

ERF Policy Research Report

Welfare Effects of Institutional Reform in Public Utilities

The Case of Voice Telecommunication in Egypt

Amirah El-Haddad
Khaled Attia

ERF Policy Research Report

Welfare Effects of Institutional Reform in Public Utilities

The Case of Voice Telecommunication in Egypt

Amirah El-Haddad
Khaled Attia

Research Team: Sarah El Bitar; Ahmed M. Abdel Salam; Marian Adel; Rania Shoukry; Fatma Adel; Shimaa El Sayed; Samaa Hosny; Wafaa Hussein; Angie Mounir; and Yasmin Khalafalla

PRR No. 36
October 2012

First published in 2012 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Copyright © The Economic Research Forum, 2012

All rights reserved. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher.

The findings, interpretations and conclusions expressed in this publication are entirely those of the author(s) and should not be attributed to the Economic Research Forum, members of its Board of Trustees, or its donors.

Preface

Many countries, including Egypt, have undergone significant utility sector reform since the 1990s. This case study assesses the institutional reforms initiated in 1997 in Egyptian telecommunications, ending 40 years of state dominance over the sector. Reforms included (1) regulatory reform to strengthen the framework of accountability for the utility operator, (2) liberalization through lifting legal monopoly restrictions, (3) privatization (private sector participation) to insulate the utility from political interference in daily management and (4) public sector reform to enhance the utility's managerial and financial autonomy. The examination of welfare effects is based on an analysis of the causal chain of reform, which highlights the interdependence of the main market players: Telecom Egypt, Vodafone, Mobinil and Etisalat and the regulator, National Telecommunication Regulatory Authority (NTRA).

We had initially planned to include civil aviation and electricity in addition to telecommunications. However, faced with significant data-related problems we decided to restrict ourselves to telecommunication, with a focus on voice services. Even then, simple data such as a time series of tariff structure (i.e. call prices) and total minutes (call duration), especially for the national incumbent—Telecom Egypt—could not be obtained. We had to resort to gaining access to data through personal connections rather than through a well-functioning institutional setting. We'd like to take this opportunity to call for a National (though not necessarily public) Plan for Data Unification, Accuracy and Access, according to which universal data standards are applied, historical time series databases are established and data are made available to researchers.

The study has received financial assistance from the Economic Research Forum (ERF) as part of the ERF-GDN Regional Research Competition on Utilities in the Arab World funded by GDN. The authors are thankful to Howard White for comments. Thanks are also due to Olfat Monsef, Nagwa El-Shenawy and Amr Abdelhady for their time and support with information and data. Any errors and omissions are our own responsibility. The views in this study are those of the authors, and do not represent the views of ERF, any of its funders, or other organizations with which the authors are associated.

Amirah El-Haddad
Faculty of Economics and Political Sciences, Cairo University

KhaledAttia
Sarie-Eldin and Partners Law Firm

Contents

Preface	iii
Contents	1
Summary	2
Part One. Introduction	4
Chapter 1. From Reform to Welfare: The Causal Chain of Reform	7
Institutional Setting over Fifty Years	7
Telecommunication Voice Market Structure	11
Chapter 2. Overall Sector Performance	20
Telecommunication Revenues	20
International Minutes	21
Capital Investment in Telecommunication	22
Chapter 3. Impact Indicators by Stakeholder and Type of Reform	23
Workers: Employment and Wages	23
Consumers: Price, Access and Quality	25
Government: Fiscal Flows	33
Competitors: Entry Conditions and TE Performance	35
Conclusion	41
Part Two. Introduction	44
Chapter 1. Introduction to Telecommunication Competition Regulation	45
Introducing Competition Regulations, Sector and Economy-Wide Levels	45
The Relationship between ECA and NTRA	45
Independence of the Regulations	47
Conclusions	51
Annexes	52
Annex 1: Summary of Expected Impacts of Different Types of Utility Reform	52
Annex 2: Additional Figures	54
Annex 3: Telecom Acronyms	56

Summary

Many countries have undergone significant utility sector reforms since the 1990s, including liberalization and privatization. The anticipated benefits from these reforms, a reduction in the fiscal burden of public services and improving the performance of utility operators, are the macroeconomic and microeconomic rationales for reform, respectively. Better firm performance can expand access to services and improve service quality. The macro and micro rationales can be in conflict since maximizing short-run fiscal flows generates pressure to reduce competition, keeps regulation light, and minimizes investment obligations. But measures to enhance efficiency typically involve restructuring, regulatory reform and market liberalization.

Although there are expected benefits, reforms come at a price; sometimes in the form of higher tariffs, substantial layoffs of public sector employees, and considerable asset transfers (Foster et al. 2005).

Egypt started privatization and other institutional reforms in the early 1990s as part of a more general move to liberalize and deregulate the economy under the Economic Reform and Structural Adjustment Program of 1991. These policies were extended to the utility sector in the late 1990s.

Part One of this study addresses three main issues:

1. How changes in the institutional environment have affected market performance. Drawing on literature concerned with industrial organization and new institutional

economics, the study investigates how the regulatory environment for the sector affects competition, market structure and market power.

2. How changes in price, quantity and quality of a range of indicators have affected the welfare of various stakeholders.
3. The implications of telecommunication competition regulation, reflecting the larger role that the Egyptian Competition Authority (ECA) and the National Telecommunication Regulatory Authority (NTRA) may take on in the future.

The analysis of these three issues is divided into two parts. The first part is divided into three chapters, the first of which outlines the reform process in the sector to date and the resulting market structure. Chapter two describes developments in the overall performance of the sector, followed by an analysis of the impacts of the reform on the various stakeholders in Chapter three. Drawing on public choice theory and using results of interview material and qualitative data, this chapter also analyzes the successes and failures of the regulatory body. Part two analyzes the sector's competition regulatory framework including a qualitative discussion of the relationship between the sector's regulator (NTRA) and the country's anti-trust body (ECA). The discussion highlights the issue of independence of these two bodies, suggesting possible shortcomings in their respective laws.

Notwithstanding these reform gains, the ap-

proach to regulation in Egypt in general is still ad-hoc. No legal framework is adopted to set a clear policy or methodology to bring in uniformity in various approaches to regulatory reforms in Egypt. As the privatization and licensing processes may spark anti-competitive behaviour, it is important to have clear competition regulations prior to market liberalization. However, that was not the case in the telecom sector where reforms have been carried out in the absence of competition regulation both in the sector and on an economy-wide level. In fact, competition regulations were not introduced until 2005, almost a decade after the telecom sector reform has started.

Consequently, Part Two analyzes competition regulation in the telecom sector by covering the following points:

1. Introducing Competition Regulations; Sector and Economy-Wide Levels
2. The Relationship between the Regulators; ECA and NTRA
3. The Independence of the Regulators; ECA and NTRA

Part One

Introduction

How Reforms Affect Welfare: The Causal Chain

Institutional reforms have spread across the developing world since the 1980s because of diminished faith in government as a rational and benevolent social planner, and the debt burden imposed by failing public enterprises. Many countries, including Egypt, have undergone significant utility sector reforms since the 1990s. This study assesses the institutional reforms initiated in 1997 in the Egyptian telecommunication sector which have ended forty years of state dominance over the sector. The study focuses on voice services, with some references to other forms of telecommunication. Reforms included (1) regulatory reform to strengthen the framework of accountability for the utility operator, (2) liberalization by lifting legal monopoly restrictions, (3) privatization (private sector participation) to insulate the utility from political interference in daily management, and (4) public sector reform to enhance the utility's managerial and financial autonomy. Autonomy is intended to harden the budget constraint to discipline government dependent public firms. Or, if such discipline is not achieved, failing firms are forced to exit the market with no chance for bail out. Collectively, these reforms should have created contestable markets characterized by free entry and exit triggering both efficiency and competitive pressures to accumulate welfare gains. This is the causal chain of reform.

Timing of Reforms

The timing of the various reform measures has for the most part been careful and mature. A regulator for the sector was created in 1998 (TRA, transformed to NTRA in 2003), and the Arab Republic of Egypt National Telecommunication Organization (ARENTO) was transformed to the private law company Telecom Egypt (TE), which was later partially privatized (20% in 2005). Yet both the Telecommunication Regulation Law and the Egyptian Competition Law were introduced some years into the reform, in 2003 and 2005 respectively. And so an operative competition framework to police anti-competitive practices was absent in the sector. Of most significance was opening the sector up to private competition. Liberalization was initiated in 1998 by granting the mobile operators Mobinil and Vodafone cellular licenses.

After a decade of a duopoly, Etisalat was allowed to enter the market in 2007. Thus entry was sequenced in the cellular market. Staggered entry, common in Japan and other Asian countries, allows fledgling entrants to achieve economies of scale and sufficient market power. When NTRA considered it appropriate, an additional entrant was introduced to induce competition. The authority played a positive role in easing the entry of Etisalat, thereby substantially reducing barriers to entry.

Flexible Competition Policy

A flexible competition policy is key to building relatively concentrated industries provided they remain competitive and compete non-cooperatively. The cellular market follows the Bertrand-style competition, in which firms compete in prices pushing them down to the level beyond which losses will be incurred. This is true except during periods of predation and/or collusion between market players, which possibly occurred for a large part of the period of study prior to the entry of Etisalat. The inadequate competition framework of the sector at the time, which is the topic of the second part of this study, did not encourage detection of anti-competitive practices.

Welfare Gains of Reforms

Welfare gains have accrued to consumers, producers (competitors) and the state alike. Following reforms, there were marked improvements in access, in the overall price and quality of voice services, in overall employment, in average wages, in productivity indicators; in ICT sector transferred funds to the government, mainly from Telecom Egypt. Yet there is still scope for more reform to achieve further welfare gains.

The National Incumbent (TE), and the Regulator's (NTRA) Protectionism

In every reform attempt, there are winners and losers. TE is both. After an initial period of growth, additional competition has negatively affected TE's retail market. With landline subscriptions falling since 2008, TE's market share has shrunk from 95% in 1998 to just 9% in 2011. In the international voice market TE's international minutes started to decline since 2005, with its share dropping from a third (31%) in 2003 to 12% in 2009. In contrast, market shares of Vodafone and Mobinil have been expanding, with the former capturing the largest share.

To offset these losses TE relies heavily on its wholesale market, taking advantage of its monopoly over the international gateway and the internet infrastructure. In doing so it exercises a "margin squeeze" favoring its own arms in the market: Vodafone in the voice market and TE Data in the internet market. These practices are a clear violation of the 2005 Egyptian Competition Law. Mobinil, seeking a level playing field with Vodafone, followed in the footsteps of Etisalat and applied for an international gateway license. However,

if Mobinil, and then eventually also Vodafone, gain such a license, it will have dire consequences for TE. With nearly LE4 billion in revenue from international wholesale services (40% of TE's total service revenue) and LE1.3 billion from domestic wholesale (13% of total service revenue) the change will seriously jeopardize the giant company that employs approximately 55 thousand people. Alleged delay in negotiations over the license suggests the possible regulatory and policy capture of NTRA. NTRA is in the tough position of striking a balance between its desire to protect the national incumbent, thus preserving government resources in the form of taxes and transferred funds from TE (the latter amounted to LE1.8 billion in 2010), and promoting overall producer and consumer welfare via supporting competition and thus preserving its own image as an impartial regulator. To remove any suspicions of capture, NTRA should grant this license without undue delay and following due process.

The Scope for More Reform

There is certainly more space for reform and welfare enhancing opportunities, but public ownership and the legacy of inflated employment place severe constraints on the company. Increasing the private share from 20% to 49% may help. Further privatization of the company will raise efficiency placing the company on an equal footing with the cellular retail market competitors. But raising efficiency will require retrenchment, which is not very politically viable, especially in the current post revolution transitional period with the exaggerated popular expectations. In addition, the government will place pressure on the regulator to resist this step to avoid social unrest and preserve the substantial resources transferred from TE, the latter not expected to last for long. But in the medium term and with a government with some foresight, further privatization can be gradually achieved with NTRA's support. In the same way that NTRA has managed to gradually introduce competition to the sector, it can also manage a gradual privatization of TE. Decent retirement packages, if only for the least productive fifth (20%) of TE workers, could be offered as long as the resulting increases in productivity outweigh the cost of these packages.

An additional fixed line and internet infrastructure licenses can be introduced in due course after some years from additional TE privatization

to induce further competition in the sector, bringing about further price reductions, more options and better service and thus enhancing consumer surplus while preserving normal profits in the sector. Excess profits will be eliminated only if the concerted efforts of both NTRA and ECA prevent collusion and predation.

To achieve these improvements NTRA should enhance its institutional capacity and should not fall into the trap of regulatory capture or policy capture, remaining independent from both government and market players. It should realize that social welfare is a broad concept which does not just pertain to competitors' welfare but encompasses a wide array of stakeholders with potentially opposing interests. Other stakeholders include the government and the many million consumers that will be affected by the deteriorating performance of the incumbent, higher prices and poorer quality compared to what is potentially attainable, and also encompasses potential entrants to a sector which is yet to fulfill its growth potential. The rule of thumb is to introduce competition when the time comes, thereby opening up new markets and realizing that protecting inefficient market insiders, be it firms or workers, is always at the expense of more efficient and deserving outsiders.

FROM REFORM TO WELFARE: THE CAUSAL CHAIN OF REFORM

The analysis primarily focuses on voice services (telephones, both mobile and fixed landlines),¹ with some references to overall basic telecommunication² and to information and telecommunication.³ This chapter first outlines the sector's institutional setting in the past fifty years, highlighting the reforms adopted to date. Second, it introduces the effect on sector market structure and discusses the potential role of an active competition policy.

1.1 Institutional Setting over Fifty Years

The history of Egyptian telecommunication can be divided into two periods: state monopoly from the late fifties to the late nineties (1957-1997), and gradual reform and liberalization thereafter.

1.1.1 Monopoly and State Dominance (1957-1997)

The Egyptian telecommunication sector became a state monopoly in 1957,⁴ when the government undertook the responsibility to provide the service and set prices. The Telecommunication Organization affiliated to the Ministry of Transportation was established in that year⁵ to administer the telecommunication utility, then mainly operating fixed lines,⁶ with no provisions stipulating the basis for price setting, and hence, granting the organization a great deal of unaccountable power. Later in 1980 ARENTO—also affiliated to the Ministry of Transportation—was established⁷ to replace the Telecommunication Organization.⁸

Whilst private companies were previously prevented from operating in the market, ARENTO, the new telecommunication authority was entitled by law to establish solely, or with associates, private law companies to provide the service.⁹ This change reflected the legislator's acknowledgment of the private sector as Egypt's socialism began to fade.¹⁰ Nevertheless, regarding telephone services, with no private companies operating in the market, Article 4 was never put into practice. Market competition was thus completely absent. And whilst the new law-stipulated prices should have been set on the basis of accounting costs,¹¹ ARENTO determined those prices, again giving the government full discretion over prices.

1.1.2 Telecommunication Reform (1998-2010)

Two factors triggered and then shaped reform in the telecommunication sector in Egypt: (1) reversal of the state-led development strategy of the 50s and 60s through the adoption of the Economic Reform and Structural Adjustment Program (ERSAP) in 1991, and (2) the various agreements into which the country has entered following its accession to the World Trade Organization in 1995. The Basic Telecommunications Agreement (BTA), ratified in 2002, provides a framework for the integration of the country's ICT industry into the global economy, committing the government to dismantling the state monopoly in telecommuni-

cation services (Hassanin 2007; Badawy 2007). The year 1998 marked the onset of the reform process in the telecommunication sector.

In general there exists a wide range of reform measures which can be divided into five main types:¹² (i) regulatory reform, (ii) public sector reform, (iii) private sector participation, (iv) market liberalization and, (v) sector restructuring. In the telecommunication sector, only the first four were undertaken. The following elaborates on each of these in turn.

1.1.2.a Regulatory Reform (1998, 2003)

Regulatory reform aims to strengthen the framework of accountability for utility operators. Historically, public utilities were self-regulating which meant little or no accountability, resulting in poor performance. Thus, regulatory reform explicitly sets a legal framework defining accountability, and often entails institutional separation of the regulatory function from both the utility (the entities providing the economic service) and the state to create an independent overseer.

Accordingly, presidential decree number 101 for the year 1998 established an independent regulatory body, the Telecommunications Regulatory Authority (TRA) to separate regulatory activities from economic ones. TRA's responsibilities include: administrating the telecom sector by developing and expanding different types of telecommunications, protecting state sovereignty, ensuring distribution and provision of services in all parts of the country (i.e. rural and urban), granting licenses, establishing a link between cost and prices and setting the latter accordingly.¹³

Later in 1999, with the development of telecommunication services, a new ministry, the Ministry of Communication and Information Technology (MCIT), replaced the Ministry of Transportation (MOT) in supervising and organizing the telecom sector and setting the sector's overall strategy. In 2003 TRA was renamed the National Telecommunications Regulatory Authority (NTRA) via a new law, Egypt Telecommunication Regulation Law No. 10, 2003, which granted the regulatory body more scope,¹⁴ independence and power.¹⁵ Although carrying out essentially the same tasks as TRA, NTRA differs in one significant way. Although in principle it should approve market prices, it doesn't have the same power over price setting exercised earlier by TRA which allows market players to compete in prices as well as in

quality. Applicants to NTRA's licenses are obliged to determine how their prices will be set.¹⁶ Thus, by granting the license NTRA implicitly approves prices. For services considered by NTRA to be basic the authority is entitled to set their prices (in doing so the authority considers the recommendations submitted to NTRA by the applicant).¹⁷ Generally, the new Telecommunication Regulation Law rests on four main pillars: information disclosure, free competition, the provision of universal services and user protection.

1.1.2.b Public Sector Reform (1998)

State provision—whether at the central or at the municipal level—for utility services has politicized this process resulting in artificially depressed prices, over-employment, political manipulation of investment priorities (with all related construction contracts), in addition to a lack of managerial autonomy or technical competence. To deal with these shortcomings, public sector reform mainly aims at enhancing the utilities' managerial and financial autonomy relative to the state. A number of measures can be applied to achieve this goal which include the incorporation of the utility, accounting separation from public administration, signing of performance contracts with the executive, governance reforms to increase independence of the board, and changes in the legal status of the enterprise, for example by conversion to a public limited company that is freed from public sector procurement, employment, and investment regulations.

In the Egyptian telecom sector ARENTO was transformed into a private company under the Egyptian law named Telecom Egypt (Law no. 19, 1998) which until 2005 remained fully owned by the state. As a result, TE, now a private sector entity subject to the companies' law, no longer enjoys the privileges and status of a public authority in terms of funding or employment.¹⁸

1.1.2.c. Market Liberalization¹⁹ (1998, 2003 and 2007)

Most utility services have been provided under legal or actual monopolies. Nevertheless, there has been growing recognition that in some subsectors, such as electricity generation and long distance calls,²⁰ competition is feasible and desirable. This is in contrast to subsectors with a natural monopoly of the infrastructure network, such as water

and electricity distribution. Reforms gradually lifting legal monopoly restrictions, allowing competition to emerge, and those creating a broader antitrust framework for the economy, have thus materialized.

Lifting Legal Monopoly Restrictions

Liberalization has been introduced in the sector through lifting legal monopoly restrictions, hence allowing for competition to emerge. In specific, in 1998 two events have marked the liberalization of the sector. First, is the explicit stipulation in the law that TRA's responsibilities include encouragement of investment in the sector on a non-monopolistic basis; and additionally include supporting free competition among foreign and national companies.²¹ Competition, prohibition of monopolistic practices, and the gradual removal of barriers to entry are novel concepts to the telecommunication legislation. The new Telecommunication Regulation Law of the year 2003 reinforced this trend. The law stressed the notion of competition and trust building between incumbent companies and new entrants to the telecom sector.²² Enforcement of the law was entrusted to NTRA, which was granted authority to punish monopolistic practices regarding the licenses phase. The authority itself believes its core mission to be the "[encouragement] of national and international investments within free competition rules... [reinforcing] the state's adoption of free-market and business-friendly policies and the [development] of a fair and competitive telecommunication market. (NTRA 2007).

Granting of Two Cellular Licenses

The second event to mark the sector's liberalization was TRA's granting of two cellular service licenses to two consortiums of international and Egyptian companies in 1998 namely: Mobinil and Vodafone, and so introducing competition to the sector (MCIT 2010b). Unlike the fixed-line telephone service no monopoly status was granted to either company. In effect, these two companies stand to compete with TE, the fixed-line incumbent. After a 10 year duopoly transition period a third mobile operator, Etisalat Masr, a consortium led by Etisalat Emirates (which includes Egypt Post, National Bank of Egypt and Commercial International Bank) entered the market in 2007 guaranteeing further liberalization of the mobile

market in Egypt. The process was competitive with NTRA launching a bid in 2006, and receiving applications from 11 consortiums.²³

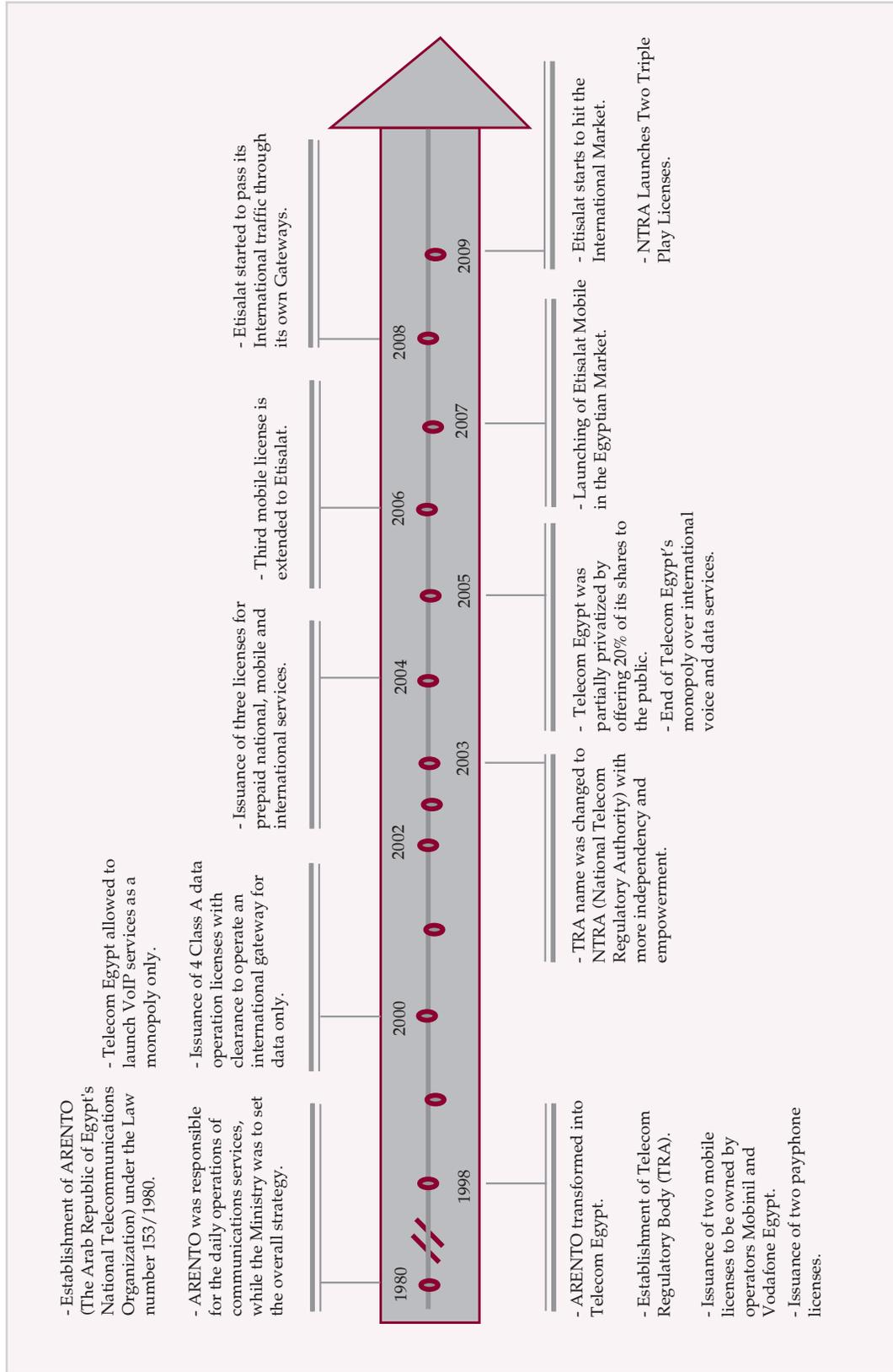
1.1.2.d. Private Sector Participation (2005)

Private sector participation (PSP) is one of the deepest reforms affecting public utilities. It is the reform providing the greatest insulation from political interference in the daily management of utilities. PSP extends over a spectrum of contractual forms depending on the scope of responsibilities transferred from the public to the private sector. At one end of the spectrum those responsibilities may involve subcontracting specific operational functions, while at the other extreme they may involve full transfer of asset ownership (i.e. full privatization).

