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Privatisation and Regulatory Reform in the Middle East and North Africa (MEDA) Area - Telecom Case Study

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Introduction

During the nineties, the globalization of telecommunications imposed a model of development based on the suppression of public monopolies, leading to international competition and the privatization of public telecommunication operators. These economic dynamics have been fostering regulatory and institutional adjustments whose objective is to guarantee a stable and transparent environment for investors and consumers. Such adjustments must also establish standards that enable connections between networks and promote a satisfactory quality-to-price ratio. More globally, redefinition of the regulatory and legal framework indicates a transition towards a new regulatory paradigm based on full market competition, impartiality of the public authorities, equity and transparency.

Telecommunication reform has been introduced in the Middle East and North Africa countries since the mid-nineties, with the adoption of new legal rules (code of telecommunications). In accordance with the reform requirements, governments implemented institutional and industrial restructuring, fostering the entry of new actors into (mobile/fixed) telephony, data transmission and Internet services markets. Most governments have been slowly introducing competition and privatizing state-owned firms.

But a comparative analysis shows significant differences among liberalization policies in the region. The main objectives of this paper are:

(i) to present the institutional orientation of the reforms in MENA countries, highlighting the main sequence of events of the liberalization process and the regulatory framework specifics; these reforms are part of a complex transition - from administrative regulation to neo-liberal regulation - in the field of telecommunications;

(ii) to present main trends in the telecommunication market (the emergence of new private/public actors, and the performance of countries since the implementation of the new institutional framework, compared to those that maintained administrative regulation);

(iii) to analyse how the new framework has changed the market dynamics (competition and regulation) and how differences in performance may relate to the specificity of the reform policy; such analysis is based on documenting the liberalization process, especially how the reform sequences determined the behaviour of public and private actors. Indeed, institutional failures (anti-competitive practices, market opacity, etc.) are still hampering access to telecommunication services in most of the countries.

(iv) to highlight policy implications by exploring the role of an (independent) regulatory agency and its effective design in the context of a political economy in which public power is still heavily centralized. Specific interactions between the regulator, public authorities and regulated or non-regulated firms reveal a diversity of trajectories for liberalization.

Our methodological approach is mainly based on the new institutional economics literature. Our purpose is to analyze how institutional complementarities affect public and private actors' decisions and interactions, and how they could explain the coexistence of several models of liberalization.

In MENA countries, we can distinguish between two kinds of regulatory patterns. On the one side, the framework is based on breaking up public monopolies and creating an independent and autonomous regulatory body in charge of opening up the telecommunication market to competition and sanctioning anti-competitive behaviours. On the other side, the framework is based on interventionist governance and strong regulation, under which the public operators maintain a dominant position. In reality, between these two regulatory patterns there exist hybrid configurations that characterize the liberalization process.

1. Telecommunication services in MENA countries: facing the regulation challenge

1.1 Opening the telecommunication market to competition: some theoretical evidences

Growth of the global telecommunications markets is widely attributed to technological innovations and opening up to competition. Since the eighties, and even more so since the nineties, most of the countries have adopted telecom reform. The theoretical literature underscores the drivers of the institutional transition from administrative regulation to a liberal one. We present here five lessons derived from theoretical (and empirical) evidences:

- *Investment in telecom fosters growth:* the endogenous growth theory highlights the impact of infrastructure capital on economic growth, creating a link between public and private investment and network externalities, and thus serving as an argument for rethinking the role of public policy (Barro and Sala-i-Martin, 1995). The growth dividend from investment in telecommunications infrastructure is derived from reducing production costs, providing better services for consumers, attracting investors and thereby ensuring future economic development (Röller and Waverman, 2001).

- *Regulation based on monopolies has failed:* as has been highlighted in several papers, the poor performance of state-owned telecom firms is evidenced by convergent indicators: low productivity (capital and labour); low quality of connection; relatively high prices; long waiting periods for telephone connections; and insufficient technological change (Laffont and Tirole, 2000; OCDE, 2002).

