					
7) There is not any heavy tax burden for telecommunication services.					
8) Turk Telekom is a partially privatised operator. However, this situation cannot hinder the reform and regulation process.					
9) The national regulation process and reforms in the telecom industry have been affected by international regulatory and reform institutions.					

Part C: Additional Information about the Subject

Would you like to contribute with any additional information or comments?