In an attempt to insulate the utility from political interference in its day to day management the government embarked on privatizing TE in 2005 through a first initial public stock offering (IPO). Twenty percent of the company was sold to the public at a value of LE5 billion. The sale of a second tranche of TE shares and a second national fixed-line license were postponed in the wake of the global financial crisis—or so it was claimed. Instead, two regionally limited triple play licenses for fixed-line voice, high-speed broadband and pay TV services were tendered in 2010 (Lange 2010). Figure 1.1 follows the timeline for PSP and liberalization for the sector since 1990.²⁴

In summary, after forty years of monopoly and state dominance, reforms were adopted to enhance accountability, financial and managerial autonomy, and technical competence of the utility operator whilst gradually liberalizing and creating competition in the sector. These reforms created new institutions (TRA) and regulations (the 1998 law) and adjusted older ones (creation of NTRA and, critically, the 2003 Telecommunication Regulation Law), altered old public organizational and ownership structures (by turning ARENTO—a public authority—into TE—a private law company—and subsequently privatizing 20% of the company). The effect of these profound institutional changes is the subject of the following chapters and subsections of the study.

Figure 1.1
Telecom Liberalization and Private Sector Participation Timeline (1990-2009)



Source: Telecom Egypt (2009)

1.2 Telecommunication Voice Market Structure

This section opens with a discussion of the degree of substitutability between mobile and fixed line services, which provides the basis of the subsequent analysis of market structure evolution and a discourse of active competition policy.

1.2.1 Substitutability of Cellular²⁵ and Fixed Line Services

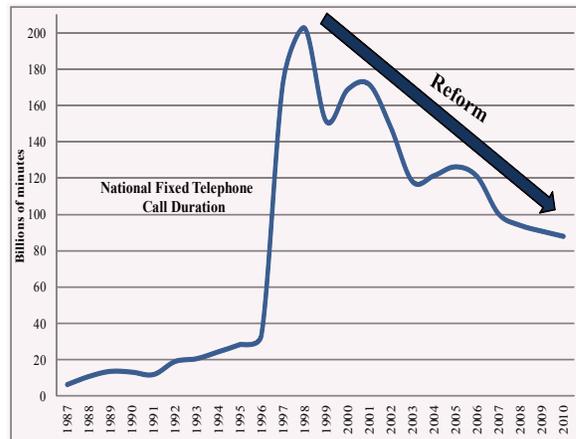
Cellular and landline services are not perfect substitutes. Despite the difficulty of precisely quantifying their degree of substitutability, it is nonetheless obvious that the introduction of mobile services to the sector exerted competitive pressures on the landline operator. These pressures are demonstrated by the striking decline in landline usage since the reforms, driven by the penetration of cellular services. In 2009 households spent an average LE76 a month on their mobile bills but only a little more than half that amount (LE44) on their fixed line bill (calculated from MCIT database 2010). After a striking jump in 1998 landline call volume has fallen by more than half since the start of the reforms, from just over 200 billion minutes in 1998 to about 88 billion in 2010 (Figure 1.2).

In terms of substitutability, Egyptians prefer cellular voice on account of lower prices for a service which is at least as reliable, has more transparent billing, and the convenience of personalized private communication which can be used on the go. The lack of desire to deal with public servants of TE, which can sometimes involve excessive bureaucracy, is also not to be underestimated. By contrast, cellular services now involve minimal transaction costs. One can simply buy the phone and the chip and one is ready to go. This also helps explain the popularity of the prepaid system in Egypt, which captures 95% of the cellular market, leaving just 5% for the post-paid, contract-based services (NTRA 2010). To sum up, the interdependence between the players of the two voice markets is strongly evident and thus, while not perfect substitutes, cellular and fixed line services are fairly close ones.

1.2.2 Market Structure, Concentration and Market Power

The market for this study is identified by product and geographical area, which is how markets are defined under the Egyptian Competition Law.

Figure 1.2
National Fixed Traffic (1987-2010)



Note: National fixed minutes or landline call volume here refers to local (i.e. within governorate) and national long distance (i.e. between governorates) traffic for fixed phones (i.e. landlines).

Source: Data for 2007 and 2008: MCIT (2011); data for 1987-2006 and 2009-2010 calculated based on the data trend of Euromonitor International (2010). Euromonitor International database (2010) included national fixed minutes 1997-2009, called here Series (1). In early 2011 this data series was removed by Euromonitor and replaced by a different series covering the years 1998-2010 only, called here Series (2). Series (1) and (2) differ more than twenty fold compared to the two data points for the years 2007-08 obtained from MCIT, one being much higher and the other much lower. Series (1) is more than 20 times greater than MCIT data, and Series (2) is a mere twentieth of the figures reported by MCIT. Nevertheless, the overall trend of the two series appears sensible and they are more or less identical. Hence, Series (1) trend was used to extrapolate the rest of the years.

Accordingly, the voice market can be divided into three distinct markets: i) the fixed line market; ii) the overall fixed line and cellular market (as well as any other voice service provider(s) such as pay card companies); and iii) the cellular market. The overall market can be further divided into national and international voice. As will be seen in the following analysis, no change has occurred to the former market (i.e. the fixed line market) in a strict sense; accordingly the following will discuss the evolution of market structure, concentration and power for the latter two.

1.2.2.a The Overall Voice Market: Fixed and Cellular Services

The National Voice Market

The national voice market covers local (i.e. within) and national long-distance (i.e. between governorates) services. Ideally, detailed information on traffic (i.e. minutes) for each of these services for

all providers is required to make the analysis below as rigorous as possible. Unfortunately, all efforts to obtain these figures have ended in failure. Thus, while imperfect, the number of subscribers is used as a substitute.

Market Structure

Market structure captures how an industry or a market's output production is allocated across different firms. Liberalization of the sector has added three more players to a market which had been a legal monopoly for many years. However, this is only true of the overall market. The fixed line market remained a legal monopoly up to 2005 and, to date, remains a de facto monopolys.

Egypt's commitments under the WTO allowed TE exclusive rights to the provision of fixed line telephone services, telex, telegraph and facsimile services until 2005²⁶ (WTO 2010), but permitted mobile competition. However, since the fixed line and cellular voice services are close substitutes it can be said that the overall voice market has in fact moved from a monopolistic structure to an oligopolistic one. Oligopolistic markets are imperfectly competitive markets characterized by only a few players, in which strategic interdependence²⁷ is typically a key feature.

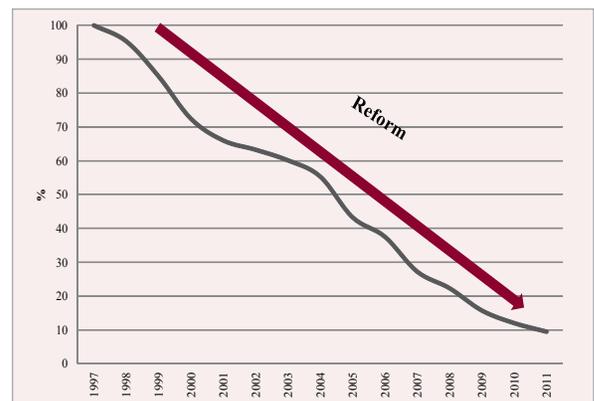
Market Concentration

Concentration measures, such as the Herfindahl-Hirschman Index (HHI) or the Concentration Ratio (CR_n), summarize market structure in one number, ranging from close to zero in the case of perfect competition²⁸ to one in the case of a monopoly. The increased competition in the national market has led to significantly lower concentration levels (Table 1.1) and has so brought the market closer to the competitive ideal. The HHI has dropped from its extreme value of 1 in 1997²⁹ when TE was the only firm in the market to less than half that value (0.49) only four years later, and to just under one third (0.32) by 2011. Concentration Ratios (CR1 and CR2) confirm the same trend. For instance, from a CR1 value of 100% in 1997 reflecting that TE held the whole market, this ratio fell to an all time low of 37% in 2007. This figure means that the largest firm in the market (Mobinil in that year, not TE) had acquired a market share of 37% in terms of numbers of subscribers.

The table also clearly illustrates the steady and dramatic decline of the incumbent's fixed line mar-

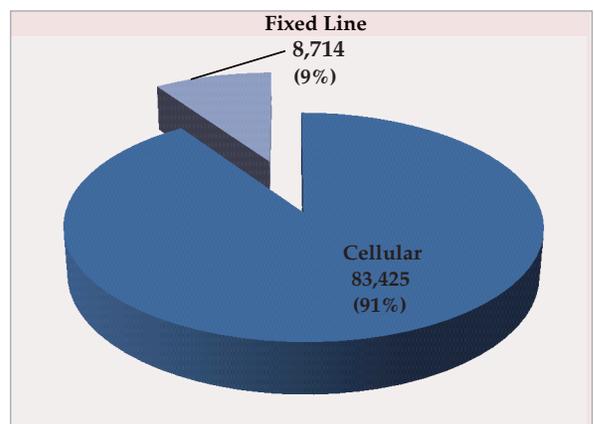
ket share from 100% before 1998 to just 9% in 2011, as other players claimed increasing market shares. It took TE nearly 10 years to fall from number one to number three in 2007, with a share of just 27%, handing the top position to Mobinil. Mobinil's share kept rising steadily, until it moved into first position in 2007. However, it fell into second place behind Vodafone three years later. The continuous alteration in market players' share reflects the dynamism of the sector (see also Figure 1.3 and Figure 1.4).

Figure 1.3
Evolution of Telecom Egypt Subscriber Market Share (1997-2011)



Source: Author's calculations from MCIT database 2012

Figure 1.4
Numbers of Subscribers by Fixed Line and Cellular Providers (2011, thousands)



Source: Numbers of subscribers: MCIT database 2012. Market share calculated from MCIT database 2012

Table 1.1
Evolution of Market Shares and Concentration Levels (Overall Market) (Subscribers in thousands, share in %, 1997-2011)

Subscribers	Telecom Egypt	Vodafone	Mobinil	Etisalat	Total	Concentration Indices		
						HHI	CR1	CR2
1997	3,453	0	0	0	3,453	1	100%	
	100%	0	0	0	100%			
1998	3,972	37	158	0	4,167	0.91	95%	99%
	95%	1%	4%	0	100%			
1999	5,131	332	576	0	6,039	0.73	85%	95%
	85%	5%	10%	0	100%			
2000	5,856	1,012	1,218	0	8,086	0.56	72%	87%
	72%	13%	15%	0	100%			
2001	6,695	1,601	1,851	0	10,147	0.49	66%	84%
	66%	16%	18%	0	100%			
2002	7,736	2,143	2,352	0	12,231	0.47	63%	82%
	63%	18%	19%	0	100%			
2003	8,736	2,740	3,057	0	14,534	0.44	60%	81%
	60%	19%	21%	0	100%			
2004	9,464	3,569	4,074	0	17,107	0.41	55%	79%
	55%	21%	24%	0	100%			
2005	10,396	6,125	7,505	0	24,026	0.35	43%	75%
	43%	25%	31%	0	100%			
2006	10,808	8,734	9,267	0	28,809	0.34	38%	70%
	38%	30%	32%	0%	100%			
2007	11,229	13,333	15,089	1,643	41,294	0.31	37%	69%
	27%	32%	37%	4%	100%			
2008	11,853	17,611	20,101	3,560	53,125	0.31	38%	71%
	22%	33%	38%	7%	100%			
2009	10,313	23,325	25,354	6,673	65,665	0.31	39%	74%
	16%	36%	39%	10%	100%			
2010	9,618	31,788	30,225	8,648	80,279	0.33	40%	77%
	12%	40%	38%	11%	100%			
2011	8,714	36,663	32,914	13,849	92,139	0.32	40%	76%
	9%	40%	36%	15%	100%			

Note: *Concentration Ratio (CRn) is the market share of the top n firms in the industry; here we calculate the share of the top firm (CR1) and the top two firms (CR2) in the market.

*The Herfindahl-Hirschman Index (HHI) is calculated as the sum of squares of market shares:

$$HHI = \sum_{i=1}^N s_i^2, \text{ where:}$$

1) i is the i th firm of the industry where $i = 1 \dots N$

2) N = # of firms in the industry

3) Extreme cases: in perfect competition $HHI = 0$, in pure monopoly $HHI = 1$; and so $0 \leq HHI \leq 1$

Source: Numbers of subscribers: MCIT (2012), Market share, HHI, CR1, CR2: calculated from MCIT database

The International Voice Market

Market Structure

Prior to 1998 TE was the only international voice service provider, but since then its legal monopoly status in direct provision was terminated. However, under the WTO commitments TE was given exclusive rights to provide cross-border transmission until 2005³⁰ (WTO 2010). So other providers of international call services (or internet) had to “rent” TE’s international gateway and network.³¹ Even after the exclusivity period had run out over five years ago, none of the providers applied for an international gateway license for an additional four years. Etisalat only did so in 2009.³²

It follows that TE retained control over the assets. So, instead of monopolizing the direct provision of international voice services, TE now monopolizes the indirect provision of those services to customers. This situation creates an additional link in the vertical chain of operation between other providers including cellular companies and the final consumer.

Which is Most Relevant: Transaction Cost or Margin Squeeze Theory?

b.2.1 Transaction Cost and Property Rights Theory

The monopolistic status bestowed upon TE prior to 2009 seems, at face value, to reverse the prediction of both Transaction Cost Theory (TCT) and the Modern Property Rights Theories (MPRT). These theories emphasize that the party undertaking the most relationship specific investment³³ (TE in this case with its costly international gateway and network) is “locked in”³⁴ the relationship with the other party (Mobinil, Vodafone and all other international call providers). Once there is a lock in, there is potential for a “hold-up”³⁵ allowing the party that has not made the investment (here the other providers which do not own a costly network) to extract better terms.³⁶ In extreme cases the theory predicts that the “lock in” and the associated “hold up” threats lead to vertical integration (Williamson 1979/1985), whereby moderate contractual relations (that of rental between TE and the other providers) are upgraded to extreme ones, for instance, through the merger of the upstream supplier and the downstream buyer (i.e. a forward integration by TE with all other providers).³⁷

But awarding TE exclusive international service provision rights up to 2005 reversed the roles

and made TE the stronger party. In fact, the assumption that the network is a relationship specific investment is false. While renting its network does indeed provide TE with a substantial source of income, (see the section titled TE’s Offsetting Revenue Sources: Wholesale Revenues), the network was initially built to cover TE’s own traffic. This means that the investment is non-relational in the first place and that TE has a first mover advantage.

In fact, this exclusivity in provision has created a setting with implications for how competitive the international voice and internet markets actually are. Despite the fact that there have been about four other international voice providers competing for international voice customers since 2004³⁸, this competition is muted by the monopolistic status of their upstream supplier (TE) and their competition over its services. A relevant theory may thus be margin squeeze.

Foreclosure of Competition: Margin Squeeze

This structure is also known as monopoly supply of an essential input³⁹ where there is an upstream monopoly “bottleneck”. The state monopoly owns the network that rival suppliers must access, but the downstream market remains competitive. This structure induces foreclosure of competition such as margin squeeze, whereby the vertically integrated firm (TE) squeezes the margin available to downstream competitors by charging them a high wholesale price for its service but sets a relatively low retail price at which its downstream arm supplies final consumers. This practice would thus act as a barrier to entry.

If the vertically integrated firm sets these prices so that the margin is too small for the downstream rivals to cover their costs then the market encounters a margin squeeze. If the integrated firm (TE) squeezes all its downstream customers at once then all downstream firms are forced to charge higher prices (Pepall et al. 2005). But since these firms supply 90% of the international market (Table 1.2) this squeeze is likely to lead to an increase in market price rather than the exit of these firms. The theory assumes intention to squeeze the market as a strategy to eliminate competition. But in fact TE may be forced to charge higher rentals on account of its high costs. Nevertheless, the unequal treatment of providers necessarily harbors an intention to squeeze and may be considered a variant of the margin squeeze theory. Available

information on pricing structure and market share supports this argument.

TE currently charges foreign phone companies about 8.5 US cents a minute (~ 51 Egyptian piasters) for incoming calls to Egypt through TE's network. It charges cellular providers for using its network for outgoing international calls (i.e. to other countries) and pays them around 6.5 Egyptian piasters per minute for incoming international calls. But these amounts vary by provider. To rigorously test the hypothesis, data is required on (rental) prices charged to/ received by each supplier including TE's own downstream arm. As a 45% shareholder, TE has a stake in Vodafone and so the company is not on a level playing field with the other non-TE international call providers. Indeed, TE has signed a commercial deal with Vodafone in 2009 with a package that probably included favorable network rental terms com-

pared to the other providers. However, according to NTRA officials, NTRA is unaware of details of this agreement, which reflects badly on the regulator's degree of actual market oversight.

Unfortunately, rental pricing information is not available. However, Vodafone captures the largest share of the international voice market (51% in 2009) (Table 1.2). This high share is likely due to its close links with TE since: 1) the average revenue per user for business customers, which are also post-paid customers, is a lot higher than that of other types of subscribers; 2) Vodafone since its inception has followed a business model that targets high profile clientele. The share of Vodafone "business" clients is by far larger than that of Mobinil; and 3) Vodafone receives favorable international rental deals from TE, international voice costs relatively decline compared to domestic, accordingly profitability indicators for

Table 1.2
Evolution of International Market Shares and Concentration Levels (in thousands of outgoing minutes, share in %, 1997; 2003-2009)

	Telecom Egypt Menatel - Nile	Mobinil	Vodafone	Etisalat	Other	Total Minutes	Concentration Indices		
	Communications						HHI	CR1	CR2
1997	N/A	0	0	0	0		1	100%	
	100%	0	0	0	0	0			
Oct-Dec 2003	26,222	25,614	22,340	0	11,563	85,740	0.27	31%	60%
	31%	30%	26%	0%	13%	100%			
2004	108,538	129,420	110,479	0	49,036	397,474	0.27	33%	60%
	27%	33%	28%	0%	12%	100%			
2005	108,320	140,344	141,647	0	54,475	444,786	0.28	32%	63%
	24%	32%	32%	0%	12%	100%			
2006	100,550	156,796	186,053	0	53,570	496,970	0.29	37%	69%
	20%	32%	37%	0%	11%	100%			
2007	87,305	192,755	251,260	981	44,415	576,715	0.33	44%	77%
	15%	33%	44%	0.17%	8%	100%			
2008	78,064	200,213	286,875	82	34,005	599,239	0.36	48%	81%
	13%	33%	48%	0.01%	6%	100%			
Jan- Aug 2009	44,303	120,566	187,223	102	11,946	364,139	0.39	51%	85%
	12%	33%	51%	0.03%	3%	100%			

Note: * same note as in Table 1.1.

Source: Numbers of minutes: MCIT database 2010. Market share, HHI, CR1, CR2: Calculated from MCIT database.

that segment of the market increase. These profits feed back again into their sales strategy to target more business customers, and these customers are also more likely to use international voice services (NTRA interview material, March 8, 2012). This analysis supports the margin squeeze hypothesis, although it is inconclusive.

Market Concentration

Concentration levels in the international voice market have also gone down from their extreme values in 1997 gradually reaching a HHI of 0.39, a CR1 and CR2 of 51% (accounted for by Vodafone as the top market player) and 85% respectively by 2009. This is clearly an improvement on the purely monopolistic situation (Table 1.2), and thus reinforces the benefits in market structure resulting from competition. Since 2004 however, these indicators have been on the rise. Compared to the domestic voice market, concentration levels are higher⁴⁰, most likely on account of the restricted competition characterizing this segment of the overall voice market, favorable Vodafone-TE links and Vodafone's own business and sales strategy. Following the reforms the overall voice market, primarily including the national incumbent TE and the three mobile providers, has gradually become more competitive and less concentrated. Typically, the less concentrated the market the less market power that its participants enjoy. In this sense, TE has lost a great deal of market power moving from a pure monopolistic status (100% of the market) to a small share of just 12% by 2009 in both the national and international voice markets.

1.2.2.b The Cellular Market and the Staggered Entry Model: Scope for Active Competition Policy Market Structure

Egypt's WTO commitments granted the two GSM900 mobile operators Mobinil and Vodafone exclusive rights up to the end of 2002⁴¹, though Etisalat did not enter the market until 2007. Similar to the Japanese model, and that of some of the former newly industrialized countries (NICs), new entrants were "sequenced" into the Egyptian cellular market. In Japan, for instance, staggered entry was the norm, where the Ministry of International Trade and Industry (MITI) permitted entry to one firm or very few firms at a time, thus enabling them to achieve economies of scale⁴² and sufficient market power and allowing them

to earn high profits. When it was considered appropriate entry was again allowed to induce competition (Trade and Development Report 1994 in El-Haddad 2010). It has been argued that international pressure on active industrial and competition policy can result in excessive competition in the leading sectors of the economy, which should be avoided. Rather, flexible competition policy is key to building relatively concentrated industries provided they are able to compete in international markets (El-Haddad 2010). However, this policy would come at a short-term loss from reduced consumer surplus compared to the surplus that would have otherwise accrued to consumers had competition been more aggressive in the market. In brief, the Egyptian mobile telephone market remained a duopoly⁴³ for nearly ten years, after which more competition was introduced in 2007 to transform it into an oligopolistic structure.

Market Concentration

Shifting market shares in total subscriptions in the cellular market shows how dynamic this market is (Table 1.3). Vodafone entered the market just months after Mobinil and managed to capture nearly 20% of the market in its first year. This share increased to close to half within three years. This equal split of the market remained until Etisalat's entry in 2007. While Etisalat's share has remained modest, the resulting price competition has prompted market growth, making it easier for a new entrant to claim a market share (see section titled Competitors: Entry Conditions and TE's Performance).

Market share, HHI, CR1, CR2: calculated from MCIT database. Note: Concentration indices fell until the market was equally split in 2002, rising slightly again afterwards. In cooperative markets such as hard core cartels, firms cooperate against the consumer. Hard core cartels take many forms. In such cartels players may collude in prices or quantities (e.g. by agreeing to keep prices high rather than competing against each other in prices), in market allocation when firms collectively split the market, in tendering and in production or distribution. Such forms of collusion are prohibited by all anti-trust laws around the world. After the boost in competition brought about by the entry of Etisalat, concentration levels started to decline. Will it be just a few years until these three players start to cooperate and so increase and

Table 1.3

Evolution of Market Shares and Concentration Levels (subscribers in thousands, share in %, 1998-2011)

	Vodafone	Mobinil	Etisalat	Total	Concentration Indices		
					Subscribers	HHI	CR1
1998	37	158	0	195	0.69	81%	100%
	19%	81%	0%	100%			
1999	332	576	0	908	0.54	63%	100%
	37%	63%	0%	100%			
2000	1,012	1,218	0	2,230	0.50	55%	100%
	45%	55%	0%	100%			
2001	1,601	1,851	0	3,452	0.50	54%	100%
	46%	54%	0%	100%			
2002	2,143	2,352	0	4,495	0.50	52%	100%
	48%	52%	0%	100%			
2003	2,740	3,057	0	5,798	0.50	53%	100%
	47%	53%	0%	100%			
2004	3,569	4,074	0	7,643	0.50	53%	100%
	47%	53%	0%	100%			
2005	6,125	7,505	0	13,630	0.51	55%	100%
	45%	55%	0%	100%			
2006	8,734	9,267	0	18,001	0.50	51%	100%
	49%	51%	0%	100%			
2007	13,333	15,089	1,643	30,065	0.45	50%	95%
	44%	50%	5%	100%			
2008	17,611	20,101	3,560	41,272	0.43	49%	91%
	43%	49%	9%	100%			
2009	23,325	25,354	6,673	55,352	0.40	46%	88%
	42%	46%	12%	100%			
2010	31,788	30,225	8,648	70,661	0.40	45%	88%
	45%	43%	12%	100%			
2011	36,663	32,914	13,849	83,425	0.38	44%	83%
	44%	39%	17%	100%			

Source: Numbers of subscribers: MCIT database 2012

stabilize these indices? It is more likely, however, that the trend toward relative stability in concentration levels following the entry of a new player reflects a non-cooperative equilibrium in the market. In fact, we argue in the following section that the market to date has taken a Bertrand-style competition. Any suspicion of collusion would be for the period before the entry of Etisalat.

A somewhat higher concentrated structure is

not in itself alarming. In fact Japan, like Korea, has at times promoted mergers and cartels, such as rationalization cartels to promote rationalization and depression cartels to offset the effects of recessions. It has also at times exempted small and medium enterprises as well as export cartels from the Anti-Monopoly Law (El-Haddad 2010). Productivity is typically higher for larger firms as shown in the case of Egypt by Abdellatif and Gho-

neim (2008). So in revisiting issues of competition policy, the problem does not lie in high concentration levels but rather in providing unconditional protection to firms, which automatically jeopardizes their competitiveness. Again, cartels generate a loss to consumer surplus and so tradeoffs between short-term losses and long-term gains need to be rigorously evaluated. How much scope is there still for an active competition policy is a question discussed in a subsequent section.