- *Telecom reform has produced positive effects:* studies exploring the impact of telecom reform on performance (competition, privatization and regulation) found positive effects, in both developed countries and developing countries, by comparing the performance of competitive and non-competitive markets (Wellenius et al. 1992; Kikeri, Nellis, and Shirley, 1992; Ros, 1999). Among these studies, some have shown that teledensity is higher in the competitive markets of OECD countries (Boylaud and Nicoletti, 2000), in Central and Eastern Europe (Gruber, 2001) in Latin America and Asia (Petrazzini and Clark, 1996; Wallsten, 2000) and in MENA countries (Rossoto, Sekkat and Varoudakis, 2003). In the case of mobile phones, teledensity increases were based on the entry of new operators, the size of the fixed telecommunications network and the demand potential (consumer income) (Fuss, Meschi and Waverman, 2005).

- *The sequence of reform matters:* varying approaches to opening up to competition result in different performance levels. In the case of mobile telephony, Gruber and Verboven (2000) note that open entry that is simultaneous with competition is more effective in accelerating teledensity than sequential entry. In fact, the teledensity gains can be lower if privatization is introduced before competition (when the government seeks to increase the value of the incumbent's capital). Moreover, a long exclusivity period can decrease network growth by setting entry barriers (most of the time in order to preserve the incumbent against pressing competition). In addition, privatization alone is not correlated with improvements in the telecommunication sector, but it is correlated when regulatory capacities are built up beforehand (Wallsten, 2000, 2002).

- *Telecom reform is a complex process:* it takes time for the building up of regulatory and administrative capacities to achieve results, because the process implies more than putting in place regulatory laws. In fact, institutional complementarities can play a role in the implementation of a new regime based on competition rules

(Amable, 2000; Bauer, 2005). The opening to competition, the privatization of state-owned telecommunications operators and the establishment of pro-competitive regulation are the three main dimensions of liberalization policy. Each dimension requires allocative efficiency in the market and public intervention. If competition is introduced to free the market drivers, the number of firms is fixed by policy. Most of the time, privatization concerns just a part of the incumbent's capital; the foreign participation can be majority but rarely total. If autonomous regulators have been established, they are not fully independent (Fink, Mattoo and Rathindran, 2002).

Therefore, telecommunication liberalization contributes to improvements in networks by attempting to surmount the large technical, economic and institutional obstacles. This approach is fundamental for three reasons: first, network externalities in telecommunications (meaning that the more people are connected to a network the more valuable it is) may brake the competition since each operator seeks to limit the network access to competitors; second, the incumbent, which has to be restructured in order to pick up and diffuse technological innovations, remains a key variable of an industrial policy (even if the public operator has been partially privatized); and third, a competitive regime emerges from the non-partisan relationship between the regulator and the government on one side and from the impartial relationship between the regulator and the operators on the other side.

As discussed above, telecommunication reform leads to an institutional transition that depends on public choices and more generally on the political and socio-economic context. From a synthetic point of view, there are two basic regulation paradigms. As shown in Table 1, the abstract, idealist regulation is based on full competition in the market (no barriers to market entry and exit) and implies only a minimal role for regulatory authorities. The sector performance is driven by the market forces. So, this scenario supposes that the opening to competition must lead to the efficient allocation of resources, to stimulate technological innovation and diffusion and to improve consumer satisfaction by reducing price and increasing quality.

The second scenario, strategic regulation, is based on an oligopolistic market structure, implying a need for regulation. Therefore, it supposes a reality-based analysis that seeks to focus on institutions and the way they define a regulatory framework[1]. This paradigm does not deny that the combined forces of technological innovation and competition will erode monopolistic control of the telecommunication infrastructure and the services supply. But it assumes that in reality, the behaviors of the market players are not as obvious as is supposed in the idealist scenario. For instance, network standards and the dominant position of a few operators (most of time the incumbent, but in some cases larger transnational corporations) make the public network more closed and inaccessible to users. Moreover, the prevalence of oligopolistic rivalry provides renewed

Table 1. Two paradigms of telecom regulation

Full competition scenario) (Idealist)	The dominant player(s) scenario (Strategic)
Permeable seamless networks	Fragmented networks
Universal services	Reduced universality of services
Demand-led telecommunication industry	Supply-led industry, multinational user pressure
Open Systems, common interface standards	Weak stimuli for competition
Co-operative partnerships, transparent network access	Rivalry, non-transparent network access
Minimal regulation	Increasing regulation

Source: Mansell, 1993.