1.2.2.c The Causal Chain from Reform to Welfare

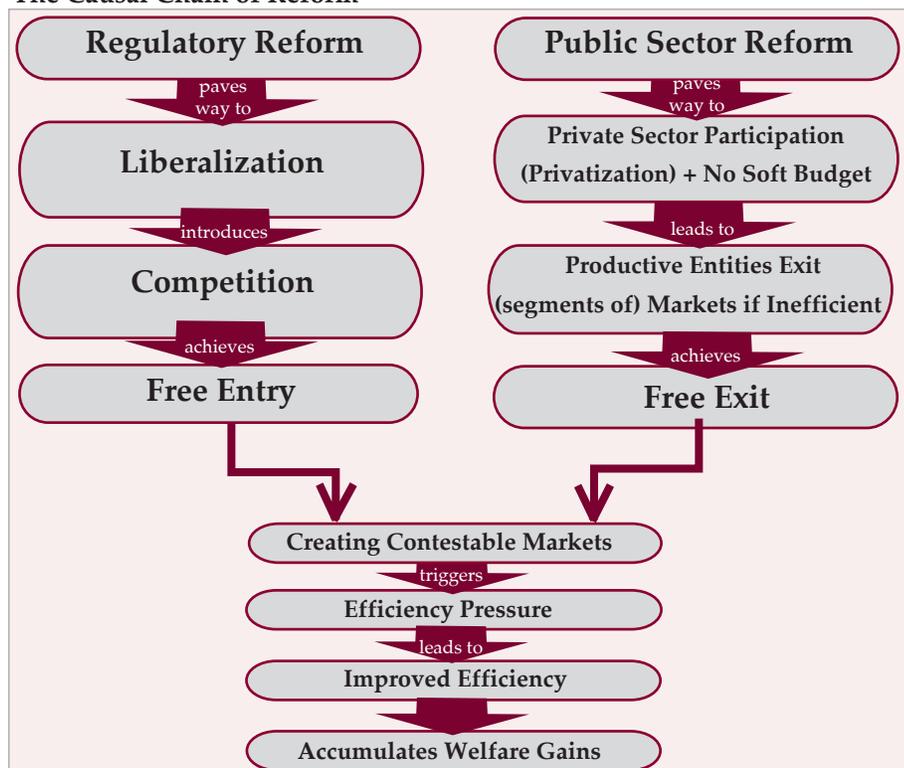
So what lies behind this dramatic alteration in the relative positions of market players in both domestic and international voice markets? The first three steps in the causal chain are reform, liberalization and competition. In particular, the regulatory reforms enacted in 1998 and in 2003 telecommunication laws which created TRA and NTRA have paved the way for liberalization (Figure 1.5).

The basic assumption is that the regulatory reform which induced liberalization of the sector has unleashed market forces, freed prices (as

will be seen in the analysis below) and introduced competitive pressures in the liberalized market segments. The resulting market structure describes exactly how far prices have changed and in what direction. Here we argue that the competition between cellular companies—the narrower market—is a Bertrand-style competition. In the Bertrand Model firms aggressively compete in prices pushing them down to the level beyond which losses will be incurred.^{44,45} On the other hand, public sector reform which transformed ARENTO into a private law company, and so enhanced its managerial and financial autonomy, has paved the way for private sector participation, specifically the privatization of 20% of TE.

In brief, while liberalization allows new firms to enter the market and therefore competition to emerge, privatization means that firms will exit (or shrink) if they are not competitive, whereas the “soft budget constraint”⁴⁶ they face in the public sector fosters inefficiency by allowing unprofitable firms to survive. Free entry and exit are

Figure 1.5
The Causal Chain of Reform



Source: Author's design

the two pillars of contestable markets in which incentives are created for market participants to challenge established positions, and in which competition acts as a policing mechanism (Parker and Kirkpatrick 2005) hence eliminating firms and/or activities that are no longer profitable (or efficient) while ensuring that substantial or abnormal economic profits are constantly eliminated at the same time. Higher efficiency reduces prices and so increases consumer surplus, thus the settings created by the reforms to date are expected to have achieved substantial welfare gains.

Privatization Alone Does Not Work: The Role of Anti-trust Bodies

Barriers to entry created by either market participants' anti-competitive actions, or by a non-conducive institutional market environment, would hamper the success of the market as an allocative mechanism, eventually causing harmful effects on market outcomes. In the antitrust literature anti-competitive actions can be divided into predation and collusion. Predation is the use of market power by a dominant firm to keep out potential rivals. It may also be known as entry deterrence and in legal terms the abuse of dominance, or driving out existing firms through both price and non-price tactics, e.g. long term contracts with suppliers or clients. Collusion on the other hand is the agreement between firms to coordinate their actions, e.g. cartels to increase their profits or prey against a new entrant. This is IO jargon.

Therefore, much of the empirical literature has concluded that privatization per se does not necessarily raise productivity (efficiency). Rather it is the introduction of competition through liberalization, organizational and political change that is the crucial factor for the successful transfer of productive assets from the state to the private sector. For literature reviews of developed countries, see Villalonga (2000), Megginson and Netter (2001), Prizzia (2001), Shirley and Walsh (2001), and for developing countries see Parker and Kirkpatrick (2005a). Indeed, it has been confirmed that an adequate regulatory framework is needed for privatization to avoid excess profits (Parker and Kirkpatrick 2005a).

Hence, ensuring the prevalence of a healthy competitive environment—one that prevents anti-competitive behavior by market participants—becomes essential. Therefore, with the move to-

wards a market economy, the Egyptian Law on Protection of Competition and Prohibition of Monopolistic Practices (Law no. 3, 2005) was enacted.⁴⁷ The Egyptian Competition Authority (ECA), a new authority created by the same law, is the Egyptian antitrust body entrusted with enforcing this law. Both NTRA and ECA share responsibility in protecting competition in the sector. Though, in this regard, NTRA was fully in charge of creating competition in the sector in the first place. Whether the competition framework for the sector was introduced in a timely manner and whether the framework is adequate, will be briefly addressed in the following sections. These issues are further discussed in more detail in the second part of the study where NTRA and ECA's respective roles are analyzed.

OVERALL SECTOR PERFORMANCE

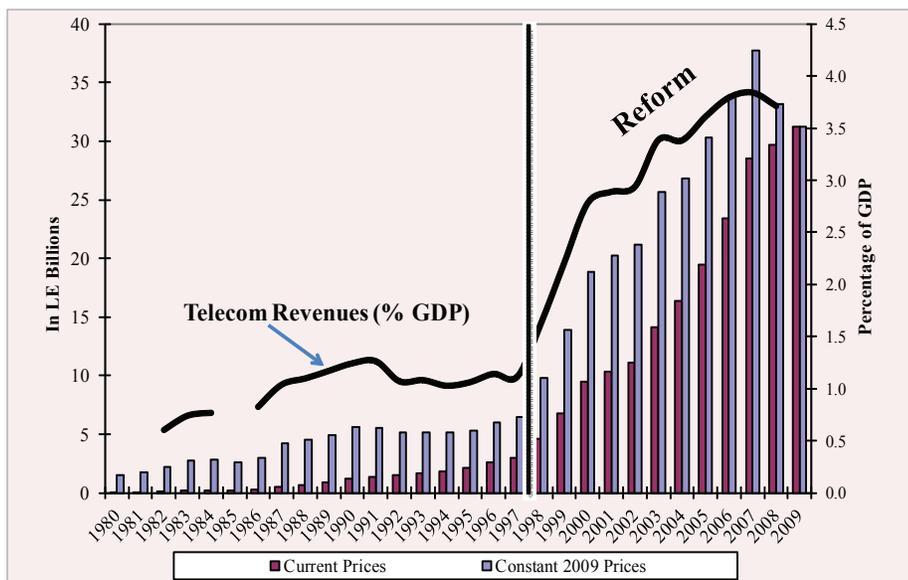
The following part follows the overall progress and performance of the sector in terms of growth in output, revenue and capital investment.

2.1 Telecommunication Revenues

The first commercially available mobile phone in the world was released by Motorola in 1983. But real telecommunication output in Egypt (e.g. revenue at constant prices) started to accelerate—driven by mobile phones—15 years later in 1998 (Figure 2.1). This growth reflects the sector’s importance to the economy, accounting for only 0.6%

of GDP in 1980 to just under 4% in 2008 (World Bank 2010). The telecommunication sector has experienced substantial and rapid technological changes, and hence an increased scope for output growth. A reduction in costs, triggered by technological changes, is a potentially major determinant of penetration rates and sector growth, yet if the sector’s firms are placed in an unfavorable institutional environment this may very well hamper this potential. Accordingly, whilst growth of the sector is undoubtedly on account of technological progress, it is the institutional reforms that allow growth to take place and the sector to thrive.

Figure 2.1
Total Telecommunication Revenues and Share in GDP (1980-2009)



Source: Revenues: Euromonitor International (2010); Share in GDP: World Development Indicators, World Bank (2010).

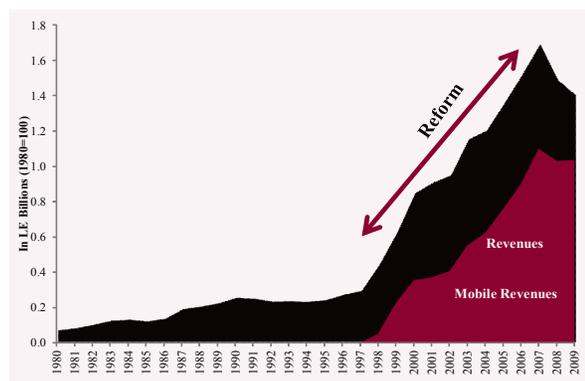
Telecommunication output has increased five-fold between the period prior to the reform (1980-97) and that following the reform (1998-08) (Table 2.1). In 2009 total real output reached over LE30 billion (LE31,248 billion)—21 times its value in 1980. The annual growth rate over the 10 year period following the reform has increased from 10 to 15% compared to the 17 year period prior to the reform. Note that the growth was even more pronounced before 2007 (20% during 1998-2007) after which total revenue began to decline in real terms, most likely on account of inflation.

Table 2.1
Real Telecommunication Revenue and Growth

	Average		Average	
	1980-1997	1998-2009	1998-2009	2007-2009
Telecommunication Revenue in LE million constant 2009 prices	4,154	25,235		
Yearly Average Growth Rate	9.66%	15.37%	20.23%	-2.17%
Growth Rate*	19.69%	19.81%	31.56%	-8.60%

Note*: Growth rate is calculated as $GR_{t,t+n} = ((Value_{t+n} - Value_t) / Value_t) * 100 / n$; where n = number of years of difference between year t and $t+n$, $Value_{t+n}$ = Value in year $t+n$, $Value_t$ = Value in year t .
Source: Author's calculations based on Euromonitor data (2010).

Figure 2.2
Share of Mobile Revenues in Telecommunication Revenues (Constant Prices 1980-2009)



Source: Euromonitor International (2010). Revenues converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

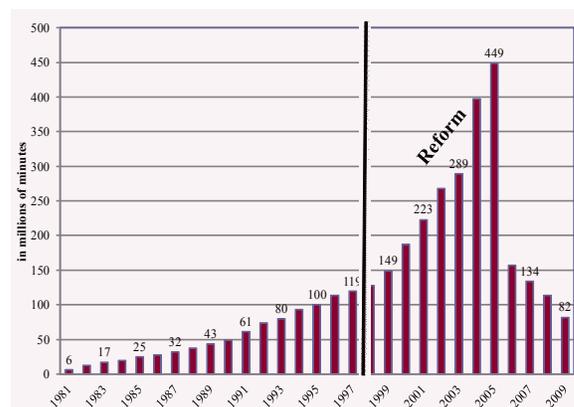
Mobile services are the main contributor to this remarkable growth in revenues. In 1998 they accounted for 12% of sector revenue, jumping to 74% in 2009 (Figure 2.2).

Without the mobile industry telecom sector revenues would have only been LE8 billion in 2009 as opposed to the actual figure of LE31 billion (in current prices see Figure 2.1).

2.2 International Minutes

International outgoing minutes grew rapidly until 2005, especially after liberalization. Total minutes went from just under 6 million minutes in 1981 to over 400 million in 2005. They have fallen since, though not (yet) to their initial level (Figure 2.3). On average, international minutes have increased nearly five-fold since the start of reforms to 2005, but have then fallen by more than half thereafter (Table 2.2).

Figure 2.3
Fixed Line International Outgoing Minutes (in millions)



Source: ITU database (2010).

Table 2.2
Fixed Line International Outgoing Calls (pre- and post reform)

	1981-1997	1998-2005	2006-2009
Average minutes	53,357,234	261,252,056	121,516,390
Growth rate		390%	-53%

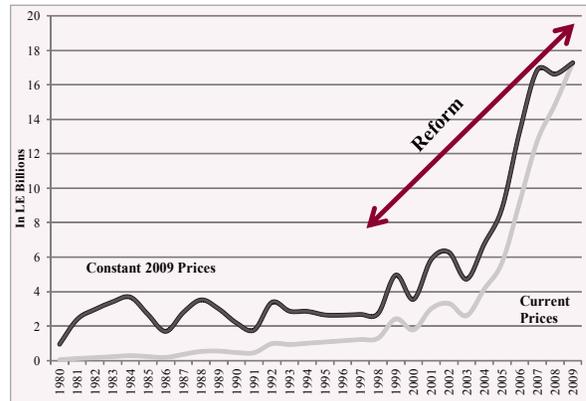
Source: Author's calculations based on ITU database (2010)

2.3 Capital Investment⁴⁸ in Telecommunication

Capital investment (both private and government) has grown hand in hand with the sector’s growth. Interdependence between all voice market participants (mobile and fixed landlines) is quite clear. For example any company from which a call originates to another company’s network uses the latter’s microwave links to interconnect to that network. Thus, there are spillover effects whereby investment in any company’s network benefits or spills over to all other companies dealing with it. This link has been clear to the Egyptian government; it has made information and communications technologies (ICTs) a developmental priority.

The sector’s infrastructure was antiquated until the early 1990s. In the mid to late 1970s the telephone system was obsolete and extremely congested, with a telephone line density of one telephone per 100 people. According to a 1994 USAID evaluation, repair attempts were often futile because the equipment was so old that cables disintegrated when touched. The country had not made any investments in modernizing its network for over 10 years (USAID 2004). The government has since modernized and upgraded the sector’s infrastructure by extending fiber-optic connections throughout Egypt, upgrading the copper lines and data centers and by improving the integration of applications (Hassanin 2007). As a result, capital investment in the sector between the pre and post reform periods has increased by twelve fold (from an average yearly value of LE553 billion between 1980-97 to LE6,529 billion between 1998-09) (Table 2.3; Figure 2.4). Capital

Figure 2.4
Capital Investment in Telecommunication (1980-2009)



Source: ITU database 2010, Euromonitor 2009 (1981, 1995-1998). Capital investment converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

investment (at constant 2009 prices) grew rapidly during the reform with a growth rate of just under 50% post-reform (1998-09) compared to 10.6% pre-reform (1980-97).

The previous section has shown that reforms have resulted in a more competitive and dynamic market structure. These changes led, in turn, to significant improvement in sector performance. Revenues, minutes of usage and capital investment all witnessed faster growth rates following the reform. The next section identifies winners and losers of the reform and gives a detailed account of the impact on the sector’s different stakeholders.

Table 2.3
Capital Investment in Communication and Growth (in LE million)

	1980-1997	1998-2009
In constant 2009 prices	2,671	8,981
In current prices	553	6,529
Growth Rate (%)	10.7%	48.5%

Note: Growth rate is calculated as $GR_{t,t+n} = ((Value_{t+n} - Value_t) / Value_t) * 100 / n$; where n = number of years of difference between year t and $t+n$, $Value_{t+n}$ = Value in year $t+n$, and $Value_t$ = Value in year t .

Source: Author’s calculations based on ITU database, 2010, Euromonitor 2009 (1981, 1995-1998). Capital investment converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

IMPACT INDICATORS BY STAKEHOLDER AND TYPE OF REFORM

Foster et al. (2005) have identified five main stakeholders for any type of reform: (1) consumers, including potential as well as clandestine (i.e. those illegally connected to the utility network), (2) workers, (3) competitors and potential competitors and, (4) owners, and (5) the state. Reforms may affect consumers through changes in the price and quality of the service and also access to the service. They affect workers through changes in the number of employed people and the wages they receive. Both incumbent firms and potential market entrants will be affected through changes in profits and the ease of entry (triggered by changes in cost of entry to the market) because reforms that entail asset ownership transfer alter the interest and goal of owners occur. The final stakeholder is the state which is basically affected through changes in government financial flows but also via changes in the level of government control over an extremely strategic and sensitive sector (Table 3.1). The final outcome of utility reform can vary significantly depending on the types of reforms adopted and their implementation.

There is an expected direction, magnitude and evolution of impacts for the various types of utility reforms described above (refer to Annex 1 for a detailed account).⁴⁹ This chapter is devoted to identifying these for the reforms undergone in the Egyptian telecommunication sector in specific.

Table 3.1
Stakeholders and Indicators of Reform

	Employment & Wages	Price of Service	Quality of Service	Access to Service	Asset Ownership	Fiscal Flows	Entry Conditions
Consumers							
Current		x	x				
Potential			x	x	x		
Clandestine					x		
Workers	x						
Competitors							x
Owners					x		
State					x	x	

Source: Adapted from Foster et al. 2005, p. 93.

3.1 Workers: Employment and Wages

3.1.1 Employment

Public sector reform which transformed ARENTO into a private law company (TE) and the private sector participation (IPO 20% of TE) should in principle reduce employment due to increased pressure for greater efficiency. Typically, reform of public utilities that are characterized by labor hoarding is likely to lead to immediate and significant

reduction in employment. There is evidence of a typical employment reduction of 30-50% (Foster et al. 2005). However, due to political pressure driven by fear of social unrest the number of TE employees is not expected to fall dramatically, if at all. In fact interviews (interview material, May 6, 2010)⁵⁰ indicated that the government is likely to keep most of TE's employees until they eventually retire. Secondly, due to the modest skill level of many of TE's approximately fifty thousand employees, new hires of qualified personnel are taking place to meet the skill gap.

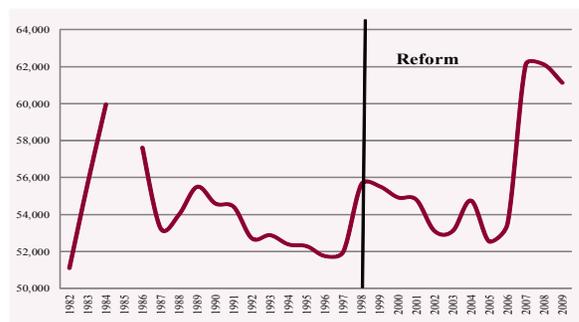
Regulatory reform is also expected to reduce employment for same reason; that of increased pressure for greater efficiency. Indeed, some NTRA staff believes it necessary to reduce TE employees. Yet again, fear of social unrest is expected to hamper this step significantly. If present, negative employment effects are normally offset by liberalization of the sector, which allows entry into previously un-contestable markets and so, in turn, triggers market expansion. The three cell phone and numerous telecom companies are thus expected to raise overall employment in the sector. This expansion of employment by new providers has outweighed any contractionary effects from seeking efficiency gains. Overall employment in the sector witnessed two hikes, one after the reforms were introduced in 1998 and the other after the sale of TE's shares (2005) and the entry of Etisalat in 2007 (Figure 3.1). Separate employment data for TE is not systematically available but the conducted interview suggests they stand at around 50,000 employees in 2010.

Notwithstanding the rise in overall employment, in relative terms the voice communication sector's share in the country's labor force is steadily declining. This share dropped by more than half from 0.4% in 1984 to less than 0.2% in 2006. This isn't necessarily a bad thing as it could be a sign of productivity improvements in the sector. This possibility is examined later.

3.1.2 Wage per Employee

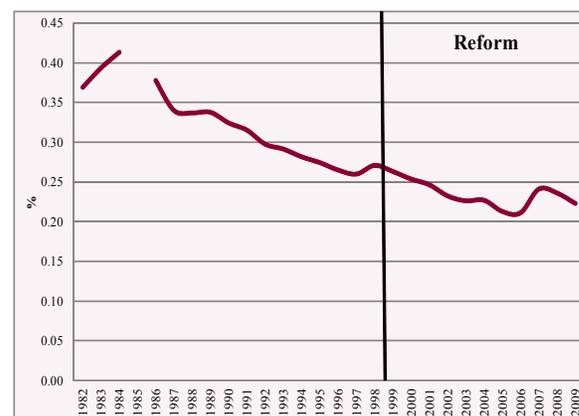
The effect on wages depends on two factors. The wages the laid-off (if any) make wherever they are reemployed and the wages received by employees of the industry's new entrants. Wages of the newly hired are typically expected to be lower due to increased competition. Nevertheless, given the shortage in skilled labor wages are anticipat-

Figure 3.1
Total Employment in Telephony (1982-2009)



Source: ITU database (2010).

Figure 3.2
Share of Telephone Employees in the Labor Force

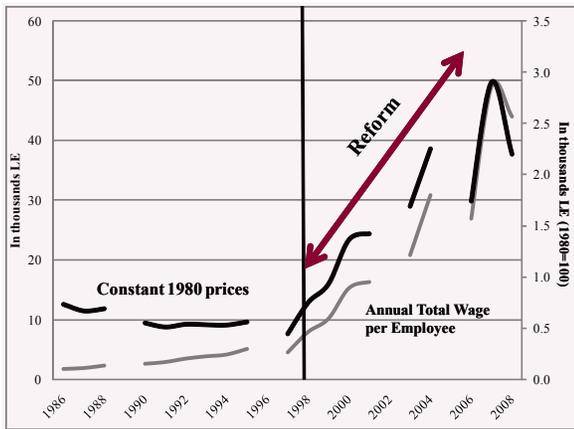


Source: ITU database (2010).

ed to be higher, but work conditions in terms of working hours, amount of leave, job stability (e.g. shorter contract duration) are likely to be worse. With the skill gap and pressures for yearly wage increases in government jobs, annual total wage per employee at both current and constant prices has been increasing since the reform in 1998 (Figure 3.3).

Wages have increased from nearly LE2,000 a year in 1986 (LE146 per month) to about LE50,000 (LE4,091 per month) in 2007. In constant terms, however, these amounts are only 730 (LE61 per month) and about LE3,000 (LE 242 per month).

Figure 3.3
Annual Total Wage per Employee (1986-2008)



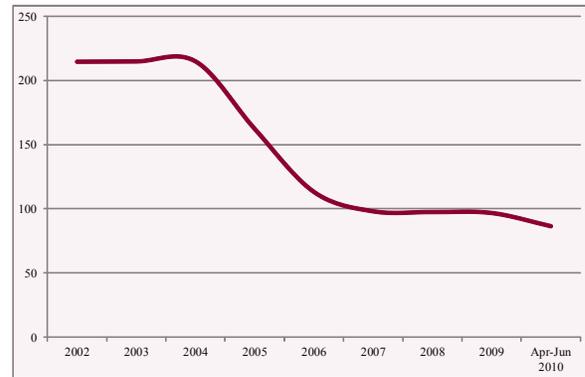
Source: Calculated by author based on Central Agency for Public Mobilization and Statistics (CAPMAS), Telecommunication Annual Report, various issues. Total wages include: wages and salaries; bonuses; in-kind benefits; and insurance and pensions. Data converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

3.2 Consumers: Price, Access and Quality
3.2.1 Price of Service

Reforms have an ambiguous impact on prices. In sectors where prices have been kept artificially low on political grounds, all reforms except liberalization are likely to increase prices toward cost recovery levels (e.g. water and sometimes electricity sectors). In contrast, in sectors in which prices have been covering costs but production has been inefficient, all types of reform are expected to benefit consumers by enhanced efficiency driving lower tariffs. Regulatory, public sector and private sector participation achieve lower prices through greater efficiency, whereas liberalization achieves price reductions through competitive pressures.

Prices in the telecommunication sector have declined by 60 percent between 2002 and 2011 (Figure 3.4), most likely reflecting both efficiency and competitive pressures. Yet, on a disaggregated level, the details of the story differ by type of line (fixed versus mobile) by type of call (local versus international), by type of consumer (residential versus non-residential) and, most importantly, by type of market in which firms are competing (national or international and so whether contestable or not). Figure 3.5 illustrates this point by type of line. Prices have been consistently falling for mobile. In contrast prices for fixed lines were

Figure 3.4
Telecommunication Deflator (2002-2010)



Source: ICT indicator portal, MCIT database (2012).

Figure 3.5
Price Baskets: Landlines versus Mobile (2002-2011)



Source: Fixed lines: data for 2000-05, WDI, World Bank (various issues) from International Telecommunication Union (ITU), World Telecommunication Development Report and database, and World Bank estimates, data for 2006-11 ICT indicator portal, MCIT (2012). Mobile: ICT indicator portal, MCIT (2012).

falling until 2003, but have then increased for six years, before falling again from 2009. The details explaining these differences in price evolution are discussed in the following section.

3.2.1.a Mobile Line Tariffs, the Bertrand Model and Predatory Action

Mobile Line Tariffs: Pre-Paid and Post-Paid

The cellular market has responded dramatically to the institutional reforms to date. Both per minute prices and fixed registration charges have dropped markedly. This is especially true of pre-

paid mobile services (Figure 3.6). The security post-pay customers⁵¹ bring has been rewarded by lower per minute rates. In 1998 post-pay customers were paying only a third of the price charged to pre-pay customers; 60 piasters versus LE 2 (=200 piasters). But this difference lasted only until 2006—one year prior to Etisalat’s joining of the market—when the price rates have become closer, especially in absolute terms. In early 2010 pre-paid prices fell to an average of 33 piasters a minute versus 21 piasters for post-paid. Between 1998 and 2010 pre-pay prices have dropped by 80% and post-pay prices have been halved (-52%). Prices continue to decline. In December 2010, some packages have offered prices as low as 14 piasters a minute.