[1] It assumes that "*institutions are characterized by indeterminate, unstable oligopoly wherein the transnational corporations deliberately employ short-run pricing strategies to achieve long-run entrenchment and monopoly power in national markets, foreign and domestic*" (Mansell, 1993, p. 6).

incentives for using technologies and technological innovations but weak incentives for competition (Mansell, 1993).

In fact, most developed countries and some emerging countries have adopted full competition, especially for voice communications. Most developing countries, where reform is more recent, are characterized rather by partial competition. But in either case, in different ways, the liberalization process refers to the strategic regulation paradigm. Indeed, dominant operators develop strategies to preserve their market shares by limiting the entry of new competitors or by restricting network access for the entrants. These market dynamics in the network industry provide strong evidence of the need for institutional regulation in a converging market to maximize competitive opportunities and to prevent anti-competitive behaviors. By introducing new rules, competition law is supposed to avoid mergers and to prevent the conclusion of tacit agreements between operators, as well as misuses due to a dominant position in the market. Therefore, institutional arrangements determine the positive effects derived from the competition rules and define specific regulation patterns.

1.2 Telecommunication reform in MENA countries

In context of the globalization of telecommunications and economic regionalization, MENA countries[2] underwent a deep institutional adjustment, introducing new regulatory challenges. The adoption of competition law regimes can be explained by their participation in international (General Agreement on Trade in Services) and regional (Euro Mediterranean Partnership) trade agreements, but the specific circumstances and the impacts differ by country.

1.2.1 Towards a convergent regulatory framework

By the eighties and the beginning of the nineties, most MENA countries averaged less than 10 telephones per 100 people compared to about 60 in OECD countries. At that time, all the MENA countries, dominated by a strong interventionism, had telecommunications monopolies: a state-owned operator and no separate regulatory authority outside of the ministry tasked with regulating the sector, which in many cases fixed prices to cover government budget deficits. But discretionary price regulation has implied operating costs that are higher than revenues, reducing the possibilities to support network upgrades and expansion.

The administrative regulation model based on monopoly has failed. This regulation model led to failures in most countries (technological backwardness, low levels of investment, poor service quality, low productivity, an inappropriate tariff structure). MENA countries were backward for a long time (except Israel and Turkey) in spite of having huge unsatisfied demand.

In the context of the WTO agreement and the Association Agreements signed between the European Union and the MENA countries (in the framework of the Barcelona Process) to move towards a complete free-trade area, competition law was introduced or reinforced at that time. On that point, it is important not to consider all MENA countries as a homogeneous group. Imperfectly, we can distinguish three groups:

(i) the first group is composed of Israel and Turkey, which have adopted competition law and set up a competition authority in a convergent way with the European competition law regime;

(ii) the second group includes the Maghreb countries (Algeria, Morocco, and Tunisia), where national competition laws are patterned on the French model, supposedly close to the European requirements, but competition rules are weakly enforced (due to lack of expertise, failures of the judicial system, weakness of professional and consumer associations, insufficient access to economic information and corruption);

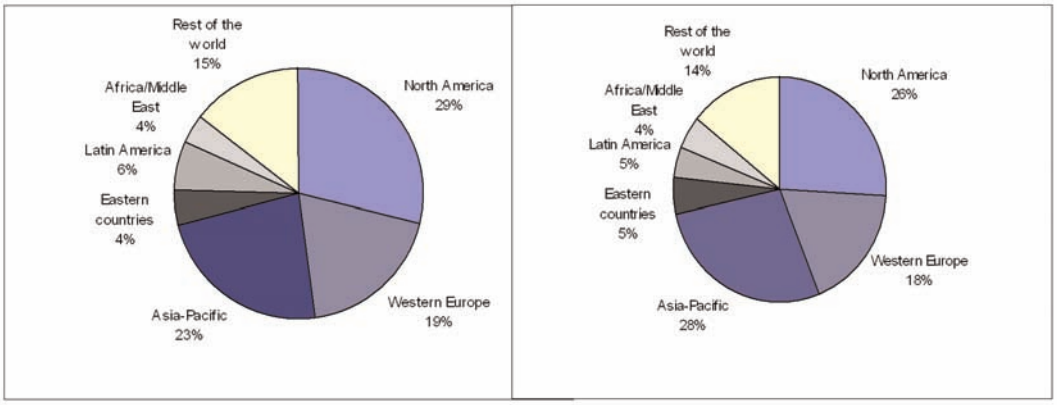
[2] Namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Palestinian Authority, Syria, Tunisia and Turkey.