The Bertrand Model

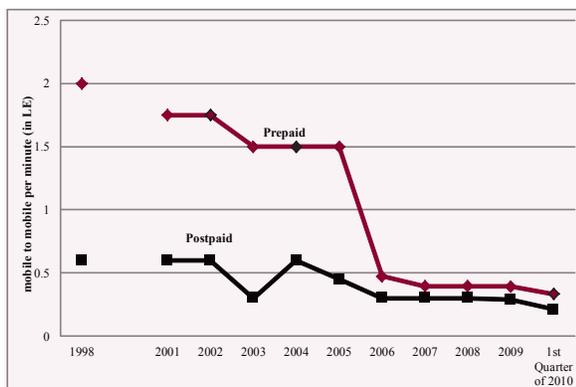
We argued in *The Causal Chain from Reform to Welfare* that the reforms to date have triggered a Bertrand-style competition in the cellular market (particularly the national voice). In markets where firms compete in prices (i.e. choose prices rather than quantities to maximize their profits) competition becomes more aggressive. These are usually markets in which the good is only produced (or the service provided) after the purchase takes place at the posted price. In extreme cases, firms can reduce prices to their marginal cost levels, as

in Bertrand equilibrium. The Nash equilibrium solution assumes that each firm has an incentive to undercut its rival’s price by just a little bit to fully capture its market share. But then all firms will be stuck in an inertia whereby they will keep reducing prices up to the point when they no longer have an incentive to reduce their price level. This is the point at which price is set to marginal cost. No firm has an incentive to reduce price below marginal cost as it will sustain losses on each customer. At the same time no firm has an incentive to increase its price as it will lose its share in the market.

Of all oligopolistic models the Bertrand Model is the most remarkable as it achieves the competitive outcome with only a few firms on the market. Since price equals marginal cost, the competitive quantity is produced and overall welfare is maximized. Though maximum social welfare is attained, distributional effects take place. At price set to marginal cost, super normal profits are eliminated⁵², and producer surplus is transferred to the consumers in the form of consumer surplus.

There are more realistic, less extreme, versions of the Bertrand Model. Among them are those when firms are capacity-constrained, so no firm can solely possibly cater for the entire market, or when products are differentiated, and thus the demand function facing each firm is not identical. But in all cases price competition will drive the unit price as low as it can possibly get.

Figure 3.6
Price per Minute (mobile to mobile, 1998-2010)



Notes: Prices are based on the most used mobile package. Starting Jan-March 2010, Vodafone applied the system of Vodafone easy instead of Vodafone one. Data points from 2006 to 1st quarter of 2010 are weighted by the number of subscribers for each of the three mobile companies.

Source: prices 1998-2005 are from NTRA 2010, prices 2006-2010 are from MCIT Database 2011.

Predatory Action or Breaking of a Cartel: Does it Matter?

It’s no wonder that firms hate competition. Although it is a powerful force that drives markets towards the social optimal, it diverts surplus from firms to consumers. That is why predatory action is commonly found in oligopolistic markets. As defined earlier, predation—also known as entry deterrence—is defined in the anti-trust literature as the use of market power by a dominant firm to keep out potential rivals or to drive out existing ones (Pepall et al. 2005).

Price tactics are common; the incumbent reduces its unit price below marginal cost, or simply to a level low enough to deter entry, to convince an entrant that the market after the entrant comes in will not be profitable. If more than one firm agrees to collectively reduce prices to achieve the same result this is collusion, which in this case is also

called predation. In 2006 the sharp drop in mobile per minute prices may be an indication of such behavior (Figure 3.6). This was the year just preceding Etisalat's entry to the market. Legal action concentrates on cases where there is an identifiable victim. That is, a firm that was on the market but has left on account of predation.

Predation against potential entrants is not legally traceable or easily verifiable for two reasons. First, there is no identifiable body to the crime. Second, there has to be proof of recoupment, that is the predator has to be able to recoup losses incurred as a result of its price-cutting behavior in a reasonably short period of time.⁵³ Whether in fact the 2006 sharp price declines were affected with the intention of predation or not is immaterial since the third mobile operator succeeded in entering the market.⁵⁴ This success was to a large extent due to NTRA's positive role in facilitating competition⁵⁵, the role assigned to it by law. Whether there was actually a predation attempt or not, entry of a third mobile operator reduced unit prices⁵⁶ triggered by either Bertrand-style competition or by persistent attempts by the two incumbents to drive out the new entrant. Predation can generally be sustained for only a short period since it is a drain on short-run profits. So predation may be observed for, say, six months at most, but four years seems very unlikely. Technical progress is also exerting downward pressure on prices so it cannot entirely be ruled out as a reason. The distinction can only be made with the knowledge of cost structures of the three operators, to which we, unfortunately, have no access.

An alternative explanation for the sharp drop in prices before the entry of Etisalat is that Vodafone and Mobinil were involved in a cartel, an agreement broken by the threat of Etisalat's entry. The argument is that Vodafone and Mobinil restricted competition between each other through engaging in a price fixing cartel or market allocation. There are three main challenges to cartel sustainability: 1) reaching an agreement; 2) policing to detect cheaters to the agreement; and 3) agreeing to a punishment mechanism. By helping to overcome those challenges, some factors are facilitators to cartel sustainability such as a small number of firms, similar cost structures and high barriers to entry. Hence, it is also possible that the threat of Etisalat's market entry in 2005 destabilized the cartel and triggered fierce price compe-

tion between Mobinil and Vodafone, also a la Bertrand style.

Whether the sharp decline in prices as of 2005 was to deter Etisalat's entry, or whether it was the result of breaking an already established cartel is hard to ascertain. But the truth remains: even though prices had fallen dramatically in that year, Etisalat still managed to enter the market.

Competition Regulatory Framework

An important reason why possible predation and collusion amongst the two incumbents has gone unnoticed is that the competition and telecommunications laws were only introduced some years into the reform, in 2005 and 2003 respectively. Hence, there was not an operating competition law to police anti-competitive practices in the market. In addition, NTRA is still too weak institutionally to tackle abuses in the sector. The immature competition regulatory framework is discussed in detail in the second part of this study. In addition, the necessity for coordination between ECA and NTRA will also be discussed.

3.2.1.b Fixed-Line Tariffs: Fixed Charges versus Per Minute Rates

For over three decades land-line per minute tariffs have been suppressed for political reasons. However, fixed installation charges were set to partially cover costs reflecting a greater degree of commercially-oriented management than some other sectors within the public sector. And these costs were high on account of the obsolete and inefficient copper-based telecommunications infrastructure and other inefficiencies common to public utilities in many countries including Egypt.

Installation tariffs internalized these inefficiencies through high installation charges. As argued above, in straightforward cases when tariffs are suppressed, all reforms (except liberalization which subjects the enterprise to competition) increase tariffs toward efficient cost-recovery levels. But when tariffs are high on account of inefficient production all types of reform are expected to reduce tariffs.

In mixed cases, of which Egypt is an example, where tariffs have been kept low and enterprises are inefficient, tariffs could go either way following reforms: 1) tariffs would initially increase to cost recovery levels but then decrease in the medium run because of efficiency improvements; and

2) if the enterprise needs to finance large investment projects, even large efficiency gains may not outweigh the funds required for these necessary investments, so that tariffs may not decrease despite efficiency improvements (Foster et al. 2005) and liberalization-induced competition. The overall fixed line price has tended to increase (Figure 3.5) more than 10 years into the reform. TE's chairperson has stated that the liberalization process—by which he means the reform in general—will potentially increase local call charges (Hassanin 2007). Since ten years are quite a long period, the experience to date supports the second alternative (i.e. investment needs preventing efficiency-based tariff reductions).⁵⁷ The breakdown of this trend is analyzed in more detail below by comparing changes in installation charges, monthly subscription and per minute tariffs prior to and after the reform.

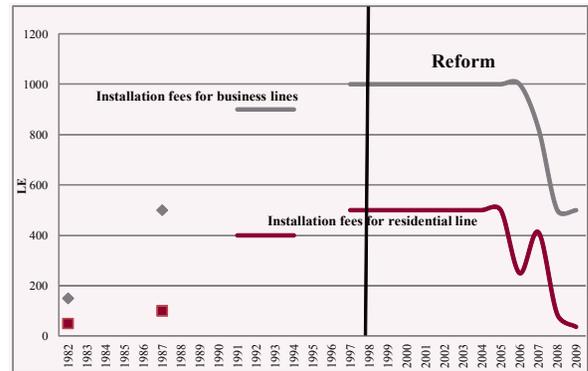
Fixed charges: installation charges

As mentioned above, prior to the reform fixed installation charges were set high to balance the low, politically-determined, per minute tariffs. As shown in Figure 3.7, land-line fixed installation charges show a constant increasing trend before the reform. Over the ten-year period prior to the reform (1987-97), the tariff increased five-fold for residential customers (from LE100 to LE500) and doubled for business customers (from LE500 to LE1,000). However, over the 10 year period following the reform (1998-08), land-line installation charges stabilized before dropping rapidly in 2006, which was a NTRA supported decision. In 2008 installation fees reached LE87 for residential lines and LE500 for business customers—close to their value in 1987. These reductions are even more pronounced in real terms (Figure A1 in Annex 2) and have been effected through limited time offers in selected months of the year.

Fixed charges: monthly subscription

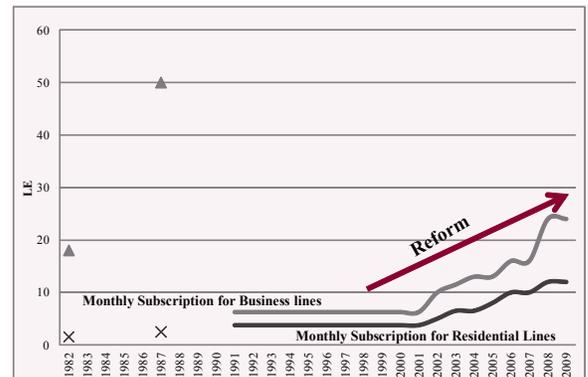
Unlike installation fees land-line fixed monthly subscriptions were originally suppressed leading to a continuous increase after the reform (Figure 3.8). Between 1991 and 2001 monthly subscriptions were fixed at a low price of LE6.25 for business lines and LE3.75 for residential lines. In 2002, four years after the reform, monthly subscriptions started to rise reaching LE24 for business and LE12 for residential lines by 2009. In real terms,

Figure 3.7
Land-Line Fixed Installation Charge by Line Type (1982-2009)



Source: ITU database (2010).

Figure 3.8
Land-Line Monthly Fixed Subscription Charge by Line Type (1982-2009)



Source: ITU database (2010).

however, this rise isn't as pronounced, since high inflation rates erode most price increases (Figure A2 Annex 2).

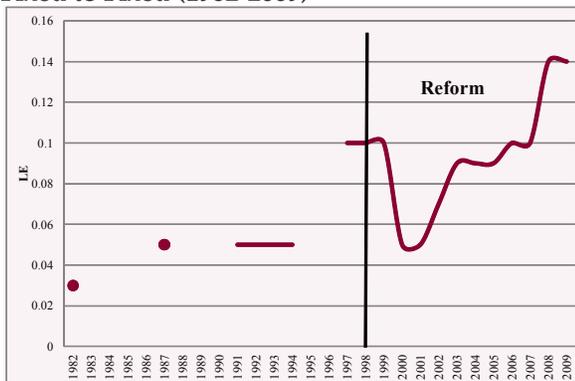
Per Minute Tariffs

For many years TE, the incumbent fixed-line monopoly, has managed to bear the costs of low suppressed per minute prices through cross subsidization. So low charges for domestic fixed-line calls have been cross-subsidized through high national long distance (between governorates) and international call tariffs. The former were less than 6 piasters for a three minute phone call prior to 1995, which is very low by international standards. The rate increased to reach 10 piasters in 1998. Follow-

ing the reform fixed line (local) call rates (Figure 3.9) increased to reach 14 piaster for a 3 minute phone call in 2009. In real terms this price increase is muted due to inflation (Figure A3 Annex2). On the other hand, international call prices have decreased in both nominal and real terms (not shown). These price changes were determined by TE and supported by NTRA administration. Article 30 in the licenses section of the new Telecommunication regulation law (10 of 2003) explicitly prohibits cross subsidization, but these rules do not apply to TE during its allowed period of transition. A separate part of the law (part 5) is specifically tailored for TE. Yet, since the liberalization of international call tariffs in 2006⁵⁸, the competition from mobile providers and internet based calls TE's international call prices have followed a downward trend, falling by an estimated 70%.

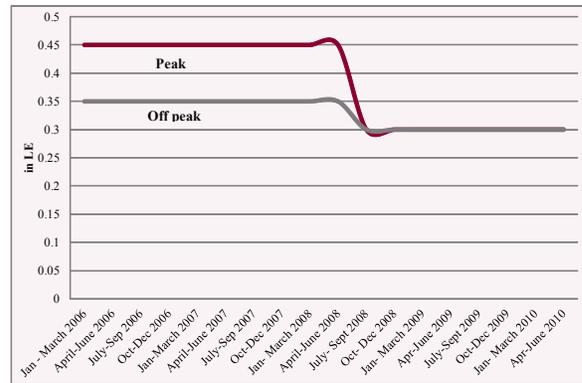
The story differs between landline and mobile tariffs. With only one fixed line provider raising local tariffs to efficient levels is relatively easy. However, when it comes to calls to mobile phones the market looks different on account of direct competition. This competition has led to persistent and rapid price reductions in mobile charges (see previous subsection and Figure 3.5 and Figure 3.6). Per minute charges to mobile phones have dropped from about 50 piasters to 30 piasters in just two years (from 2006 to 2008); and in 2008 peak prices caught up with off-peak ones (Figure 3.10). Real prices confirm these trends (Annex 2 Figure A4).

Figure 3.9
Fixed-Line 3-Minute Tariffs for Local Calls: Fixed to Fixed (1982-2009)



Source: ITU database (2010).

Figure 3.10
Land-Line per Minute Rates for Calls to Mobiles by Time of Day (2006-2009)



Note: Prices apply to both residential and non-residential customers.

Source: MCIT database (2010).

In recent years, TE has introduced bundled offers and discounts, these reflect the positive impact of reform on pricing strategies. Bundles and discounts are examples of second degree price discrimination⁵⁹, which can lead to an expansion in total output by attracting customers with lower willingness to pay. It is argued that, in cases where price discrimination leads to increases in total output, consumer welfare under price discrimination is higher than under uniform pricing.

3.2.1.c Reflection on NTRA's Institutional Capacity: Pricing Strategy

To sum up, TE's pricing decisions, supported by NTRA, to raise nominal per minute rates and monthly subscriptions while reducing fixed installation charges demonstrate that NTRA has been enforcing moves toward a sound economic pricing strategy. Nevertheless, different incentive and pricing schemes vary in how suitable they are to developing country settings. A pricing strategy based on a targeted rate of return can provide a disincentive for the firm to enhance efficiency, or can even be an incentive to cost pad (i.e. inflate their costs) and diminish competition, as the firm is assured it will be able to transfer costs to the consumer. Nonetheless the target rate of return strategy may be the most suitable for developing countries with limited auditing and institutional capacity and low levels of regulatory independence, rather than price cap regulations which have been recommended in the past for develop-

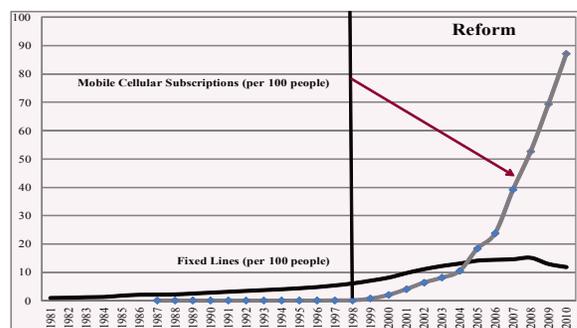
ing countries (Galal 2001, Laffont 2001, Parker and Kirkpatrick 2005a).

In the absence of cost data we are unable to make a judgment as to which pricing strategy is utilized by TE. NTRA's economic unit is itself unaware of these distinctions in pricing strategy. This ignorance is alarming, indicating the weak institutional capacity of the regulator. NTRA's regulatory departments are dominated by engineers rather than economists, lawyers or people with private sector experience. In NTRA's case the latter groups account for fewer than 10% of total staff, compared to at least 90% of overall regulatory staff for regulators around the world. The pricing strategy for TE should be based on a deeper, more detailed analysis, involving detailed company costs. Proper disclosure requirements and comprehensive databases and data reporting systems should be in place to feed into NTRA's costing analysis. This level of sophistication and professionalism is currently lacking.

3.2.2 Access to Service

Access has dramatically improved from a very small base of about 42 thousand main landlines in 1982 to over 11 million by 2008 (Table 3.2). But it is far from clear to what extent this increase can be attributed to the reform. Since the early 1980s landline density has been steadily increasing (Figure 3.11) at an average annual growth rate of 85% (Table 3.2). In the year immediately following the reform the number of landlines in operation increased by more than a quarter (29%, not shown in the table) reflecting an absolute increase of more than a million (from 3.97 to 5.13 million lines). Growth in access after the reform period has averaged 7%, which is a lot less than the growth rate prior to the reform. This moderate growth rate is a mirror image to the growth in cellular phone

Figure 3.11
Fixed and Cellular Density (1980-2008)



Source: United Nation (UN) database (2012).

subscribers leaping from less than 200 thousand subscribers in the first year they were introduced (1998) to over 83 million by 2011 (Table 3.2). The annual growth rate amounted to 73% between the years 1998 and 2011. Nearly all of the Egyptian population now has access to a cell phone whereas just over one fifth has landline access (11.86 per 100 people) (Figure 3.11).

3.2.2.a Access by Market (Fixed, Cellular) and Location (Urban, Rural)

Reforms, especially those such as public sector reform that promote the financial autonomy of utility operators, improve the availability of funds for investment purposes. Such an improvement should be expected from the change of ARENTO's legal status to TE, a private company. Since operators will only enter commercially attractive market segments, reforms typically include policy measures to encourage service provision to remote areas, where low demand is combined with a high cost of service provision. Instruments include universal service obligation, connection or coverage

Table 3.2

Fixed Line and Cellular Subscribers in Thousands and Growth Rates (Selected Years)

	1982	1984	1997	% growth per annum 1984- 1997	1998	2008	2011	% growth per annum 1998- 2011
Fixed lines in operation	42	561	3,453	85%	3,972	11,853	8,714	7%
Numbers of cellular subscribers	0	0	0	0	195	41,300	83,425	73%

Source: Egyptian MCIT database (2012)

targets and connection subsidies, allowing for the use of low cost technologies and providing financial facilities to amortize connection costs.

The Egyptian telecom sector has utilized a number of instruments to achieve these ends. Overall coverage targets are announced in the national plan. Article 5 of part 2 of the new telecommunication regulation law (10 of the year 2003) requires NTRA to specify standards and regulations for economically non-viable services in remote regions and to set up operators' and providers' obligations for them. With the fixed line company, NTRA has indeed allowed for some low cost technologies such as wireless fixed phone lines⁶⁰ to be provided in remote areas (e.g. in Hadaye' Elahram). In addition, article 26 ensures that operators and service providers expanding in low density, low profit areas are compensated from the Universal Service Fund⁶¹ for the difference between the economic price of basic services (mainly fixed line services) and the price set by the cabinet. Cell phone operating licenses includes their coverage plan and stages of implementation. The license also considers universal service obligations.

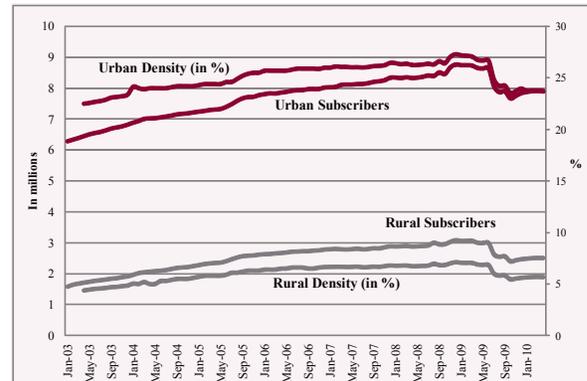
Fixed Landline Access

Urban and rural areas' access has been steadily increasing at a similar rate since 2003.⁶² Hence a constant gap has remained in coverage: for every 100 people 18 more people have landline access in urban areas compared to their rural counterpart (calculation based on Figure 3.12 data). Urban density has slightly increased, from just under a quarter (23%) in 2003 (6.28 million subscribers) to just over a quarter 27% in July 2009 (8.06 million subscribers), and rural density from about 4% (1.58 million subscribers) to 7% (2.62 million subscribers) over the same period. Access in terms of subscribers has decreased by 1.78 million in just 9 months in urban areas and by 0.11 million in rural areas between July 2009 and April 2010, a trend to which we will come back when analyzing the progress of TE.

Cellular Access

No data is available to enable tracing the change in cellular access by location over time. But in 2009 about 70% of all urban households owned a cellular phone, compared to just 50% in rural households (MCIT 2010). This access gap of 20% is close to the gap of 18% for landline access.

Figure 3.12
Fixed Access and Density by Location (Urban/Rural 2003 - 2010)



Source: MCIT database (2010).

3.2.3 Quality of Service

Reforms are expected to improve service quality indicators such as superior service continuity, less service interruptions, enhanced customer service, more accurate billing and shorter waiting time for new connections. The low service quality of earlier periods can be expected to have resulted in lost potential production and lower household welfare.

As a result of Egypt's antiquated and extremely congested telephone system, telephone reception was very poor until the early 1990s. Many dialing attempts were required to make a local call, dial tones were sometimes unobtainable for hours, and lines were often out of order. The connection rate was estimated between 25-40% and disconnections in the middle of conversations were common. A study on transportation reported that 30% of road traffic was on account of inadequate phone services, so businesses had to send thousands of couriers to deliver messages and some international firms seeking to operate in the Middle East were reluctant to establish offices in Egypt because telecommunications were so inadequate (USAID 2004). A narrow range of services were offered to customers at a time when a revolution in the sector was evident elsewhere around the world (Galal 1997).

3.2.3.a Waiting Time

The waiting period for a line had reached 13 years in the 1980s and declined to "only" 5.7 years in 1995/96 (Galal 1997; ITU various issues). Data on

the waiting period is no longer available; rather there is data on the number of people waiting to have a landline installed. These numbers show a decreasing trend from a peak of nearly 1.4 million in 1998, down to 32 thousand in 2008 (Figure 3.13).

3.2.3.b Fixed Line Faults and Failures

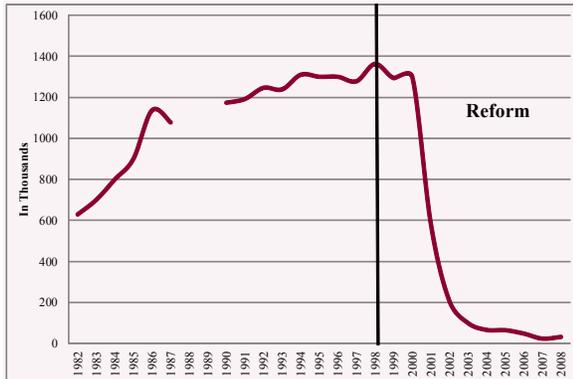
There has been a remarkable progress in landline quality from automated billing facilities to a wide range of services (e.g. caller id, call forwarding ... etc.) and a significant reduction in telephone faults. Faults have declined from faults taking place in every single landline in 1982 to just 7.16 faults per 100 lines in 1998 (Figure 3.14). Since 2004 there were a negligible 0.1 faults per 100 lines. As with the access indicators above, quality improve-

ments are not necessarily attributable to the reforms since they have been steadily improving for many years prior to it.

Yet after these very marked improvements, quality indicators after 2006 demonstrate a relative deterioration, from five failures per 100 operating lines in 2006 to 20 in 2008 (CAPMAS various issues). Perhaps the network is burdened by providing other services such as internet and international calls originating from cellular phones, which is an issue to be investigated in more detail when analyzing the progress of the landline incumbent.

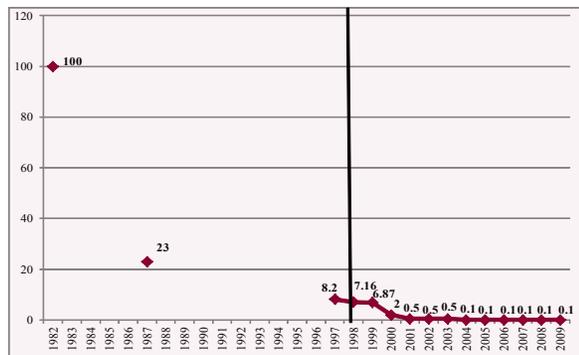
The new telecommunication regulation law of 2003 made it NTRA’s responsibility to ensure high quality of telecommunication services and to set up a system for users complaints. The department of operation and monitoring, NTRA’s largest department, conducts quality checks on a regular basis. No specific quality targets are set, which is something NTRA should consider. But quality complaints are treated seriously and are promptly dealt with, with 98% of faults in 2011 cleared by the next working day (interview material, November 2010) (Figure 3.15). There may be some cultural issues in the obvious rise in faults recently. Some consumers suspect TE repair employees deliberately cause faults and fix only partially to receive tips from customers. They claim this trend particularly increases around feasts and national holidays when customers are more likely to tip generously. Alternatively, the increased pressure on the network around national holidays

Figure 3.13
Landline Waiting List (1982-2008)



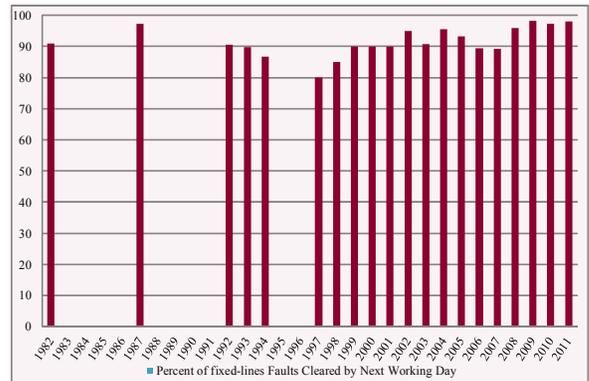
Source: ITU database (2010).