(iii) the third group is countries that have just adopted competition legislation - as Jordan[3] in 2002 or Egypt, which more recently submitted a law project to the Parliament after several attempts during the last decade - as well as countries in the process of adopting domestic competition legislation (Lebanon and Syria).

Box 1. A polarized worldwide market

Countries are involved in an inclusion (exclusion) process in the digital economy. Although countries are more and more linked, more and more dependent, economic and technological inequalities tend to increase deeply, defining the paradox of globalization. This implies a polarization of the ICT network and consequently a polarisation of the users. North America, Western Europe and Asian emerging countries represent two-thirds of the worlwide telecommunication services market. The emerging countries, which are catching up with the developed countries, are those that have developed their telecommunication networks and created an ICT industry (China, Malaysia, Brazil, Czech Republic, etc.).

World telecommunications services market by region (2001 and 2006*)



Source: data from IDATE (2005). *Estimates.

In return, most developing countries represent secondary markets (despite high-growth potential), where lower consumer buying power may constitute an obstacle to investment in new technologies. Indeed, due to a cumulative effect, international firms tend to invest more in high-revenue markets well-endowed with modern infrastructure and invest less in the others, causing spatial divides in the telecommunication networks (Rallet, 2000).

[3] Since the mid-nineties, Jordan has made important and quick progress in liberalization, so it could be considered closer to Turkey and Israël. But contrary to these countries, Jordan has not yet developed a similar regulatory framework (capacity to enforce the competition rules).

Since the end of the nineties, the telecommunications sector has been a prime focus of reforms and privatization. With the liberalization of the telecommunication sector, MENA countries have been facing a double challenge: moving toward a new regulatory framework based on new institutions; organizing the State's disengagement from production; and setting up mechanisms based on full competition, transparency and impartiality.

Mainly, three goals pushed countries to adopt a new institutional framework: opening the market to new entrants to introduce competition between the firms; attracting private and international investment to develop networks; and allowing for effective governance through the creation of a regulatory agency (which has to attend to free competition and sanction anti-competitive behaviours).

In recent years, most of the MENA countries have embraced pro-competitive reforms and adopted telecommunication law amendments regarding all forms of telecommunications services, including voice telephony, infrastructure and digital content. In short, the institutional framework necessary for a liberalized telecommunications market has been put in place at the level of law.

Following a first stage that involves the separation of operating and regulatory activities, MENA countries have next set up independent regulatory authorities. At the same time, a number of new regulatory tools have been introduced, such as licensing, interconnection and dispute resolution mechanisms. By restructuring the incumbent operator, and in some cases privatising it, governments complete the liberalization of the telecommunication market. This process is similar in the majority of developed and developing countries.

As seen in Table 2, Jordan and Morocco were the first countries to enforce the liberalization scheme and to change the institutional pattern, respectively in 1995 and 1997. Thus, the Moroccan authorities separated the regulatory and industrial activities in 1984, by creating the *Office National des Postes et Telecommunications*, a distinct public entity that took charge of supplying telecommunication services. The Ministry became responsible only for regulating the sector. In Jordan, a similar restructuring had

Table 2. Telecommunication law amendments

	Separation of operation and regulatory functions	Telecommunications code amendments
Algeria	2000	2000
Egypt	1998	1998
Morocco	1984	1997
Tunisia	1995	2001
Libya	-	-
Israel	1984	2003
Jordan	1971	1995
Lebanon	*	*
Syria	-	-
Turkey	1994	2000
West bank and Gaza	-	-

*Under consideration.

been introduced in 1971. That was followed by Egypt, Turkey, Algeria, Tunisia and Israel. On the other hand, in Libya, Syria and Palestine the Ministry still remains directly responsible for the regulation of telecommunications.

In Lebanon, a reform project drafted back in 1999 planned to create an independent regulatory body responsible for various regulatory issues of the telecommunications industry and to restructure the state-owned operator after merging the existing state-owned, fixed-line company OGERO with some ministry departments. This plan has only recently been adopted by the parliament and should be implemented in 2007-2008.

1.2.2 A similar reform leads to differentiated performances

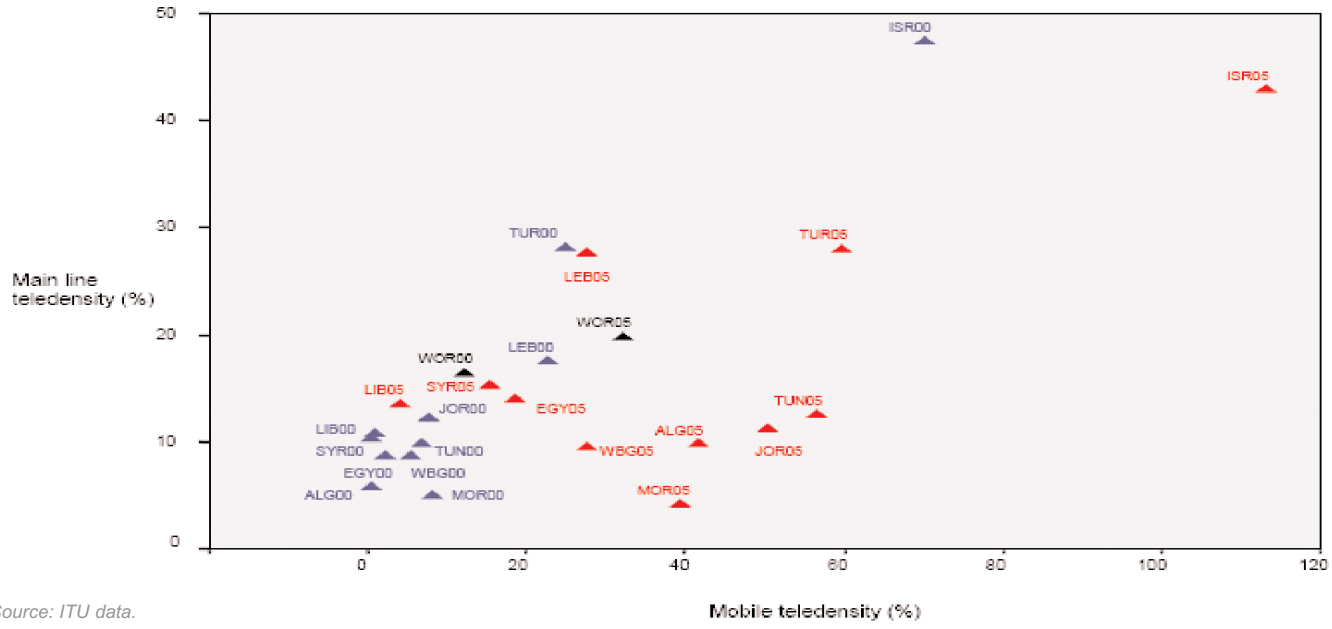
In spite of a convergent reform, national performances have tended towards divergence. Globally, if we compare MENA countries first to their peers (Figure 1) and then to the EU (Table 3), we can ascertain three observations:

Firstly, as far as fixed-line density is concerned, countries such as Algeria, Jordan, Syria, Egypt, Palestine, Morocco and Tunisia are relatively under-equipped,[4] while Israel, Lebanon and Turkey are relatively over-equipped. With regard to mobile-line density, countries such as Palestine, Jordan, Syria, Egypt and Lebanon are relatively under-equipped, while Israel, Turkey, Tunisia, Algeria and Morocco are relatively over-equipped (Figure 1).