Figure 3.14
Landline Faults (per 100 mainlines 1982-2004)



Source: ITU database (2010).

Figure 3.15
Fixed Line Faults Cleared by Next Work Day (1982-2011)



Source: data for 1982-2002: ITU database (2010); data for 2003-2011: MCIT (2012)

and fast times could be in itself responsible for the same result. There is no way of separating these two hypotheses from the available data.

3.3 Government: Fiscal Flows

Utility reform affects public funds in two distinct ways: 1) one-time windfall gains; and 2) ongoing net fiscal flows. The former is generated if assets are sold, sale revenues can be major and can either be reabsorbed into the public sector balance sheet or instead transferred to the balance sheet of the private operator. If the latter, then the historic debt of the public utility is usually written off against privatization revenue. In other cases historic debt is written off as the first step of transferring the authority to a company in preparation for privatization. Ongoing fiscal flows are generated when reforms manage to secure financially sustainable tariffs for the utility service in turn allowing substantial reductions or even complete halts of state subsidies. Additionally, some concession contracts are designed to generate a royalty payment (Foster et al. 2005).

3.3.1 ICT Contribution to the Treasury

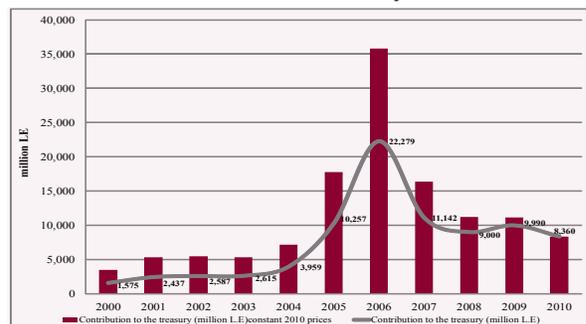
ICT contribution to the treasury comes from:

- i. Dividends, which are part of NTRA, National Post Authority (NPA), Information Technology Development Authority (ITDA) and TE’s profits. Dividends are distributed through negotiations between these authorities or their representative minister and the Minister of Finance (MoF);
- ii. Fees: NTRA keeps the fees it collects for some of the licenses and permits that it grants (i.e. these are funds generated from liberalization). For certain types of licenses (e.g. GSM, international gateway) NTRA retains a certain percentage from the concession fees transferred to the treasury of the Ministry of Finance. Again the percentage is determined through consultations between the Minister of Finance and the Minister of Telecommunication;⁶³
- iii. Income from sale of public shares which is the contribution from IPOs and basically represent privatization revenues. These could be paid in yearly installments and/or in lump sum payments.
- iv. Customs and taxes are another form of those contributions. These are taxes and customs generated from both private and non-private

sector firms, not only the three mobile operators but also from nearly 3,470 firms operating in the sector. The number of firms in the sector has grown dramatically over the past decade (Annex 2 Figure A5).

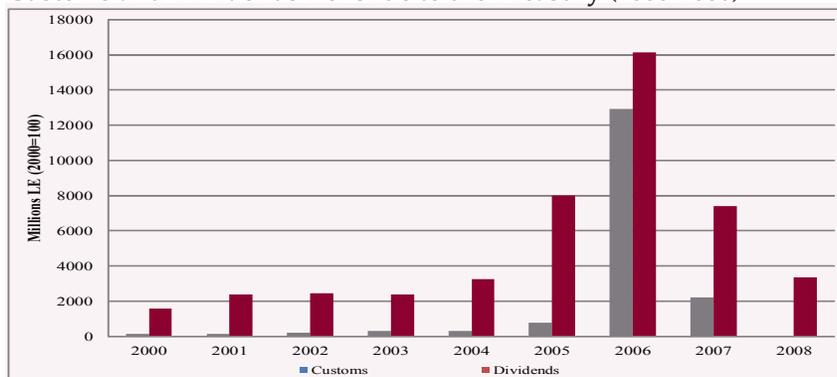
No data is available to the author to assess the change in overall sector contribution to the treasury before and after the reform, though it is reasonable to assume that these were negligible, or even negative, given that most of the sector’s authorities were a financial burden on the government. However, since 2002 the entire ICT sector—this is not only Telecommunication and so includes contributions from the NPA and ITDA—has slowly been increasing its contribution to the treasury with a large hike in 2006, when they peaked at over LE 22 billion. This hike is driven by increased dividends and customs to a lesser extent (Figure 3.16, Figure 3.17 and Table 3.3). Dividends have climbed especially after Etisalat was granted its operator license in 2006 for a total amount of LE16.7 billion but also on account of the partial sale of TE. The sale value totaled LE5,077 million, LE2.9 million of which were used to cover earlier unpaid taxes and the rest was captured by the treasury (on the 25th December 2006) instead of entering into the company’s balance sheet.⁶⁴ In fact, throughout the period, dividends have constituted just over half the contribution to the treasury (53%) (Figure 3.18) indicating increasing profits in the sector’s economic and non-economic units.

Figure 3.16
ICT Contribution to the Treasury (2000-2010)



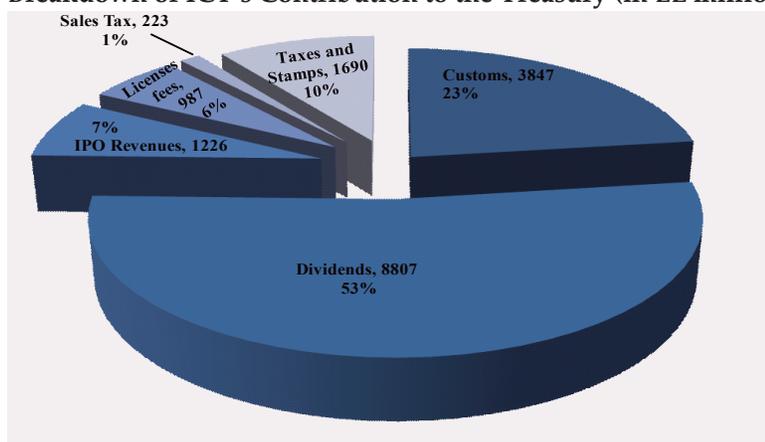
Source: ICT Indicators Portal, 2012. Values converted from nominal to real using CPI from World Development Indicators (2012).

Figure 3.17
Customs and Dividends Revenue to the Treasury (2000-2008)



Source: ICT Indicators Portal Data (2010). Values converted from nominal to real using CPI from WDI (2012).

Figure 3.18
Breakdown of ICT's Contribution to the Treasury (in LE million, Average 2000-2007)



Source: Calculated by the author based on ICT Indicators Portal Data (2010).

Table 3.3
Breakdown of ICT Contribution to the Treasury (in LE million, 2000-2007)

Years	Customs	Dividends	IPO Revenues	Licenses fees	Sales tax	Taxes and stamps	TOTAL contribution to the treasury in million LE
2000	149	1,575	461		395	570	3,150
2001	148	2,437	1,228		256	806	4,875
2002	202	2,587	826	480	249	830	5,174
2003	345	2,615	443	480	270	1,077	5,230
2004	358	3,959	1,627	381	151	1,442	7,918
2005	1,009	10,257	1,479	683	224	1,862	15,514
2006	17,838	22,279	1,382	956	63	2,040	44,558
2007	3,329	11,143	1,600	2,943	381	2,890	22,286

Source: ICT Indicators Portal (2010).

3.3.2 Telecom Egypt's Dividends

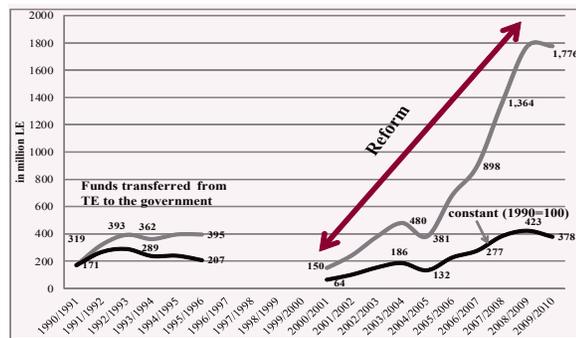
TE's dividend payments to government increased since the reform, though the increase in constant prices is not marked. Indeed, looking at period averages TE's dividends to the treasury have remained more or less constant at -1%, though gap in the data blurs the judgment (Table 3.4). Again, these dividends are meant to be distributed according to the 80% state ownership share of the government, in reality these are distributed through negotiations between TE and the MoF.

Table 3.4
Pre and Post Reform TE Dividend to the Treasury in LE million (1990-2010)

	average 1990/91- 95/96	average 2000/01- 09/10	% change between periods
Actual Dividend from TE	339	813	140%
At constant prices (1990=100)	235	232	-1%

Source: Ministry of Finance (2010). Dividends include LE100 million that were used by the treasury to finance the underground. Funds converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

Figure 3.19
Transferred Funds from TE to the Government (1990-2010)



Source: Ministry of Finance (2010). Funds converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

3.4 Competitors: Entry Conditions and TE Performance

This section reviews the development of market entry conditions and their effect on productivity. It attempts to provide a discussion of how protective the regulator NTRA is of the national incumbent TE or instead of the other market players, the cellular companies. Finally, it presents the evolution in some of TE's performance indicators before and after the reform.

3.4.1 Entry Conditions: NTRA's Role

The reforms to date have liberalized the sector and introduced competition. NTRA played a positive role in lowering entry barriers to the sector, particularly easing Etisalat's entry into both the national and international voice markets. Given the strength of the two cellular incumbents, Etisalat's entry would have proved difficult without the direct support of NTRA. To level the playing field, NTRA introduced a number of measures. Etisalat was allowed: 1) "domestic roaming," permitting it the use of the other operators' networks inside Egypt in locations where its own network was not yet in place; 2) sharing the existing operators' equipment through collocation, which results in cost savings; 3) number portability to reduce consumer switching cost⁶⁵, thus enabling consumers to switch carriers without losing their original phone number; and 4) a grace period of five years before granting another license (interview material, November 2010). The same may not be said for easing Mobinil's acquiring of an international gateway license, for reasons that will be discussed below. As a result concentration indices such as the HHI have significantly improved from 100% prior to the reform, reflecting TE's monopoly, to 32% in the overall national, and to 39% in the international voice markets (Tables 2.1 and 2.2). Concentration levels have also declined in the cellular market from 69% in the first year they were introduced, to 38% by 2011. As a result market power, particularly TE's, is not as substantial as it used to be.

This is reflected in improved productivity: the number of lines per employee (both cellular and fixed) rose from one line per employee in 1982 to 855 lines in 2008 (Figure 3.20), with growth being most rapid in the post reform period (at an average rate of around 30% per annum). The same is true of telecom revenue per employee, which grew

from LE2,000 in 1982 to LE477,000 in 2008 (Figure 3.21). Revenue per employee at constant prices followed the same trend peaking at LE28,000 in 2006 but then falling due to a combination of higher inflation rates, the September 2008 financial crisis and TE’s deteriorating performance in the face of competition.

3.4.2 The Sector’s Incumbent: Telecom Egypt

The incumbent operator TE has four subsidiaries: TE Information Technology, TE Data, Centra

Technologies, and Middle East Radio Communications (Telecom Egypt Company ETEL 2010).

The company offers both retail and wholesale telecommunications services. Wholesale services include domestic and international services provided to third parties who utilize the company’s infrastructure principally for collocation and transmission services, settlement and infrastructure leasing.⁶⁶ The National Voice Market analyzed in section 2.2.2 ⁶⁷ above represents a large part of TE’s retail market, in which TE is just another competitor in the market seemingly with no privileges over the other cellular competitor (and internet). The International Voice Market also analyzed in section 2.2.2 (as well as internet and broadband) is not so straight forward. Whilst TE provides international landline services in the retail market, it is a monopoly supplier in the wholesale sector of the international voice market. That latter situation has implications for the company’s market power in the retail sector of the international voice market.

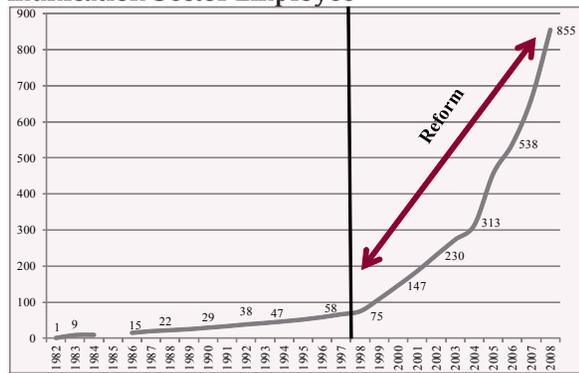
3.4.2.a National and International Landline Voice Market:

Declining TE Retail Sectors

The national market has witnessed extensive, albeit incomplete, liberalization. This is less true of international voice (and internet). As a result, there has been a downward trend in cellular local and international minute prices.⁶⁸ This direct, intense competition has negatively affected TE’s retail market. With landline subscriptions falling since 2008, TE’s market share has shrunk from 95% in 1998 to just 9% in 2011 (Table 2.1). In the international voice market TE’s international minutes have started to decline since 2005, its share dropping from a third (31%) in 2003 to 12% in 2009 (Table 2.2). By contrast, the market shares of Vodafone and Mobinil have been expanding, with the former capturing the largest share.

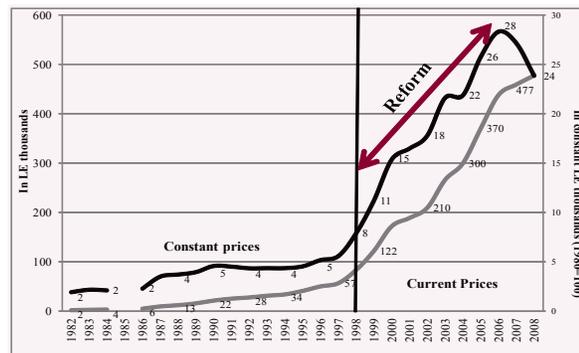
As TE’s retail sales have declined, the importance of wholesale revenues to the company has grown in recent years, increasing from 42% of the “total service related revenues” in 2009 to 52% two years later (Figure 3.22). Nevertheless, retail services remain important, being dominated by voice services at just less than three quarters of the company’s retail services (69%).⁶⁹

Figure 3.20
Telephone Lines (cellular & fixed) per Telecommunication Sector Employee



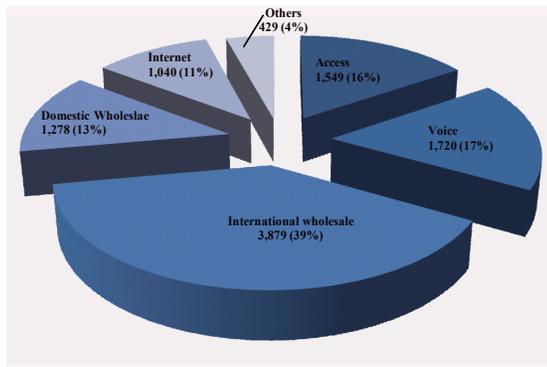
Source: Author’s Calculations based on World Development Indicators, World Bank (2010) and MCIT database (2010). Telecom employees: World Development Indicators, (2010) Cellular & Fixed Lines: MCIT database (2010).

Figure 3.21
Telecommunication Revenue per Telecom Sector Employee (1982-2008)



Source: Author’s Calculations based on Euromonitor International Data (2010) and World Development Indicators, World Bank (2010). Revenue: Euromonitor International (2010), Telecom employees: World Development Indicators (2010). Values converted from nominal to real using CPI from World Development Indicators (2010).

Figure 3.22
TE Service Related Revenue Breakdown in million (2011)



Source: Calculated from Telecom Egypt Earning Releases (2011).

3.4.2.b TE's Offsetting Revenue Sources: Wholesale Revenues

Careful management of liberalization has helped TE offset falling retail revenues. The company follows a somewhat diversified business model and so carries out its own investment and financing activities. It has investments in a number of companies (e.g. Vodafone Egypt, Middle East Radio Company and Menatel) thus diversifying its sources of revenue. TE directly benefits from the rapid growth of the cellular market through three main channels:

1. A 45% share in Vodafone Egypt (Telecom Egypt Earning Releases 2009).
2. Channeling the three cellular operators' calls through its network (i.e. mobile interconnectivity).
3. All other third parties utilizing the company's network (e.g. for international voice services, renting of its submarine cable... etc.).

The latter two revenue sources are particularly important because of TE's status as a monopolistic supplier of an essential input.⁷⁰ Hassanin (2007) has predicted that TE would maintain a sizable portion of international call revenues while upholding its commitment to liberalization. A similar situation is also true for the internet and broadband markets with TE fully owning TE Data, also a competitor in broadband and internet retail. It follows that international call providers (mainly cellular providers) and internet service providers (ISPs) work on a revenue-sharing model with TE, helping the latter partially internalize losses it incurs in its retail market.

3.4.3 NTRA Protectionism of TE: Regulatory and Policy Capture?

TE struck a commercial deal with Vodafone in 2009 with a package that probably included favorable network rental terms compared to the other providers. There are no surprises here, since Vodafone's profits positively affect those of TE⁷¹ and also since Vodafone's increased international market share positively affects TE's wholesale revenues. Similar trends with TE Data, the company's own internet provider. Thus, Vodafone⁷² is not on a level playing field with the other providers, particularly Mobinil. According to one of its officials, NTRA does not have the details of this agreement. Given that TE is a monopoly supplier, this practice, if true, would constitute a clear violation to article 8e of the Egyptian Competition Law (2005), being deemed anti-competitive. In addition, this practice strongly supports the market squeeze hypothesis.

In fact, Mobinil has applied for a license to set up an international gateway of its own and is currently negotiating with NTRA (TeleGeography 2011). It has been alleged that NTRA is proving unresponsive to Mobinil. This implicitly means it will probably refuse to grant the license. On the other hand, NTRA claims it is asking a fair price comparable to that which had been offered to Etisalat in 2009 and that the problem lies with Mobinil. The latter, NTRA alleges would like to pay in installments rather than a lump sum payment and is taking time to sort these issues out (interview material, May 2, 2012). Since international wholesale call revenue yields an estimated LE3.88 million a year, or around 40% of total TE service revenues (of LE9.9 million in 2011) (Figure 3.19), losing revenues from international gateway leasing would seriously jeopardize the giant 55,000 employee company.

In determining the license NTRA will need to strike a fine balance between its desire to protect the national incumbent, preserve government resources in the form of taxes and transferred funds from TE amounting to LE1.8 billion in 2010, particularly at such a difficult time in Egypt's history when government resources are seriously constrained, and most importantly its desire to promote overall producer and consumer welfare via supporting competition and so preserving its image as a clean regulator that is not "captured."

It is quite common for the regulator to fall into

the trap of either “regulatory capture” or “policy capture.” Political capture takes place when regulatory goals are altered to serve political ends, e.g. the re-election of the government or in non-democratic countries pleasing the government to maintain government positions. Regulatory capture on the other hand is the sympathizing of the regulator with any of the firms it is regulating, be it the national incumbent in our case, or any of the other cellular providers. Both types of capture are at the expense of consumers and, ultimately, at the expense of overall welfare. In order to remove any suspicions of either types of capture NTRA should grant the license as long as the price offered by Mobinil is consistent with international best practice.⁷³

There are two more signs that potentially point to NTRA’s political and regulatory capture:

1. The restriction of domestic access to voice over internet services (VoIP). Free access to these services may undermine phone-based international calls,⁷⁴ jeopardizing TE’s revenue from retail and wholesale voice activities as well as those of the cellular providers.
2. Turning a blind eye had there been an actual cartel between Vodafone and Mobinil before Etisalat’s entry into the market. With the data at hand we don’t have evidence to support neither cartel formation nor predation but we can present plausible scenarios. Interview material suggests that NTRA has allowed the two cellular giants to become sufficiently strong to the extent of sometimes refusing to submit information requested by NTRA (interview material, May 6, 2010).

This discussion is not to undermine NTRA’s positive and substantial role in creating competition in the sector and reducing entry barriers, it is to draw attention to regulator mistakes that can be prevented if the regulator is sufficiently independent and mature.

3.4.4 Telecom Egypt’s Performance

3.4.4.a Selected Telecom Egypt Productivity Measures

Lines per Employee

The introduction of cellular competition has been a major factor in driving up TE’s productivity in

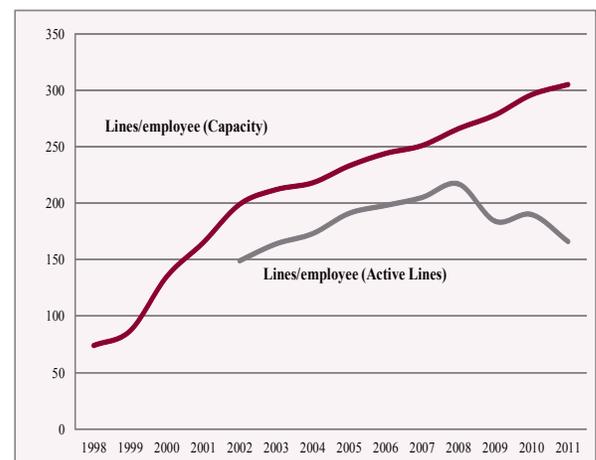
this sector (Galal 1992). During the 10 years following the reform, lines per TE employee have increased more than threefold, reaching 266 for installed lines and 217 for active lines in 2008 (Figure 3.23). Since the entrance of Etisalat, landline subscriptions witnessed a very modest increase that turned negative as of 2008, a drop of more than a quarter (26%) in just three years (2008-2011). With more or less constant employment this translates into constantly declining active lines per employee reaching 166 in 2011 (a drop of 24% since 2008).

Revenues per Employee and Minutes per Employee

Other productivity measures, such as revenue per employee, have maintained an upward trend in the post reform period. But this is not so for profits per employee which have been falling in both current and real terms since 1999, and are now lower than before reforms (Figure 3.24 and Annex 2 Figure A6)

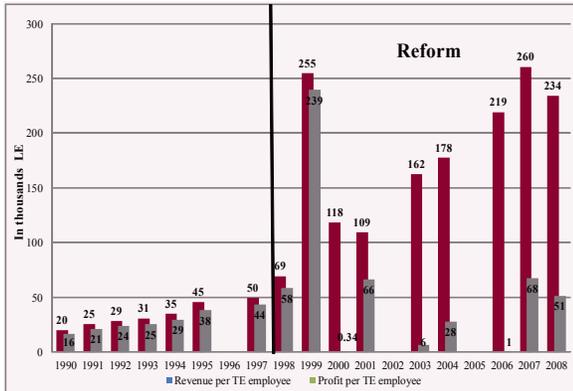
National minutes (local + long distance) per employee also rose dramatically following the reforms, but have started to decline since 2003 when TE began to lose its domestic voice market. This is not true of international minutes per employee which have continued to rise post reform most likely because, as explained earlier, competitive pressures are not as pronounced in international voice (Annex 2 Figure A7).

Figure 3.23
TE Lines per Employee (1998-2011)



Source: Telecom Egypt (2012).

Figure 3.24
Telecom Egypt Revenue and Profit per Employee (1990-2008)



Source: Calculated by the author based on Central Agency for Public Mobilization and Statistics (CAPMAS), Telecommunication Annual Report, various issues.

3.4.4.b Telecom Egypt's Financial Performance

Consolidated Revenues

TE's recent declining status in the retail market is reflected in its consolidated revenues. Revenue growth has slowed since 2006, from 11.3% to 5% in 2007, turning negative in 2009 (Annex 2 Figure A6. and Table 3.5). Nominal revenues have dropped from LE9,993 million in 2007 to LE9,960 million in 2009 slightly recovering in 2010, but exhibiting negative growth in real terms since 2007.

Telecom Egypt: Profits and other Financial Highlights
TE Profits

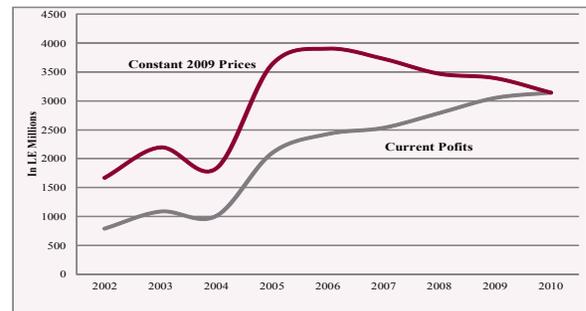
TE's profit growth has also slowed down in recent years. Profits at constant prices have been

declining since 2006 (Figure 3.25). On the other hand profit margins for Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) have followed same profit trends in recent years with margins for EBITDA⁷⁵ falling from 60% to 50% between 2002 and 2009 but net profit margins increasing from 12.7% to 30.6% over the same period (Table 3.6). These measures may give a misleading impression of an improved performance. Whilst profit margin is an indicator of a company's pricing strategies and how well it controls costs, it doesn't necessarily reflect "economic" profitability.

Operating Cash Flow

Another measure of profitability is operating cash flow (OPC).⁷⁶ It's arguably a better measure of business profits than earnings because a

Figure 3.25
TE's Profits at Current and Constant Prices (2002-2009)



Source: Telecom Egypt EAS Financial Summary (2011). Note: Values converted from nominal to real using CPI from World Development Indicators (2012).

Table 3.5
TE Consolidated Revenues Growth at Current and Constant Prices (2002-2010)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
revenue in LE million	6,219	7,177	7,749	8,548	9,517	9,993	10,117	9,960	10,218
growth rate	-	15.4%	8.0%	10.3%	11.3%	5.0%	1.2%	-1.6%	2.6%
Real revenue									
2010=100	13,131	14,500	14,070	14,800	15,307	14,307	12,581	11,082	10,218
growth rate at constant prices	-	10.43%	-2.97%	5.19%	3.43%	-3.95%	-14.43%	-11.91%	-7.8%

Source: Telecom Egypt EAS Financial Summary (2011). Note: Values converted from nominal to real using CPI from World Development Indicators (2012).

company can show positive net earnings (on the income statement) but still not be able to repay its debts. As shown in Figure 3.26, operating cash flow increased between 2002 and 2004 after the reform, but declined steadily in nominal terms and sharply in real terms thereafter. Despite the recovery after 2009 OPC values did not return to their initial levels in 2002.

Investment Performance

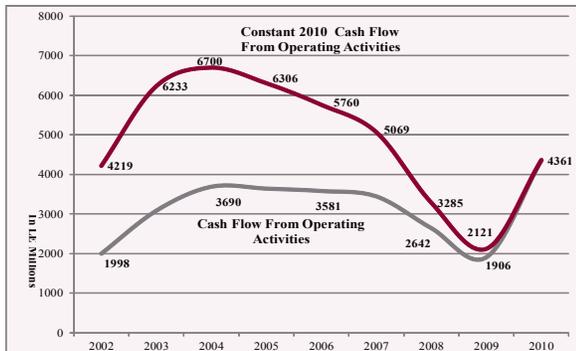
The company's investment performance shows some progress. However, both real return on investment (real EPS) and real dividends per share (real DPS) have been declining since 2006 and 2008 respectively (Figure 3.27). The concluding section will discuss the implications for the evolution of TE's performance.

Table 3.6
TE Financial Highlights (in LE millions 2002-2011)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Revenue in LE million	6,219	7,177	7,749	8,548	9,517	9,993	10,117	9,960	10,218	9,895
Growth rate of Revenues	-	13.35%	7.38%	9.35%	10.18%	4.76%	1.23%	-1.58%	2.52%	-3.26%
(2009=100)	11,801	13,032	12,645	13,301	13,758	13,214	11,307	9,960	9,183	
Growth rate of Revenues (2009=100)		10.43%	-2.97%	5.19%	3.43%	-3.95%	-14.43%	-11.91%	-7.8%	
Gross Profit	4,286	5,022	5,324	5,664	6,421	6,687	6,752	6,691	6,976	6,547
2009=100	8,133	9,119	8,688	8,814	9,282	8,843	7,546	6,691	6,270	
Gross Profit % Margin	68.92%	69.97%	68.71%	66.26%	67.47%	66.92%	66.74%	67.18%	68.27%	66.16%
EBITDA Before Provisions	3,737	4,426	4,621	4,594	5,277	5,389	5,163	5,048	4,663	4,551
(2009=100)	7,091	8,037	7,541	7,149	7,628	7,126	5,770	5,048	4,191	
EBITDA % Margin	60.09%	61.67%	59.63%	53.74%	55.45%	53.93%	51.03%	50.68%	45.64%	
EBIT	1,042	1,501	1,977	2,528	3,376	3,667	3,505	3,515	3,411	3,079
2009=100	1,977	2,725	3,226	3,934	4,880	4,849	3,917	3,515	3,066	
EBIT % Margin	16.76%	20.91%	25.51%	29.57%	35.47%	36.70%	34.64%	35.29%	33.38%	31.12%
Net Profit before tax and Minority Interest	791	1,087	1,419	2,533	2,898	3,054	3,308	3,510	3,637	3,496
2009=100	1,501	1,974	2,316	3,942	4,189	4,038	3,697	3,510	3,269	
Net Profit before tax and Minority Interest % Margin	12.72%	15.15%	18.31%	29.63%	30.45%	30.56%	32.70%	35.24%	35.59%	35.33%
Profit for the Year in LE millions (after Tax & Minority Interest)	791	1,087	1,009	2,097	2,427	2,534	2,790	3,051	3,143	2,929
(2009=100)	1,501	1,974	1,647	3,263	3,508	3,351	3,118	3,051	2,825	
Profit Margin	12.72%	15.15%	13.02%	24.53%	25.50%	25.36%	27.58%	30.63%	30.76%	

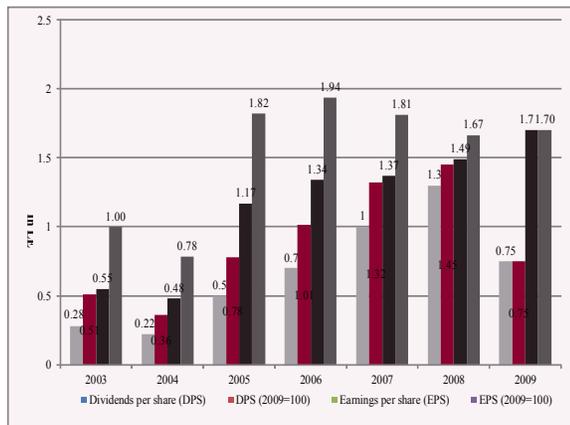
Source: Telecom Egypt EAS financial summary, various issues, available at <http://ir.telecomegypt.com.eg/EAS%20Financial%20summary.asp>

Figure 3.26
Telecom Operating Cash Flow (2002-2010)



Source: Telecom Egypt EAS Financial Summary (2011). Note: Values converted from nominal to real using CPI from World Development Indicators (2012).

Figure 3.27
Telecom Egypt Return Calculation (2003-2008)



Source: Telecom Egypt annual report (2009).

3.5 Conclusion

TE's Deteriorating Position and What the Future Holds

The analysis has highlighted three main issues. First, TE's economic performance improved following institutional reforms, large improvements being possible from a low base. Financial indicators also improved in the earlier years.⁷⁷ Second, the absolute shrinkage and loss of the company's retail market share (local, long distance and international voice), without further efficiency gains to outweigh that loss. Economic and financial performance have generally deteriorated since 2006,

the year before the entry of Etisalat. Etisalat's entry into the market triggered a fierce price competition with which TE was unable to keep up.

Unable to compete in the retail sector, TE is relying heavily on its wholesale market taking advantage of its monopoly over the international gateway and internet infrastructure. There are other revenue sources for TE from its investing activities, most notably its 45% share in Vodafone, a company that captures the biggest market share of total subscribers (40% in 2011), of international minutes (51% in 2009) and of cellular subscribers (45% in 2010). Whether Vodafone's close ties with TE are partly responsible for, or at least help, this exceptional performance is an issue highlighted in the discussion on NTRA's protectionism of TE, potentially allowing anti-competitive practices in the market.

Etisalat was granted its international gateway license in 2009, and Mobinil may also be applying for one. To remove any suspicions of policy and/or regulatory capture, NTRA should grant this license without undue delay and following due process. But granting this license to Mobinil and eventually also to Vodafone will have dire consequences for TE. This fact is the third main finding from this analysis. With nearly LE4 billion in revenue from international wholesale services (39% of total revenue) TE will be in a very difficult position unless it starts thinking of innovative solutions to put the company on a secure financial footing.⁷⁸

Suggested Solutions

Public ownership and the legacy of inflated employment place severe constraints on the company. Increasing private shares to 49% may help. Further privatization of the company will raise efficiency placing the company on an equal footing with the cellular competitors. But raising efficiency may require retrenchment which is not politically viable, especially in the current post revolution transitional period with the exaggerated expectations of the Egyptian people. In addition, any government is likely to resist this step, placing pressure on the regulator (policy capture) not only to avoid unrest but also to preserve the substantial resources transferred from TE to the government (LE1.8 billion in 2010). This transfer will not last for long. But in the medium term and with a government with some foresight fur-

ther privatization can be gradually effected with NTRA's support. In the same way as NTRA managed to gradually introduce competition to the sector it can also manage a gradual privatization of TE. The least productive workers can be offered early retirement, which they will accept so long as the offer is sufficiently attractive. There is a one-off cost of additional pension payments for up to 10 years, which is an acceptable cost for the efficiency gain which will be achieved. Or instead the company can offer a retrenchment package of say six months' pay plus retraining. The exact package should be based on careful calculations.

Increasing TE's share issue will also help with the disclosure problems highlighted earlier. For the company to meet its regulatory requirements of periodic financial reporting and auditing may be highly costly, but it will in the end help in its efficient and transparent operation, reducing chances for poor governmental integrity, cronyism and incompetence which are major hurdles to successful privatization (Parker and Kirkpatrick 2005a). Achieving improvements in institutional capacity of all public institutions involved in the process will require raising managerial and administrative capacity of not only NTRA but also of the Egyptian Financial Supervisory Authority (EFSA) and the Egyptian Stock Market. These organizations have less administrative capacity compared to their developed country counterparts.

An additional fixed line license can be gradually introduced after some years from additional TE privatization to induce further competition in the sector, in turn effecting further price reductions, more options and better service. These changes will enhance consumer surplus whilst preserving normal profits in the sector. Excess profits will be eliminated only if the concerted efforts of both NTRA and ECA prevent collusion and predation.⁷⁹

Similarities of Internet and Broadband

The situation for the internet and broadband markets resembles that of the international voice market. All ISPs have to lease TE's infrastructure for internet provision. But the company's infrastructure is depleted in many areas of the country, especially older areas. This arrangement has a significant adverse effect on internet quality. Specifically, the internet market in Egypt has several characteristics. Firstly, behavioral practices in this

market are unethical, with many people sharing the cost of one line. Secondly, only a small segment of the market values extremely high internet speeds similar to those more commonly available in developed countries. Finally, TE's infrastructure is already in place, giving it a first mover advantage in the market. These factors reduce incentives for any potential providers to build a parallel infrastructure to that of TE. The main concern is whether they can capture a reasonable share of the market by overcoming TE's first mover advantage. It may be possible for this to happen if NTRA plays the same role it played in easing the entry of Etisalat, that is ensuring that no anti-competitive practices take place such as those in favor of TE Data or Vodafone. Lower prices will expand market size, hence guaranteeing the most competitive firms a reasonable share of the growing market, despite the competition.

In brief, the reforms have enhanced TE's efficiency and performance but not enough to withstand the aggressive competition from the cellular sector. There are winners and losers to every reform. TE is both. It stands to lose if it doesn't follow a more inventive business model or introduce measures to further enhance efficiency. These changes can only be effectively undertaken if the company is further privatized. To achieve further welfare gains, another fixed line license for both voice and internet should be introduced in due course.

Overall Conclusion

The main lessons learned from this study are that in the Egyptian telecommunication sector reforms have complemented and reinforced each other. The causal chain of reform is not broken, but more reforms are yet to be carried out. Second, liberalization and privatization alone do not achieve their intended goals of greater competition and efficiency, and consecutively better prices and service, without an adequate regulatory framework. This framework is needed to detect anti-competitive practices and market abuse. Nevertheless, this framework should allow for a flexible competition policy, one with sufficient foresight to target longer term welfare gains. Third, proper disclosure and regulatory requirements such as financial reporting and auditing should be enforced on all market players, not just to counteract corruption, but also to put a comprehensive data reporting

system in place to feed into NTRA's costing and competition analyses.

The sector's regulator, NTRA, is a major player in this market and has done a reasonably good job in managing the reform. There is more to accomplish. NTRA should develop its institutional capacity through adopting international best practices in hiring and in its internal regulations in general. But most importantly NTRA should ensure that it is not captured by any interest group, not the firms it regulates, the government it works for, nor even the consumers it serves. NTRA needs to remain impartial. Or rather, it should in effect be captured by all these groups collectively, keeping each at an arm's length and with an eye on overall welfare.⁸⁰

Part Two

Introduction

Notwithstanding reform gains highlighted in the first part of the analysis, the approach to regulation in Egypt in general is still ad-hoc. No legal framework is adopted to set a clear policy or methodology to bring in uniformity in various approaches to regulatory reforms in Egypt. As the privatization and licensing processes may spark anti-competitive behaviour, it is important to have clear competition regulations prior to market liberalization. However, that was not the case in the telecom sector where reforms have been carried out in the absence of competition regulation both in the sector and on an economy-wide level. In fact, competition regulations were not introduced until 2005, almost a decade after the telecom sector reform had started.

Accordingly, both Egyptian Competition Authority (ECA) and National Telecommunication Regulatory Authority (NTRA) work in parallel to organize the market place. This co-existence leads to the overlap of jurisdiction between the two authorities; hence, setting the borderlines between the two becomes a requirement.

The relationship between ECA and NTRA is further analyzed. It is clear that no explicit provisions were stipulated in the Egyptian Competition Law (2005) or in the Telecommunication Regulation Law (2003) to organize the relationship between the two regulators. However, ECL provides that its provisions apply to all economic activities in various economic sectors even with the existence of sector regulators. In the telecom sector on the other hand, the NTRA is responsible for setting the rules for granting licenses,

entry, operation and exit of the market. Law No. 10 of 2003 regulating the Telecom sector states that NTRA has to observe as a principle the "free competition" in the market and "shall encourage national and international investment in this field within free competition rules". The question would arise on which law shall be applicable and which body shall be responsible for receiving, investigating and deciding competition complaints in the telecom sector.

Finally, key factors that affect the independence of ECA and NTRA are discussed. Independence of the regulator is an important tool to confirm the proper functioning and operation of the market far from any undesired influence that may distort it. The decision-making process should also be neutral and transparent and only corresponds to the rule of law. However, being administratively separate from the Government does not necessarily mean that the regulator is independent from governmental influence.

As a conclusion, it is necessary to guarantee the independence of the ECA through certain amendments to the law. These amendments refer to the composition of the board of directors of ECA to allow more efficiency and independence in decision-making process, the ability to prosecute anti-competitive practices without government interference, and the power to adopt necessary measures to protect the market place. In addition, the jurisdiction of ECA should be well defined and allow ECA to investigate any violation in various economic activities and sectors.

Introduction to Telecommunication Competition Regulation

Notwithstanding reform gains highlighted in the first part of this study, the approach to regulation in Egypt in general is still ad-hoc. No legal framework is adopted to set a clear policy or methodology to bring in uniformity in various approaches to regulatory reforms in Egypt. As the privatization and licensing processes may spark anti-competitive behaviour, it is important to have clear competition regulations prior to market liberalization. However, that was not the case in the telecom sector where reforms have been carried out in the absence of competition regulation both in the sector and on an economy-wide level. In fact, competition regulations were not introduced until 2005, almost a decade after the telecom sector reform has started.

This chapter analyzes competition regulation in the telecom sector by covering the following points:

- Introducing Competition Regulations; Sector and Economy-Wide Levels
- The Relationship between the Regulators; ECA and NTRA
- The Independence of the Regulators; ECA and NTRA

1.1 Introducing Competition Regulations, Sector and Economy-Wide Levels

“Utility regulation has three main aims: to protect consumers from abuse by firms with substantial market power, to support investment by protecting investors from arbitrary action by government, and to promote economic efficiency” (Smith 1997). Accordingly, sectoral regulation and com-

petition rules work in parallel to organize the market place, hence, the jurisdiction of competition authorities and regulatory bodies may overlap. Therefore, setting the borderlines between the two becomes a requirement.

It should be clear however that drawing the limits or borderlines between the two bodies does not mean full separation but on the contrary it provides for the possible ways of cooperation and coordination. The following points explore the relationship between ECA and NTRA, and the independence required to market regulators.

1.2 The Relationship between ECA and NTRA

No explicit provisions were stipulated neither in the Competition Law (2005) nor in the Telecommunication Law (2003) to organize the relationship between the ECA and NTRA. However, Article (1) of the Egyptian Competition Law (ECL) provides that “Economic activities shall be undertaken in a manner that does not prevent, restrict or harm the freedom of competition in accordance with the provisions of the Law”. The Law also provides for practices and agreements that constitute anti competitive practices, namely; hardcore cartels (article 6), vertical agreements (article 7) and abuse of dominant position (article 8). Further, Article (2) of the Law defines persons subject to the law as to mean all natural and juristic persons whatever the way of their establishment or incorporation is.

Moreover, Article 11 of the ECL gives the Competition Authority the power to examine complaints and conduct market studies to detect violations or to give recommendations to promote

competition in all sectors including the telecom sector. This general provision has only one exception that is stated in Article (9) of the ECL, this exception is for public utilities⁸¹ managed by the state. Accordingly, it is clear from the wording of the ECL provisions that it applies to all economic activities in various economic sectors even with the existence of sectoral regulators.

In the telecom sector on the other hand, the NTRA is responsible for setting the rules for granting licenses, entry, operation and exit of the market. Law No. 10 of 2003 regulating the telecom sector states that NTRA has to observe as a principle "free competition" in the market and "shall encourage national and international investment in this field within free competition rules" without introducing any provisions on competition. However, article 24 of the Law stipulates that "The Board of Directors shall determine the limits which, if exceeded, shall result in the occurrence of monopolistic practices in any of the fields regulated by this Law. The Board of Directors shall set the rules that should be applied to confront such practices".

Based on that article, the NTRA has introduced a general framework of competition policy in the telecom market.⁸² The competition policy framework starts by stating that "the NTRA is in charge of monitoring and protecting competition in the telecom market". It also adds that "NTRA sets the limits for free competition". It is clear from the wording of the policy that it comprises both ex ante (i.e access, technical and licensing) and ex post (i.e economic and competition) regulations, hence excluding the jurisdiction of the ECL and the ECA.

1.2.1 NTRA versus ECA Competition Policy

The NTRA competition policy includes some provisions that are contrary to those provided for under competition law. For example, though the NTRA competition policy adopts a definition of the relevant market based on the same elements provided for under competition law, namely; relevant product and geographical area, no criteria was set for substitutability of products or homogeneity of competition in geographical area. Accordingly, it is not clear whether or not NTRA would follow the same criteria adopted by competition law in identifying the relevant product and geographical area.

Moreover, the NTRA competition policy dif-

ferentiated between market power, significant market power and market dominance. The latter has been defined as to mean "the situation in which the influence of the market power prohibits the existence of an effective competition in the relevant market". The competition law on the other hand only defines the market dominance and requires three combined conditions for a person to be in a dominant position; market share exceeding 25%, the ability to affect the prices or the volume of the product in the market, and that other competitors are not able to stop this effect. This makes it clear that whereas the NTRA deals with market power, significant market power and market dominance as different concepts, competition law on the contrary deals with market power and significant market power as elements to define market dominance and not a standalone concept.

In addition, the idea of misuse of information provided for under the NTRA competition policy is totally out of the scope of competition law and anticompetitive practices provided therein. This concept may find its roots in criminal law (Article 345 on fraud in commercial transactions) or in commercial law (Article 66 on unfair competition) where the misuse of the information to harm competitors is considered violation to such laws.

It is also not clear what would be the sanction for violating the NTRA competition policy since it does not provide for any penalties. This leaves only one possibility that the NTRA would apply an administrative measure from those provided for in the Telecom Law. On the contrary, violations under competition law would be considered criminal acts subject to fines imposed by a criminal court.

In all of the cases above and where a conflict occurs between the two policies, the question would arise on which law shall be applicable and which body shall be responsible for receiving, investigating and deciding competition complaints in the telecom sector. At first glance, the ECA is still competent to study the monopolistic practices in the telecom sector even with the existence of a separate competition policy in the telecom sector. In fact however, the chairperson of ECA has indicated several times the existence of conflict and tension between the two authorities regarding the complaints submitted to ECA alleging the existence of anticompetitive practices by mobile and internet services providers companies (Shahin

and Khder 2011). This would undoubtedly negatively affect the proper functioning of the market and the growth of the sector in general.

1.2.2 Solutions

In order to avoid future tension between the two authorities, a Memorandum of Understanding was signed by the senior officials of the ECA and NTRA in June 2011 defining the role of each authority in handling competition complaints and the possible means of cooperation in matters of common interest. This corresponds to a large extent to international best practice on cooperation and coordination between both competition and regulatory authorities. In the UK for example, the Office of Fair Trade (OFT) responsible for competition and the telecom regulator (OFCOM) responsible for the telecommunication sector have well defined powers set by the Competition Act of 1998, however, they coordinate together in matters related to anti competitive practices and a whole chapter in the Telecommunication Act of 2003 is dedicated to competition and the relationship between OFCOM and OFT.⁸³ In the US, on the other hand, the Federal Communication Commission (FCC) responsible for the telecommunication sector, has no powers regarding anti competitive practices, nonetheless, the Federal Trade Commission (FTC) and the Anti Trust Division in the Department of Justice (DOJ) take preliminary opinion of the FCC before starting any antitrust investigation.

1.3 Independence of the Regulations

Independence of regulatory bodies is important to confirm the proper functioning and operation of the market far from any undesired influence that may distort it. However, the idea of independence cannot be separated from legal, administrative, political and economic factors surrounding it. Therefore, any country has to put in place various checks and balances that keep the independence of regulatory bodies both from government and private interest groups influence. Independence is defined as to consist of three elements (Smith 1997; UNCTAD 2008):

- An arm's length relationship with regulated firms, consumers, and other private interests.
- An arm's length relationship with political authorities.

- The attributes of organizational autonomy, such as earmarked funding and exemption from restrictive civil service salary rules necessary to foster the requisite expertise and to underpin those arm's length relationships.

The decision-making process should be neutral and transparent and only corresponds to the rule of law. This process should be free of ministerial control, particularly when the state continues to own utility enterprises.

But independence does not mean that regulatory bodies answer to no one. In all countries independence is not absolute as regulators are at the end public sector bodies that render a public service through its civil servants who are considered part of the government or at least subject to its supervision. In any case, the regulator has to be accountable and its performance has to be monitored through a mechanism prescribed by the law establishing it.

1.3.1 Independence of Competition Authorities

Competition authorities strive for achieving a neutral and transparent decision-making process which increases the level of independence and accountability of the agency. The United Nations Conference on Trade and Development (UNCTAD) Model Law on competition is based on the idea that the most efficient type of administrative authority for the enforcement of competition law is one that is quasi-autonomous or independent of the Government with powerful judicial and administrative engines for conducting investigations and applying sanctions and which provides the possibility of recourse to a higher judicial body (UNCTAD 2008).

As a general rule, the most important condition for the effective enforcement of competition law is ensuring that the Competition Authority is independent from any political pressure. The World Bank, the Organization for Economic Cooperation and Development (OECD) and the UNCTAD advocate that the enforcement agency should be independent from any government department. However, being administratively separate from the Government does not necessarily mean that the Competition Authority is independent from governmental influence. Yet, the possibility of such intervention increases in case the Competition Authority is established within or as a part of

a Government Ministry.

Historical analyses have proven that political, legal and administrative traditions in different countries have a strong impact in shaping the structure and functions of independent agencies (Polidano 1999; World Bank 2000; Thatcher 2002; Thatcher and Stone Sweet 2002; Cukierman 2005; Wettenhall 2005). It is common that most jurisdictions in both developed and developing regions, strive to establish competition agencies that are separate institutions and that have substantial administrative autonomy.

The Egyptian Competition Authority is no exception. It stands as an independent authority responsible for the implementation and enforcement of competition law. Therefore, it is important to understand how the ECL guarantees ECA independence and to what extent these guarantees are applicable in practice.

Independence of ECA

The ECL has set out provisions reflecting certain aspects of independence, namely, regulatory, supervisory, decision-making and budgetary. These aspects or factors are necessary for the effectiveness and accountability of an independent competition enforcement agency.

Regulatory independence lies in the ability of any competition authority to set out its internal technical rules and regulations, the freedom to draft its policy and the power to implement the provisions of the law as well as its internal processes. ECA in that respect is independent as it has the autonomy in defining its internal rules and regulations in compliance with Article (15) of the ECL. The ECA has enjoyed since its establishment, to a large extent, independence in implementing the provisions of the law according to the policy it adopts and through its personnel.

Supervisory independence is an important aspect of constituting an efficient and accountable independent agency working on enforcing the competition law and regulations by measuring suspicious behaviors and sanctioning anti-competitive practices in the market. It is then essential for any competition authority to have supervisory independence over the market and to have a discretionary power in initiating investigation in case it detects suspicious anti-competitive practices.

The ECL in Article 11 grants ECA the power to conduct necessary studies and researches to de-

tect acts that are harmful to competition. In light of such provision, ECA has the power to initiate inspection in competition issues at its own discretionary power in case of suspicious behaviors in the market. The Board of Directors of ECA can, on its own discretion, take the decision of whether or not the incumbent is in breach and hence take the measure necessary to remedy the breach. Persons in breach are to abide by the measure taken or otherwise they'll be subject to a fine for not complying with ECA decisions.