Secondly, fixed telephony penetration remains at a low level in the region (except in Israel). Inadequate fixed telephony infrastructure has resulted in a substitution effect[5]: mobile subscribers increase strongly, while fixed subscribers tend to stagnate or even to decrease (Morocco, Jordan, Turkey and Israel).

Thirdly, performances become stronger as the liberalization process is implemented. The entry of a second operator has caused the market to take off. But performances are also determined independently from telecommunications reform. For instance, in 2005 Lebanon and Palestine attained a teledensity higher than that of Egypt, where the liberalization process is more advanced. Other factors can explain the results and the different trajectories.

Figure 1. Telecommunication performances in MENA countries 2000-2005



Source: ITU data.

[4] Compared to the worldwide average.

[5] Nevertheless, growing demand for new services in fixed networks (voice over IP, Internet services) and convergence of mobile and fixed networks, as in more mature markets, should foster complementary using (instead of alternative using) (Melody, Sutherland, and Tadayoni, 2005).

Table 3. Mobile teledensity from 1998 to 2006: convergence to Europe

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Algeria	0,5	1,1	0,8	0,7	2,5	8,2	20,3	49,3	62,5
Morocco	3,2	5,9	22,3	36,3	40,9	43,9	43,7	46,6	51,7
Tunisia	3,2	2,6	3,4	8,9	11,5	34,7	52,6	67,0	71,4
Egypt	1,1	3,4	5,8	9,6	13,1	15,3	15,3	21,8	23,7
Libya	2,7	2,4	1,9	2,0	2,5	3,3	3,2	4,9	65,4
Jordan	10,2	10,8	21,1	37,1	44,8	43,6	39,7	64,0	73,9
Lebanon	119,6	86,2	61,7	50,8	44,4	41,0	35,0	32,8	30,4
Syria	0,0	0,1	0,5	2,7	4,6	4,2	18,0	18,3	23,8
Gaza and West Bank	26,1	16,8	15,3	20,2	18,1	24,0	37,0	32,7	21,9
Turkey	41,4	56,1	67,5	63,4	65,6	73,7	67,1	70,6	70,6
Israel	271,0	209,9	191,6	201,3	186,6	172,3	146,5	133,9	122,0
Europe	100	100	100	100	100	100	100	100	100

Adoption of the telecommunication law
Second operator (commercial starting)
Third operator (commercial starting)
Fourth operator (commercial starting)

Base 100: Europe

Source: ITU data; author's calculation.

If the convergence/divergence from EU is mainly explained by market structure and regulation framework (as we will see later), the divergence between MENA countries can be explained by several factors:

- **Timing of the opening to competition:** the earlier reform has been adopted, the earlier the telecommunication market has grown. Much of Jordan's and Morocco's success in the mobile market can be attributed to regulatory reform that started earlier than in other Mediterranean countries. However, this argument can be questioned. Indeed, many observers have noted that Morocco liberalized at the best moment, when the telecommunication sector was benefiting from increased values on the stock exchange (an operating license cost more than 1 billion dollars). This observation is perhaps correct in relation to some Mediterranean countries, but not really in relation to others like Tunisia, which sold the GSM license at the best price during the bursting of the financial bubble ($45 per capita against $40 for Morocco).

- **Timing of the restructuring:** in Jordan, Israel and Morocco, the opening to competition took place in the best conditions because the separation of regulation and operating activities was effective before the entry of new operators into the market. Having created a public firm early enough, the government took the time to introduce organisational changes, to reorganize the incumbent operator and to prepare it for the privatization to come. In Algeria, the speedy transition from a planned economy to a market economy provoked a non-competitive situation. In few months, the framework was adopted and implemented but could not really be efficient. The incumbent was still being managed as an administrative organization and was not able to face competition. Orascom, the new entrant, was quickly in a quasi-monopoly situation within the first two years of the opening to competition (Mezouaghi, 2005).