The ECA has exercised this discretion in fact by initiating several cases such as the fertilizers case, the sugar cane molasses case and the civil aviation case. However, it should be noted that criminal lawsuits concerning anti competitive practices shall only be initiated by the Competent Minister upon a written request. This, in fact, makes the real implementation of the law in the hands of the Government. Nevertheless, the ECA publishes an annual report that contains its activities, future plans, recommendations and decisions, a copy of which is circulated to the People's Assembly and the Shoura Council that monitor the Government decisions towards competition cases.

Decision-making independence is a key factor for measuring the effectiveness and autonomy of competition authorities. It depends to a large extent on the institutional development of each country and the advanced level laws and regulations governing the civil service have reached. Pursuant to Article 11 of the ECL, ECA has an independent public juristic personality which grants it the power to take its decisions without any governmental interference or influence from any other administrative bodies. Such administrative bodies cannot amend, modify or alter any part of the said decisions. Moreover, decisions of the Board of Directors of ECA do not need ratification from a higher authority, including the competent minister. ECA's decisions may only be appealed before the Administrative Court.

But in reality ECA is affiliated to the prime minister who has the power to designate the Chairperson, the Board Members, in addition to the Executive Director. This process raises the question on why should ECA be affiliated to any ministry in the first place? And does this affiliation mean that its independence vis-a-vis the government is undermined?

In reply to the first question, the reason behind

the affiliation of ECA to any Ministry is to make its actions politically accountable before the parliament since only the Prime Minister, his deputies, the Ministers and their deputies are responsible before the parliament for the acts of any governmental body. Thus the Egyptian Competition Authority has to be affiliated to an entity which can be held politically responsible by virtue of the constitution.⁸⁴ Consequently, ECA's affiliation to the Competent Minister is due to political structure and constitutional requirement.

Turning to the second question, one should refer to the composition of the Board of Directors of ECA and whether such composition would allow for government interference or influence. According to article (12) of ECL, the board of directors is composed of fifteen members as follows:

1. A full-time Chairperson
2. A Counselor from the State Council,
3. Four members representing the relevant ministries to be nominated by their Competent Ministries
4. Three specialists/experts
5. Six members representing the General Federation of the Chambers of Commerce, the Egyptian Federation of Industries, the Banking Federation, the General Federation for Civil Associations, the General Federation for Consumer Protection and the Egyptian General Union of Labor. Each Federation/Union shall choose its own representative.

The diversity of the composition of board members ensures neutrality in the decision making and less vulnerability to external pressures. The concern lies in the number of the members representing ministries or the members affiliated to the Government or to one political party. This affiliation may decrease the level of the Authority's independence in the decision making process.

Moreover, political independence of ECA may be weakened by various factors negatively influencing it. One of the examples illustrating that is the requests sent from the government to ECA to conduct studies on issues that public opinion had been pressuring the Government to take action on. In such occasions, under the pressure from the public opinion, the Government has referred to ECA several requests to conduct market studies to win public support, a matter that has caused

to undermine the independence of the ECA in the public's eyes.

Budgetary independence is provided in Article 14 of the ECL, it states that ECA has an independent budget following the model of Public Service Authorities. Any surplus in the budget shall be forwarded from one fiscal year to another. According to said article, the resources of ECA will consist of the following:

1. Appropriations designated to the Authority in the State General Budget.
2. Grants, donations and any other resources accepted by the Board and which do not contradict with its goals.
3. Revenues from the fees provided for in this Law.

It is evident from ECA operations over the last five years that in practice budgetary independence does not create any considerable problems. ECA discusses its budget independently within committees convened in the ministry of finance and in the parliament.

Comparing the situation in Egypt to other countries reveals that different systems adopt certain standards to guarantee independence of their competition authorities. One of these standards is to have the affiliation of competition authority to the parliament like the FTC affiliation to the Congress in the US thus avoiding any government interference or influence on the authority. Another standard guaranteeing independence of competition authorities is the composition of the board of directors. Members of the board need not to be affiliated to or to be representing any governmental body. Commissioners of the FTC in the US and Board members of the OFT in the UK, for example, have no affiliation to and do not represent any governmental authority. This keeps decision-making process far from governmental pressure.

Having reviewed all aspects of independence above it is logical to conclude that there is no one size fits all solutions to ensure independency. The core of a strong independence of an enforcement agency lies in the agency's decision-making body and the competency of its staff responsible for inspecting and reporting anticompetitive practices. This is complemented by a qualified bureaucracy which the attributes of organizational autonomy should ensure. They all need to really be independent in handling and deciding competition cases.

Accordingly, it is important that Egypt reviews the affiliation of the competition authority to the prime minister or to any other minister. The composition of the Board of Directors of ECA may be revisited in order to ensure that board members are far from any governmental influence or pressure. Another important factor in decision-making independence is to give the power to the Board of Directors of ECA to settle or refer competition cases directly to court and not through the competent minister.

Independence of NTRA

Egypt has set up NTRA as an independent regulatory authority to make objective, consistent and non arbitrary regulatory decisions. This was considered as a major step forward and already delivering positive results for consumers in the form of new and better telecommunication services. Still, the government seems to be reluctant to hand over the regulatory role as true separation from the state is far from complete. Most of the NTRA's board members are representatives of various governmental bodies and this strong government representation on NTRA's Board increases chances of political interference, a termed referred to as policy capture in part one of this study.

Institutional Independence

The NTRA is managed by a Board of Directors appointed by a decree from the Prime Minister and presided by the Minister of Telecommunication and Information Technology.

And as the case with ECA, NTRA's Board of Directors has the ability to set out its internal technical rules and regulations, the freedom to draft its policy and the power to implement the provisions of the law as well as its internal processes. The Telecommunication Law grants full authority to the Board of Directors of NTRA to issue such rules through a majority vote of the present members. Article 13 of the Law confirms NTRA independence in this regards stating that "The NTRA Board of Directors is the dominant authority over all of its affairs and disposition of its matter and shall take whatever decisions it considers necessary to achieve the goals it was established for".

However, one can question the independence of NTRA in adopting its internal rules and regulations in light of the last paragraph of Article 13 of the Law which reads "All regulations stated in this

Article are to be issued by virtue of a resolution by the Minister Concerned". There is no doubt that Article 13 as it reads gives room for government interference with the decisions of the NTRA, taking into consideration that the Minister of Communication and Information Technology is at the same time the chairperson of the NTRA Board.

Supervisory and Decision-making Independence

All entities and companies working in the telecommunication field shall provide the NTRA with whatever requested reports, statistics or information related to its activities except for matters related to national security. Moreover, the NTRA has the power to take all required administrative measures to stop the violation and remedy the situation. In this regard, the practice shows that NTRA enjoys independence in dealing with cases brought to it. Contrary to internal rules and regulations process, decisions taken with regards to such cases do not require the minister's approval.

Budgetary independence

The NTRA has its own independent budget which consists of the following resources:

1. Funds assigned for it in the general budget of the State.
2. Annual fees for licenses and permits granted by the NTRA.
3. Charges for works, burdens and services rendered by the NTRA in connection with the licensee or other parties whether locally or internationally.
4. The percentage allocated by the Cabinet for the NTRA from concession fees devolving to the Public Treasury when granting certain types of licenses, and upon the proposition of the Minister concerned following consultation with the Minister of Finance.
5. The yield of investing the NTRA funds.
6. Fines and compensations imposed in accordance with the provisions of this Law.
7. Loans made in favor of the NTRA.
8. Grants, donations and subsidies to be accepted by the Board of Directors of the NTRA in light of its rules and resolutions in this regard and without prejudice to Article (44).

The practice shows that NTRA has enough resources to carry out its duties and responsibili-

ties. It is also capable of recruiting good calibers through offering competing packages compared to those offered by the private sector. However, the staff turnover is quite high due to the slow promotion process and slow bureaucracy compared to private sector.

1.4 Conclusion

It is necessary to guarantee the independence of the ECA through certain amendments to the law. These amendments include the following:

- The composition of the board of directors needs to be downsized to a number that allows ECA to work efficiently. Board members shall not be affiliated with any governmental body in order to grant them full independence in the decision-making process.
- Referral of competition violation to prosecution and trial and settlement of these cases shall not be dependent on the minister's approval or request but rather shall be vested with the ECA's board of directors.
- A clear borderline shall be drawn between the jurisdiction of the ECA and NTRA, with ECA having the jurisdiction of all anti-competitive practices and NTRA have the jurisdiction of all technical and operational matters.
- The ECL shall be amended to empower ECA to take whatever measures to remedy any violation in the market and adopt the proper mechanism to enforce such measures.

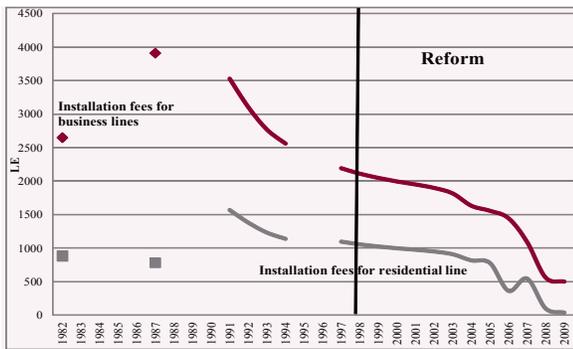
**Annex 1:
Summary of Expected
Impacts of Different Types
of Utility Reform**

	Employment and Wages	Price of Service	Quality of Service	Access to Service	Asset Ownership	Fiscal Flows	Entry Conditions
Public Sector Reform	Employment may fall because of increased pressure for efficiency	Prices may adjust upward or downward toward efficient cost-reflective levels	Quality may improve because of better management	Access may improve because of improved finances	n.a.	Subsidies to the sector may be reduced	n.a.
Private Sector Participation	Employment should fall because of increased pressure for efficiency	Prices should adjust upward or downward toward efficient cost-reflective levels	Quality may improve because of better management	Access may improve because of improved finances	Asset sales increase private ownership, concentration depends on design details	Subsidies to the sector should be reduced, sale revenues may be large, and ax revenues may follow thereafter	n.a.
Regulatory Reform	Employment may fall because of increased pressure for efficiency	Prices should adjust upward or downward toward efficient cost-reflective levels	Quality should improve because of increased oversight and accountability	Access should improve because of increased oversight and accountability	n.a.	Subsidies to the sector should be reduced as tariffs converge to cost-reflective levels	Regulatory decisions may affect terms of competition between providers.
Sector Restructuring	Ambiguous effects on employment	n.a.	n.a.	n.a.	Decentralization transfers assets to sub national governments	Responsibility for subsidization may shift to sub-national government	n.a.
Market Liberalization	Employment may rise because of sector growth, but wages may fall because of competition	Prices should fall because of competitive pressures	Quality should improve as a result of competition	Access should improve because of entry of new providers, and wider consumer choice	Private ownership increases because of entry of new operators	Entry fees may generate revenues, and tax revenues should increase	Liberalization should open up market for entry of new players

Source: Adapted from Foster et al. (2005). Note: n.a. = not applicable a: may indicate possible impact b: should indicate probable impact

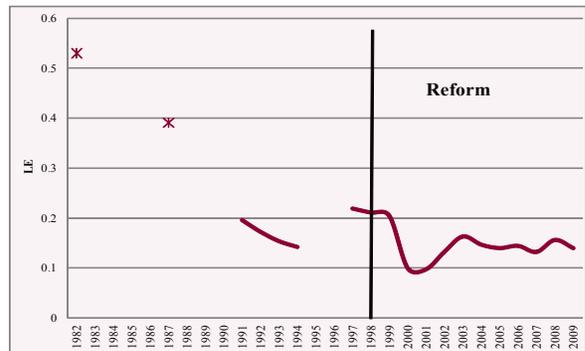
Annex 2: Additional Figures

Figure A1
Land-Line Fixed Installation Charge by Line Type (Constant 2009 Prices) (1982-2009)



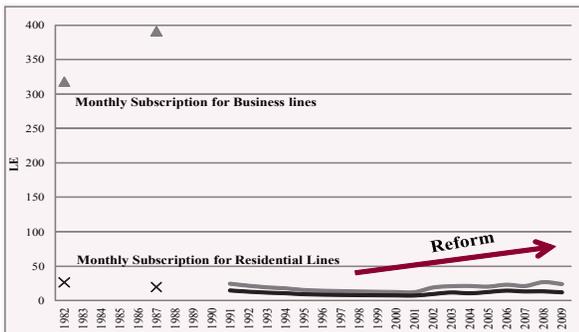
Source: ITU database (2010). Values converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

Figure A3
Fixed-Line 3-Minute Real Tariffs for Local Calls: Fixed to Fixed (Constant 2009 Prices) (1982-2009)



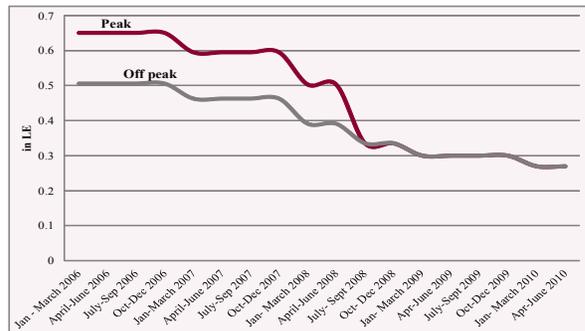
Source: ITU database (2010). Tariffs converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

Figure A2
Land-Line Monthly Fixed Subscription Charge by Line Type (Constant 2009 Prices) (1982-2009)



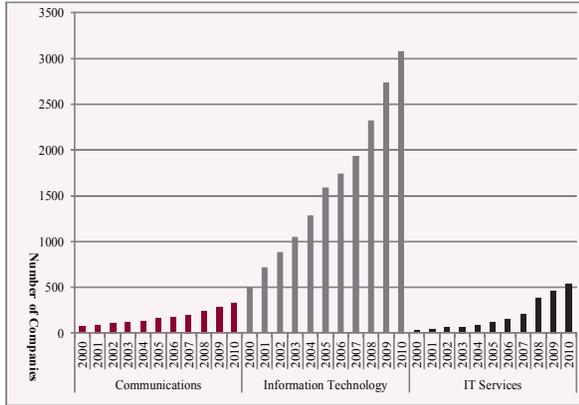
Source: ITU database (2010). Values converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

Figure A4
Land-Line Real per Minute Rates for Calls to Mobiles by Time of Day (2009 Prices) (2006-2009)



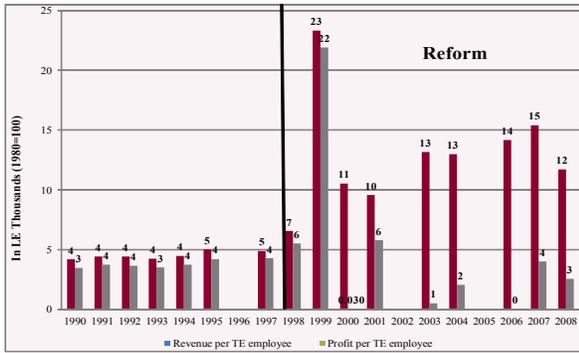
Source: ITU database (2010). Rates converted from nominal to real using CPI from World Development Indicators, World Bank (2010).

Figure A5
Evolution of Numbers of Firms in the ICT Sector (2000-2010)



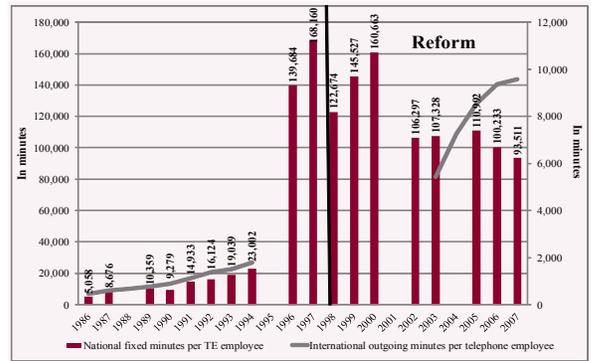
Source: ICT Indicators Portal (2012).

Figure A6
TE's Revenue and Profit per Employee at Constant 1980 Prices (1990-2008)



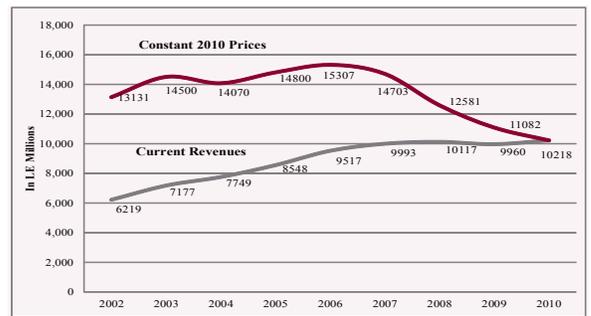
Source: Calculated by the author based on Central Agency for Public Mobilization and Statistics (CAPMAS), Telecommunication Annual Report, various issues. Note: Values converted from nominal to real using CPI from World Development Indicators (2010).

Figure A7
Domestic and International Minutes per TE Employee (1986-2008)



Source: Calculated by the author based on Euromonitor International Data (2010), Central Agency for Public Mobilization and Statistics Data (CAPMAS), Telecommunication Annual Report, various issues and World Development Indicators (WDI), World Bank (2010). Minutes: Euromonitor International, TE Employees: CAPMAS, Telephone Employees (sector employees): World Development Indicators.

Figure A8
TE's Consolidated Revenues at Current and Constant Prices (2002-2010)



Source: Telecom Egypt EAS Financial Summary (2011). Note: Values converted from nominal to real using CPI from World Development Indicators (2012).

ANNEXES

Annex 3: Telecom Acronyms

ARENTO	Arab Republic of Egypt National Telecommunications Organization
BTA	Basic Telecommunications Agreement
CAPMAS	Central Agency for Public Mobilization and Statistics
CRn	Concentration Ratio
DPS	Dividends per Share
EAS	Egyptian Accounting Standards
EBITDA	Earnings before Interest, Taxes, Depreciation and Amortization
ECA	Egyptian Competition Authority
ECES	Egyptian Center for Economic Studies
EFSA	Egyptian Financial Supervisory Authority
EPS	Earnings per Share
ERF	Economic Research Forum
ERSAP	Economic Reform and Structural Adjustment Program
ETEL	Telecom Egypt Company
EU	European Union
GDP	Gross domestic product
GMPCS	Global Mobile Personal Communications by Satellite
GSM	Global System for Mobile communication
HHI	Herfindahl-Hirschman Index
ICT	Information and Communications Technologies
IPO	Initial Public Stock Offering
ISIC	International Standard International Classification
ISP	Internet Service Providers
IT	Information Technology

ITDA	Information Technology Development Authority
ITU	International Telecommunication Union
MCIT	Ministry of Communication and Information Technology
MITI	Ministry of International Trade and Industry
MoF	Minister of Finance
MOT	Ministry of Transportation
MPLS	IP- Multiprotocol Label Switching- Internet Protocol-Virtual Private Networks
MPRT	Modern Property Rights Theories
MVNO	Mobile Virtual Network Operator
NIC	Newly Industrialized Countries
NPA	National Post Authority
NTRA	National Telecommunication Regulatory Authority
OPC	Operating Cash Flow
PCS	Personal Computer
PSP	Private Sector Participation
TCT	Transaction Cost Theory
TE	Telecom Egypt
TRA	Telecommunications Regulatory Authority
UN	United Nation
US	United States
USAID	United States Agency for International Development
VoiP	Voice Over Internet Services
VSAT	Very Small Aperture Terminals
WDI	World Development Indicators
WTO	World Trade Organization

Notes

1. The United Nation's International Standard International Classification (ISIC) telecom sector, code 6420, includes the transmission of sound, images, data or other information via cables, broadcasting, relay or satellite. This includes telephone, telegraph and telex communications. Also included is the maintenance of the network. The production of radio and television programs, whether or not combined with broadcasting is excluded (United Nations Statistics Division 2010).
2. According to the World Trade Organization, basic telecommunications also include telegraph and facsimile. According to the WTO, telecommunications services can be divided into: 1) basic telecommunications, for example, simply the relay of voice or data from sender to receiver; and 2) value-added services. Basic telecommunications include all telecommunication services, both public and private that involve end-to-end transmission of customer supplier information. Examples of basic telecommunication services include: (a) voice telephone services, (b) packet-switched data transmission services, (c) circuit-switched data transmission services, (d) telex services, (e) telegraph services, (f) facsimile services, (g) private leased circuit services, (o) other include: analog/digital cellular/mobile telephone services, mobile data services, paging, personal communications services, satellite-based mobile services (incl. e.g. telephony, data, paging, and/or PCS), fixed satellite services, VSAT services, gateway earth-station services, teleconferencing, video transport and truncated radio system services. Value added telecommunication services are telecommunications for which suppliers "add value" to the customer's information by enhancing its form or content or by providing for its storage and retrieval [e.g. internet]. Examples: on-line data processing, on-line data base storage and retrieval, electronic data interchange, email and voice email (WTO 2010a).
3. "Information and communications technology or information and communication technology, usually called ICT, is often used as a synonym for information technology (IT) but is usually a more general term that stresses the role of telecommunications (telephone lines and wireless signals) in modern information technology. ICT consists of all technical means used to handle information and aid communication, including both computer and network hardware as well as necessary software. In other words, ICT consists of IT as well as telephony, broadcast media, and all types of audio and video processing and transmission." (Wikipedia Encyclopedia 2010a.)
4. For about a century prior to this date the sector has been privately run.
5. Presidential decree no. 709, 1957.
6. Fixed and land lines are used interchangeably throughout this study.
7. Presidential decree no. 153, 1980.
8. According to Article 2 of the law, ARENTO was entitled to:
 - Construct all telecommunication networks of Egypt.
 - Operate the networks, i.e. providing telephone services and building the necessary infrastructure.
 - Managing and maintaining all equipment and devices necessary for providing these services.
 - Setting the prices of the services, upon approval of the minister of transportation, and the opinion of the prime minister's office.
9. Article 4, presidential decree no. 153, 1980.
10. With the initiation of President Sadat's "Open Door Policy" in 1971.
11. Article 12, presidential decree no. 153, 1980.
12. The generic discussion of reform types in this section draws heavily on Foster et al.(2005).
13. Article 1, presidential decree no. 101, 1998.
14. With the complexity of telecommunication services NTRA is now entitled by law (no. 10, 2003), to issue licenses to companies to provide various telecommunication services (NTRA 2009):
 - Fixed services (fixed telephony, pay phones, prepaid cards).
 - International services (international gateway, international submarine cable).
 - Data services (class A, B, C, global peering). Peering is a voluntary interconnection of administratively separate

- internet networks for the purpose of exchanging traffic between the customers of each network. Further explanations are available at Wikipedia Encyclopedia (2010d).
- Mobile (2G & 2.5G, 3G & 3.5G, wireless trunk).
 - Satellite services (Nilesat, VSAT, GMPCS (Global Mobile Personal Communications by Satellite)).
 - Telecommunications infrastructure leasing. Leasing is a process by which a firm can obtain the use of a certain fixed asset for which it must pay a series of contractual, periodic, tax deductible payments. Further explanations are available at Wikipedia Encyclopedia (2010b).
 - Telecommunications services on navigation lines.
15. More generally, NTRA acts as the independent regulatory authority overseeing the telecommunications sector in Egypt, improving its services and expanding its usage. The law regulates all types of telecommunications in Egypt through 87 articles included in seven chapters. The law empowered NTRA and defined its goals, responsibilities and structure. NTRA is managed by a board of seventeen members headed by MCIT. It has full autonomy in terms of financing its activities and recruiting its staff. It also has the power to monitor performance of operators, penalize deviations from licenses as well as managing frequency utilization for commercial and governmental use. In addition, the law regulates the licensing procedures, permits for importation, manufacture or assembly of telecommunications equipment as well as the frequency spectrum management sector. The fifth chapter of the law defines the status of the incumbent operator TE until the full liberalization of the telecommunication sector by the end of 2005. The law also describes cooperation between NTRA and other authorities for national security purposes. The seventh chapter deals with penalties for criminal acts related to telecommunications sector such as demolishing telecom networks infrastructure (MCIT 2010a)
 16. Article 25, law 10, 2003.
 17. Article 26, law 10, 2003.
 18. Article 2, law 19, 1998.
 19. In general liberalization is defined as the removal of all barriers that may obstruct the flow of goods, services, labor and money.
 20. Called mohafazat calls in Arabic.
 21. Article 1, presidential decree 101, 1998.
 22. Articles 2, 24 and 25, law 10, 2003.
 23. The story differs slightly for internet services, which were first initiated in Egypt in 1993. These were subject to competition quite earlier on. In 1996, the government created an internet network operated by private sector companies as ARENTO, the predecessor of TE, and granted several licenses to internet service providers (MCIT 2010b).
 24. Even though sector restructuring did not take place in the telecom sector, the interested reader may want to know that sector restructuring is implemented through either vertical or horizontal restructuring. Under the former, institutional responsibilities for the different stages along the production process or the vertical chain of operation are altered. For instance, rather than a single electric utility being responsible for generation, transmission and distribution, these responsibilities are assigned to three different utilities. In contrast, under horizontal restructuring the number of units responsible for any one stage of operation is altered (typically increased). For example, instead of one national company managing all electric generation assets, the assets are broken down and allocated to three or four separate companies. Decentralization reforms represent a special case of horizontal restructuring where service provision boundaries are changed to reflect the structure of the government's different tiers. The ultimate aim for both types of restructuring is to break up any market power in the competitive segments of the utility.
 25. In this study the words cellular and mobile are used interchangeably.
 26. Precisely until 31/12/2005.
 27. Strategic interdependence is how a firm acts depending on expectation about other firms' actions.
 28. Which is characterized by numerous firms in the market.
 29. And all preceding 40 years.