- **Price regulation:** another kind of explanation is provided by market dynamics. For instance, in Morocco and in Jordan access tarification had been reduced to a low

level before the entry of the second operator, introducing competition more quickly into communication tarification. In Algeria, where the incumbent was not able to develop its network, the new entrant Orascom was in a position to fix high access and communication tarification. With the entry of the third operator in July 2004 and progressive restructuring of the incumbent, competition became more effective. In Tunisia, the private operator had difficulties developing its network in the first stage, giving Tunisie Telecom a market advantage. The market in Tunisia remains controlled by the Ministry. Since tarification had only two low (administered) cuts during the two first years, competition was effective only on access tarification.

- **Regulation of competition:** MENA countries opening their markets to competition have often met (political) resistance. When the incumbent operator represents about two-thirds of the market share (Tunisia, Morocco), when the new entrant is in a quasi-monopoly situation (in Algeria the new operator represented about 85% of market share in 2004, before the entry of a third operator), when the government chooses the private operator on a personal basis, introducing conflicts of interest (Syria, Lebanon, Libya), it is difficult to consider the competition regime satisfactory. On the contrary, in more structured and bigger markets, the operators' positions are more well-balanced (Israel, Egypt, Turkey)[6].

These arguments suggest that the liberalization process only partly explains the divergence of performance. Indeed, countries can attain similar performance yet have different levels of liberalization. Likewise, countries having a similar liberalization configuration can have unequal performances. In fact, a more global explanation can be found through institutional complementarities that define regulation patterns.

[6] See annex.

2. Regulation patterns: convergence vs. divergence

2.1 Regulatory framework

Effective regulation is important to ensure that market drivers lead private and public actors to produce better services and to deliver them to consumers at a lower price. International experiences show that one of the key elements of regulatory success is the existence of a separate regulator, independent[7] from the influence of the government and outside private-sector interests. Thus, a telecommunication policy designed by the government has to be implemented by a public authority, which must be financially autonomous and have sufficient sanctioning power. This institutional recomposition is important to promote impartiality and improve economic and financial efficiency (Estache, Goicoechea and Manacorda, 2006).

More precisely, the role of the regulatory agency comprises specification, control and sanction functions especially by: *i)* delivering licenses (for infrastructure, transmission, data and telephony services) to operators so that the services they supply conform to economic and technological conditions; *ii)* organizing the interconnection networks between licensed operators; *iii)* promoting transparency and respect of the rules in order to create a more attractive investment environment; *iv)* protecting consumers against anti-competitive behaviours; *v)* enhancing the quality of service and minimizing negative health implications.

As seen in Table 4, in MENA countries we can distinguish two groups: on one hand, the countries that created a national regulatory agency formally independent; and on the other hand, the ones where the Ministry of Posts and Telecommunications has remained responsible for telecommunication regulation (and even for services supply). In Lebanon, Libya, Syria, West Bank and Gaza, there is no independent regulatory authority.

Globally, the creation of a regulatory body has helped to increase transparency (invitation to tender, allocation of

Table 4. Regulatory framework in MENA countries

MENA countries with an independent regulatory body		
Jordan	1995	Telecommunicationns Regulatory Commission (TRC)
Morocco	1997	Agence Nationale de Réglementation des Télécommunications (ANRT)
Egypt	1998	National Telecommunication Regulatory Authority (NTRA)
Turkey	2000	Telecommunicatiosn Authority
Algeria	2000	Autorité de régulation de la poste et des télécommunications (ARPT)
Tunisia	2001	Instance Nationale des Télécommunications (INT)
MENA countries without an independent regulatory body		
Israel	*	Ministry of Communications
Lebanon	*	Ministry of Telecommunications
Libya		General Directorate of Posts and Telecommunications
Syria		Syrian Telecommunication Establishment (STE)
West bank and Gaza		Palestinian Autorithy

**under consideration.*

[7] According to a common definition, a regulator is considered independent when he or she has arm's-length relationships with industry, consumers, private interests and politicians (Jamison, 2005). It is therefore difficult to evaluate the real independence of the regulator, despite a formal independence.