30. Precisely until 31/12/2005.
31. This is also true of national and international calling card companies (as will be seen shortly).
32. Which NTRA granted for a sum of LE300 million.
33. Relationship specific investments are defined as those investments which have a lower return in alternative uses (i.e. outside the relationship).
34. "Lock in" is a situation in which competitive situations between buyers and sellers are transformed into monopsonistic or monopolistic ones.
35. "Hold up" refers to either buyers behaving opportunistically to exploit their monopsonistic powers, or sellers behaving opportunistically to exploit their monopolistic powers.
36. The literature specifies five sources of hold-up: asset specificity, site specificity, human asset specificity, dedicated assets and brand name capital (Williamson 1985/1991). Masten (1991) expanded Williamson's 1985 classification by adding temporal specificities.
37. For more on this strand of literature, specifically a variant of the modern property rights theory see Grossman and Hart (1986), Hart (1995), Hart and Moore (1990), Woodruff (2002) and Hanson (1995). For applications to the Egyptian garment industry see El-Haddad (2008a/2008b).
38. Mobinil, Vodafone, Telecard and Ahlia. Marhaba and Marhaba Plus cards are TE products. Later in 2007 Al Arabia Communications and Etisalat Misr joined this market.
39. Two conditions should be satisfied to label the input an essential or bottleneck good: (1) there has to be no viable substitutes, and (2) downstream firms could not produce it at the same cost in a short time span. (Pepall et al. 2005).
40. Concentration indices for the domestic voice market are calculated based on numbers of subscribers but here they are calculated based on minutes. Minutes are not available for the domestic call market.
41. Precisely up to 30/11/2002.
42. Economies of scale are present whenever the unit cost of a product decreases as more of that product is produced (in total).
43. A duopoly is a special case of an oligopolistic market but with just two market players.
44. In other words pushing prices down to marginal cost.
45. Please find more details on the Bertrand Model in the section discussing The Bertrand Model
46. "Softening of the budget constraint occurs when the strict relationship between expenditure and earnings has been relaxed because excess of expenditure over earnings will be paid by some other institution, typically the state. A further condition of softening is that the decision maker expects such external financial assistance with high probability, and this probability is built firmly into his behavior." Kornai (1986). Kornai, the first to use this terminology, argues that there are different ways to soften the budget constraint of the firm: through 1) soft subsidies, 2) soft taxation, 3) soft credit and; 4) soft administrative prices (ibid.). For a literature review on soft budget constraints see Maskin (1999). For work on the soft budget constraint in China see Qian and Roland (1996).
47. It is reasonable to claim that there has never been sufficient demand in Egypt for this institutional reform, i.e. no consensus for the reform has ever been built even through the 10 years preceding the passing of the law. Stakeholders were either not convinced the new arrangement will provide them with better opportunities accordingly held on to the status quo, others were simply unaware of the opportunities that it may provide. The supply side (in this case the government) is the creator of this institutional change. For a comprehensive discussion of this matter see Ghoneim (2002); for a more general discussion of the demand and supply for institutional change see North (1991) and Zaki (1999).
48. The term capital investment has two usages in business. First, capital investment refers to money used by a business to purchase fixed assets, such as land, machinery, or buildings. Second, capital investment refers to money invested in a business with the understanding that the money will be used to purchase fixed assets, rather than used to cover the business' day-to-day operating expenses (Ward n.d.).
49. For a complete and comprehensive description see Foster et al. 2005.

50. Identity of interviewee cannot be disclosed for confidentiality.
51. Post paying customers are mostly employees of companies and institutions whose employer signs the mobile contract on their behalf, thus eliminating the adverse selection problem. This is so since their type (i.e. as being "low risk", or in other words those who would be paying their bills) is identified with near certainty.
52. Leaving firms with normal profits only (i.e. zero economic profits).
53. Recoupment is a prerequisite of predatory pricing, an anti-competitive practice, in both the EU and the US systems. Article 13 of the executive regulation of the Egyptian competition law adopts this approach to a large extent.
54. Although legally speaking it should be material since the Egyptian law on competition and prohibition of monopolistic practices follows a per se rule when it comes to horizontal agreements or hardcore cartels (Article 6, Law 3, 2005). This means that any agreement between firms to collectively reduce the price is prohibited regardless of whether it actually causes harmful effects on the market (competition) or not.
55. The exact actions undertaken by NTRA will be highlighted in following sections.
56. Or instead kept them low.
57. Or alternatively reforms need to be more aggressive such as privatizing a larger share of TE to induce larger efficiency pressures.
58. Since the partial privatization of TE in 2005 through a first IPO (i.e. private sector participation) TE prices are no longer set by the government rather are set by the company in consultation with NTRA.
59. Second degree price discrimination occurs when a supplier offers a range of deals to all customers allowing different customers to self-select into their preferred deal.
60. In Arabic: khedmet eltelefon elhawaa'y.
61. Set up by NTRA in 2005 and is financed by licensing fees in addition to other state budget funds.
62. Unfortunately, no data is available before this year.
63. Part two, article 8, Law 10 for the year 2003.
64. A large part of this sum was used to renovate burnt and damaged railways and trains.
65. Switching costs are any costs incurred by the consumer for switching from one provider to another. In the phone market for instance these costs include the cost of informing others of one's new number.
66. For Example, broadband services, hosting services, internet transit services, and MPLS IP-VPN.
67. Market Structure, Concentration and Market Power.
68. As well as national long distance (i.e. between governorates). Exact data for these is unavailable.
69. These are both access and voice in Figure 31 above.
70. In legal terms up to the year 2005 and in effect up till now, with the exception of Etisalat which purchased its own international gateway license in 2009.
71. Through its 45% shareholding, particularly since TE's voice retail market has shrunk to just 17% of TE's service revenue (Figure 31).
72. And TE data.
73. Mobinil can always sue the regulator in the administrative court. Article 10 of the Council of State Law No. 47 of 1972 states that the Council of State has the jurisdiction to review all final administrative decisions issued by administrative authorities [such as NTRA]. The article in its last paragraph stipulates that refusal by an administrative authority to issue a decision, which it is obliged to issue, abstaining from issuing such a decision is considered as a decision [a negative one] and as such may be challenged and is subject to review by the admin court.
74. For example, in addition to voice and video chat that gmail offers it has a phone service providing calls to the US and Europe for free. This service is blocked for Egyptian internet users whereas it is available in many countries all over the world.
75. EBITDA margin equals to EBITDA divided by total revenue. EBITDA margin measures the extent to which cash operating expenses use up revenue (Investor Words n.d.).
76. The cash generated from the operations of a company, generally defined as revenues less all operating expenses, but calculated through a series of adjustments to net income. The OCF

- can be found on the statement of cash flows.
77. The ones that are available to the author. No financial data is available to the author prior to the year 2002.
 78. Business advisors suggest investing in the new mobile virtual network operator (MVNO) license announced in Saudi Arabia. Although this obviously will have no effect on the company's competitiveness unless it uses the funds to invest in its human and physical capital and in serious restructuring as outlined below.
 79. More generally any anti-competitive practice
 80. Caveats: This study has limitations on account of data unavailability. For example, the National Voice Market covers both local and national long distance services, that is within and between governorates respectively. Detailed information on traffic for each provider for each of these services in addition to international voice would be preferable to make the analysis as detailed and rigorous as possible. Unfortunately, efforts to obtain these data have been unsuccessful. So the numbers of subscribers are often used as a proxy for call volume. The same is true for cost data before and after the reform. This information would have been able to confirm or refute some of the more tentative conclusions of this study. Second, the study has focused on voice drawing some corollaries for internet and broadband based on purely qualitative information. Originally we intended to quantify the welfare effects but with no cost data and many missing years, especially of pricing data and no data on minute usage it has not been possible to undertake this analysis.
 81. Public utilities are defined as "An enterprise established by the state, which shall operate under or by the supervision of the state regularly and continuously to provide services that satisfies the public needs regardless of making profits". (Tamawi 2007).
 82. http://www.tra.gov.eg/english/dpages_dpagedetails.asp?ID=231&Menu=1.
 83. Communications Act 2003 C.21, Part 5, chapter 1 <http://www.legislation.gov.uk/ukpga/2003/21/part/5/chapter/1>
 84. See Article (124) of the Egyptian Constitution of 1971.

References

- Abdellatif, L., and A. Ghoneim. 2008. Competition, competition policy and economic efficiency in the MENA region: The case of Egypt. In *Competition and Efficiency in the Arab World*, ed. Khalid Sekkat. New York: Palgrave, Macmillan.
- Badawy, A. 2007. Investing in Egyptian Telecom. National Telecom Regulatory Authority (NTRA). Africa and the Middle East 2007. Available at <<http://www.connect-world.com/index.php/article/item/1797-investing-in-egyptian-telecom>> [Accessed January 2011].
- Central Agency for Public Mobilization and Statistics (CAPMAS). Telecommunication Annual Report. Various issues.
- Communications Act 2003 C.21, Part 5, chapter 1. Available at <http://www.legislation.gov.uk/ukpga/2003/21/part/5/chapter/1>
- Council of State (Law no. 47, 1972)
- Cukierman, A. 2005. Legal, actual and desirable independence: a case study of the bank of Israel. CEPR Discussion Paper Series # 4906. London: Center for Economic Policy Research (CEPR).
- Egypt Telecom Regulation Law of the year 2003, Article 13. http://www.tra.gov.eg/uploads/law/law_en.pdf
- Egyptian Commercial Law no. 17 of year 1999, Article 66.
- Egyptian Competition Law (ECL), articles 1, 2, 6, 7, 8, 11, 12, and 14.
- Egyptian Competition Law (2005).
- Egyptian Constitution of the year 1971, article 124. Available at: http://www.sis.gov.eg/en/LastPage.aspx?Category_ID=208
- El-Haddad, A. 2008a. Vertical integration in the Egyptian garment industry: An economic and institutional analysis. Research Papers Series # 30. Cairo: Department of Economics, Faculty of Economics and Political Sciences, Cairo University.
- . 2008b. Vertical integration and institutional constraints on firm behavior: The case of the garment industry in Egypt. The Economic Research Forum (ERF) Working Paper Series # 383. Cairo: The Economic Research Forum (ERF).
- . 2010. Egypt versus South Korea: Divergent paths to industrialization. In *The Role of*

- State in the Mixed Economy, A. Shehata. Cairo: Partners in Development for Research, Consulting and Training.
- . Forthcoming. chapter in: *Equitable development: Essays in applied development economics*. London, United Kingdom: Routledge (Taylor and Francis).
- Euromonitor International. Euromonitor International Online Database, various issues. < <http://www.euromonitor.com/solutions> >
- Foster, V., E.R. Tiongson, and C.R. Laderchi. 2005. Utility reforms. In Analyzing the distributional impact of reforms, eds. A. Coudouel and S. Paternostro, (1), 73–120. Washington D.C.: The World Bank.
- Ghoneim, A. 2002. Competition law and competition policy: What does Egypt really need? The Economic Research Forum (ERF) Working Paper Series # 0239. Cairo: The Economic Research Forum (ERF). Available at < http://www.erf.org.eg/cms.php?id=publication_details&publication_id=287 > [Accessed October 2010].
- Galal, A. 1992. Done right, private beats public 11-1. The Country Economics Department, Policy Views Outreach #3. Washington, D.C.: The World Bank.
- . 1992. Done right, private beats public 11-1. Research Bulletin. Washington, D.C.: The World Bank.
- . 1997. Telecom Egypt: Status and prospects. The Egyptian Center for Economic Studies (ECES) Working Paper Series # 23. Cairo: The Egyptian Center for Economic Studies (ECES).
- . 2001. Utility regulation versus BOT schemes: An assessment of electricity sector reforms in Arab countries. The Egyptian Center for Economic Studies (ECES) Working Paper Series # 63. Cairo: The Egyptian Center for Economic Studies (ECES).
- Grossman, S. J., and O. D. Hart. 1986. The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy*, 94(4): 691–719.
- Hanson, G. H. 1995. Incomplete contracts, risk, and ownership. *International Economic Review* 36(2): 341–63.
- Hart, O. D., and J. Moore. 1990. Property rights and the nature of the firm. *Journal of Political Economy* 98(6): 1119–58.
- Hart, O. D. 1995. Firms, contracts, and financial structure. Oxford, U.K.: Clarendon.
- Hassanin, L. 2007. Egypt. Global Information Society 2007. Watch. Focus on Participation: 148-152. Available at <GISW_Egypt.pdf > [Accessed October 2010]
- International Telecommunication Union (ITU). Information and communication technology (ICT) statistics. Geneva: United Nations. Available at <<http://www.itu.int/ITU-D/ict/> > [Accessed December 2010].
- Kornai, J. 1986. The soft budget constraint. *KYKLOS, International Review of Social Sciences* 39 (1): 3–30. Available at: < <http://www.kornaijanos.hu/Kornai1986%20The%20Soft%20budget%20Constraint%20-%20Kyklos.pdf> > [Accessed December 2010].
- Laffont, J. J. 2001. Institutions, regulation and development. The Egyptian Center for Economic Studies (ECES) Distinguished Lecture Series # 16. Cairo: The Egyptian Center for Economic Studies (ECES).
- Lange, P. 2010. Egypt - telecoms, mobile, broadband and forecasts. A Buddecomm report. Bucketty: Buddecomm. Available at < <http://www.budde.com.au/Research/Egypt-Telecoms-Mobile-Broadband-and-Forecasts.html> > [Accessed November 2010].
- Maskin, E. S. 1999. The soft budget constraint: Recent theoretical work on the soft budget constraint. *AEA Papers and Proceedings* 89 (2): 421–25. Available at < <http://www.rau.ro/intranet/Aer/1999/8902/89020421.pdf> > [Accessed December 2010].
- Masten, S. E., J. W. Meehan, and E. A. Snyder. 1991. The cost of organization. *The Journal of Law, Economics, and Organization* 7(1): 1–25.
- Meggison, W. L. and J. M. Netter. 2001. From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature* 39: 321–89.
- Ministry of Communication and Information Technology (MCIT). ICT indicators portal, MCIT online database. Various issues. Available at < <http://www.mcit.gov.eg/Indicators/Indicators.aspx> >
- . 2010a. Telecom act – Law 10/2003. Available at <http://www.mcit.gov.eg/tele_History.aspx> [Accessed 22nd June 2010].
- . 2010b. Reform milestones. Available at <http://www.mcit.gov.eg/tele_Mileston.

- aspx> [Accessed 22nd June 2010].
- Ministry of Finance. 2010. MOF online publications. Available at: <<http://www.mof.gov.eg/English/publications/Reports%20and%20Indicators/Pages/Monthly%20Reports.aspx>> [Accessed December 2010].
- National Telecommunications Regulatory Authority (NTRA). General framework of competition policy in the telecom market. Available at: http://www.tra.gov.eg/english/dpages_dpagedetails.asp?ID=231&Menu=1
- National Telecommunication Regulatory Authority (NTRA). 2007. The harvest 'NTRA in 5 years', p. 17. Available at: https://www.tra.gov.eg/presentations/harvest_En.pdf [Accessed 29 June 2010].
- . 2009. Telecommunication services on navigation lines in Egypt. Available at: http://www.tra.gov.eg/presentations/LicensedTelecomChart22122009_En.pdf [Accessed 18th January].
- . 2010. Telecom market indicators. NTRA online database. Available at <http://www.tra.gov.eg/english/DPages_DPagesDetails.asp?ID=352&Menu=3> [Accessed December 2010].
- North, D. 1991. Institutions. *The Journal of Economic Perspectives* 5(1): 97–112.
- Parker, D., and C. Kirkpatrick. 2005. Privatisation in developing countries: A review of the evidence and the policy lessons. *The Journal of Development Studies* 41(4): 513–41.
- Parker, D., and C. Kirkpatrick. 2005a. Privatisation and regulation in developing countries. In *Companion to development studies*, ed. D. Clark. Cheltenham: Edward Elgar.
- Pepall, L., D. J. Richards, and G. Norman. 2005. *Industrial organization: Contemporary theory and practice (with economic applications)*. Canada: Southwestern, Thompson Corporation.
- Polidano, C. 1999. The new public management in developing countries. The Institute for Development Policy and Management (IDPM) Public Policy and Management Working Paper #13. Manchester : School of Environment and Development, The University of Manchester.
- Presidential decree no. 709, 1957, Egypt.
- Presidential decree no. 153, 1980, Egypt.
- Presidential decree no. 101, 1998, Egypt.
- Prizzia, R. 2001. Privatization and social responsibility: A critical evaluation of economic performance. *The International Journal of Public Sector Management* 14(6): 450–64.
- Qian, Y., and G. Roland. 1996. The soft budget constraint in China. *Japan and the World Economy* 8(2): 207–23.
- Shahinn, B. and Kheder, M. 2011. Mona Yassin the former president of Egyptian Competition Authority: Prices and Market Stability are priorities imposed by 25 January revolution. Al Shorok, 861 11 June, 8.
- Shirley, M. M., and P. Walsh. 2001. Public versus private ownership: The current state of the debate. Mimeo. Washington, D.C.: The World Bank.
- Smith, W. 1997. Utility regulators – The independence debate. In *The private sector in infrastructure: Strategy, regulation and risk*. Washington DC: The World Bank.
- Tamawi, S. 2007. The principles of administrative law; a comparative study, 352–68. Dar Al-Fikr Al-Arabi.
- Telecom Egypt (TE). 2009. Telecom Egypt annual report. Various issues. Available at <<http://ir.telecomegypt.com.eg/Annual%20Reports.asp>>.
- . EAS Financial Summary. Available at <<http://ir.telecomegypt.com.eg/admin/uploads/EAS-2009.pdf>>.
- . 2011. Available at <<http://ir.telecomegypt.com.eg/admin/uploads/EAS%20Financial%20Highlights-E.pdf>>.
- . 2011. EAS Financial Summary. Available at <<http://ir.telecomegypt.com.eg/admin/uploads/EAS%20Financial%20Highlights-E.pdf>>.
- . 2012. TE online database. Available at <<http://ir.telecomegypt.com.eg/>> [Accessed March 2012].
- Telecom Egypt Company (ETEL). 2010. Financial and strategic analysis review. Global Data. Available at <<http://www.reportlinker.com/p0247074/Telecom-Egypt-Company-ETEL-Financial-and-Strategic-Analysis-Review.html>>.
- Telecom Egypt (Law no. 19, 1998).
- Telecom Egypt Earning Releases. 2009. Telecom Egypt announces full year 2009 consolidated results. Available at <http://ir.telecomegypt.com.eg/earning_releases.asp>.
- . 2011. Telecom Egypt announces full year 2011 consolidated results. Telecom Egypt.

- Available at < http://ir.telecomegypt.com.eg/earning_releases.asp >.
- TeleGeography. 2010. Available at < <http://www.telegeography.com/products/commsupdate/articles/2011/12/20/mobinil-negotiating-with-ntra-over-international-gateway-licence/> > [Accessed March 2012].
- . Mobinil negotiating with NTRA over international gateway licence. Available at < <http://www.telegeography.com/products/commsupdate/articles/2011/12/20/mobinil-negotiating-with-ntra-over-international-gateway-licence/> > [Accessed March 2012].
- Thatcher, M. 2002. Delegation to independent regulatory agencies. *West European Politics* 25 (1): 25–145.
- Thatcher, M., and Stone Sweet, A. 2002. Theory and practice of delegation to non-majoritarian institutions. *West European Politics* 25 (1): 1–22.
- United Nations Statistics Division. 2010. ISIC Rev.3 code 6420, detailed structure and explanatory notes. United Nations 2010. Available at < <http://unstats.un.org/unsd/cr/registry/regcs.asp?Cl=2&Lg=1&Co=6420> > [Accessed December 2010].
- United Nations Conference on Trade and Development (UNCTAD). 2008. Independence and accountability of competition authorities. Paper presented at Commission on Investment, Technology and Related Financial Issues Intergovernmental Group of Experts on Competition Law and Policy meeting. Ninth Session, Geneva, 15-18 July 2008. Available at http://www.unctad.org/en/docs/c2clpd67_en.pdf
- United Nations (UN). 2012. United Nations statistical database. Available at < <http://unstats.un.org/unsd/databases.htm> > .
- USAID. 2004. Sustainability of USAID-financed utility infrastructure activities in Egypt. Report No. 6-263-05-001-S. Available at < <http://www.usaid.gov/oig/public/fy05rpts/6-263-05-001-s.pdf> > [Accessed January 2011].
- Villalonga, B. 2000. Privatization and efficiency: Differentiating ownership effects from political, organizational, and dynamic effects. *Journal of Economic Behavior & Organization*, 42(1): 43–74.
- Ward, S. n.d. Capital investment. About.com guide. Available at: < <http://sbinfocanada.about.com/od/financing/g/capinvestment.htm> > [Accessed December 2010].
- Wettenhall, R. 2005. Autonomy issues in Australian non-departmental public bodies. Paper presented at Ninth International Research Seminar on Public Management, Milan, 6–8 April.
- Wikipedia Encyclopedia. 2010a. Information and communications technology. Available at < http://en.wikipedia.org/wiki/Information_and_communication_technologies > [Accessed December 2010].
- . 2010b. Leasing. Available at < <http://en.wikipedia.org/wiki/Leasing> > [Accessed January 2010].
- . 2010c. Mobile phone. Available at < http://en.wikipedia.org/wiki/Cellular_phones > [Accessed December 2010].
- . 2010d. Peering. Available at < <http://en.wikipedia.org/wiki/Peering> > [Accessed January 2010].
- Williamson, O. E. 1979. Transaction cost economics: The governance of contractual relations. *Journal of Law and Economics* 22(2): 233–62.
- . 1985. *The economic institutions of capitalism*. New York: Free Press.
- . 1991. Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly* 36(2): 269–96.
- Woodruff, C. 2002. Non-contractible investments and vertical integration in the Mexican footwear industry. *International Journal of Industrial Organization* 20 (8): 1197-1224
- The World Bank. World development indicators. Various issues. Available at < <http://data.worldbank.org/data-catalog/world-development-indicators> > [Accessed December 2010].
- The World Bank. 2000. World Bank's administrative and civil service reform website: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPUBLICSECTORANDGOVERNANCE/EXTADMINISTRATIVEANDCIVILSERVICEREFORM/0,,menuPK:286372~pagePK:149018~piPK:149093~theSitePK:286367,00.html>
- World Trade Organization. 2010. Sector specific commitments of Egypt. Available at < <http://tsdb.wto.org/simplesearch.aspx> > [Accessed January 2011].
- World Trade Organization. 2010a. Coverage of basic telecommunications and value-added

services. Available at < http://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_coverage_e.htm#value > [Accessed May 2011].

Zaki, M. 1999. Egyptian business elites: Their visions and investment behaviour. Cairo: Konrad Adenaur Stiftung and the Arab Center for Development and Future Research.

About the Authors

Amirah El-Haddad is Associate Professor at the Faculty of Economics and Political Science (FEPS), Cairo University, Egypt. An ERF Research Associate since 2007, her academic work is in the area of institutional economics, industrial organization and labor markets. She coordinated the first curricula development project to upgrade undergraduate courses in Economics at FEPS as well as a partnership between FEPS and Georgia State University, USA. In 2011, she was a visiting scholar at AYSPS, Georgia State University, USA. At time of publication, she is a full time Visiting Associate Professor at the Economics Department at the American University in Cairo. She is a member of the National Committee on Economic Policy. She has published on the Textiles and Clothing Industry, particularly on constraints on firm behavior and effects of the financial crisis. El-Haddad is currently working on industrial and competition policy issues and is also editing a book on the Textiles and Clothing industry in the MENA region. Her publications include a paper on dispute resolution mechanisms in the Egyptian garment industry published in the prestigious journal: *Economics Letters*, and a paper in labor economics on gender wage discrimination in the sector forthcoming in *Feminist Economics*. She holds a PhD in Economics from the University of Maryland (2005) during which time she also worked for the World Bank in Washington D.C. Her PhD research was supported by a USAID scholarship and a U.S. National Science Foundation (NSF) grant.

Khaled Attia has been a partner in Sarie-Eldin & Partners Law Firm since February 2010 and has 17 years of experience. He was the Executive Director of the Egyptian Competition Authority from 2006 through 2010. During this time, he handled over forty competition cases and introduced over 10 research papers explaining the terms and provisions provided for under competition law. Attia was also a Commissioner in the COMESA Competition Commission until December 2010. He has worked as a Chief Prosecutor in the Office of the Prosecutor General of Egypt, Office for International Cooperation (2000-2006). During that time he worked as a part time legal advisor to the Minister of Trade (2000-2004) and then to the Minister of Finance (2004-2006). He is also a lecturer at the Faculty of Law (English Section) Ain Shams University and at Helwan University since 2006. He has many working papers, such as *The Law-Making Process of Economic Laws in Egypt*, *Towards a Regional Competition Policy: The COMESA Experience*, and *Capacity Building for Effective Implementation of Competition Policy*. He holds a PhD in international law in 2005 from Ain Shams University and an LLM in international human rights law in 1999 from University of Essex, UK.