Table 5. Regulatory functions

	Licensing	Interconnection rates	Price regulation	Technical standards	Radio frequency allocation	Spectrum monitoring and enforcement
Algeria	●○	○	○	○	●○●	●○●
Egypt	○	○	○	○	○	○
Morocco	●○	○	○	○	○	○
Tunisia	●	○	●○	●	●	●
Libya	*n/a*	*n/a*	●	*n/a*	●	*n/a*
Israel	*n/a*	●●	●	●●	●●	*n/a*
Jordan	○	○	○	○	○	○
Lebanon	*n/a*	●	●	*n/a*	●	*n/a*
Syria	●	●	●	●	●●	●●
Turkey	●○	○	○	○	○	○
West bank and Gaza	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*

	Numbering	Type approval	Monitor service quality	Quality of service	Universal service standards
Algeria	○	○	○	●○	●○
Egypt	○	○	○	○	○
Morocco	○	○	○	○	○
Tunisia	○	●	●○	●	●
Libya	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Israel	●	●	●	n/a	●
Jordan	○	○	○	○	○
Lebanon	●	■	●	*n/a*	*n/a*
Syria	●	●	●	*n/a*	●
Turkey	○	○	○	●	○
West Bank and Gaza	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*

○ Regulator ● Other institution ● Ministry ● Other ministry ■ Not regulated

Source: ITU data (2005); author's observations (2006).

licenses, publication of decisions, public consultations, market informations, etc.) and confidence from investors (Rossotto, Kerf and Rohlfs, 1999). So the establishment of such institutions constitutes progress for countries whose political and economic decision-making are traditionally centralized. However, the existence of a separate regulator, in and of itself, does not guarantee competition and equity if this existence isn't part of a legal framework that gives the regulator authority and autonomy.

Regulators have faced serious difficulties, reflected in limited autonomy in management and the use of financial resources, as well as in limited capacity to regulate and enforce decisions. In most cases, "authorities have acted more as administrators than regulators" (Fink, Mattoo and Rathindran, 2002), at the very least for four reasons.

First, the mandate of the authority excludes, explicitly or not, real sanctioning power towards operators. For instance, in Tunisia the government created two regulatory agencies - the INT (*Instance Nationale des Télécommunications*), in charge of telecommunication regulation, and the NAF (National Agency for Frequency), in charge of spectrum management. But the Ministry of Communications Technologies kept major regulatory functions, such as licensing, dispute settlements and the sanctions regime. Even when the sanction power is assigned to the regulator, it is limited by a restrictive situation. Moreover, absolute sanctioning power (license suspension) is not really applicable, while a relati-

ve one (penalties) is generally not attributed or politically controlled.

Second, political pressures can hamper regulators' actions, reducing their effectiveness. In some cases, political interferences are clearly organized through supervision mechanisms, when members are directly named by the government or when government representatives are part of the board (Morocco, Egypt). In other cases, budgeting and recruitment need to be approved by the government. Consequently, their neutrality and independence are not assured (Gentzoglanis, Sundberg and Schorr, 2001; Lewin, Rossotto and Wellenius, 2004).

Third, while the regulatory framework is defined to be effective just inside national boundaries, any regional body (or coordinated policies between Mediterranean countries) can play a role, for instance, on cross-border mergers and cross-border competition issues (as in the European market).

And last but not least, liberalization is a long process, which requires learning effects, standardization and an "economic maturity". The lack of experience has been all the more problematic in countries that have had a centralized economy for a long time (Algeria, Egypt).

2.2 Market structure

On a global level, while basic services (fixed-line networks) remain characterized by a natural monopoly in most MENA countries, the mobile, data transmission and Internet services markets have been opened to competition (Table 6). This opening is due to technological and economic reasons: introduction of new technologies and services; growth potential; technological weakness of the public operators; and the promotion of private investment (Crandall and Waverman, 2006).

The opening of fixed telephony seems to be a difficult step. For instance, Morrocco and Algeria tried to open their markets in 2002 and 2004, but the bid failed before succeeding in 2006. Contrary to the mobile market, the growth potential of the fixed market is weak. The network requires long-term investment to get benefits, the small Internet market is an obstacle to investment, and the long-term position of the incumbent can block access to the network. Moreover, new entrants (investors) express lower confidence in the regulation body's ability to guarantee free competition (as the regulation is more complex and strategic concerning the backbone infrastructure). Except for Turkey and Israel, it is important to note that the opening of basic services to competition has failed (on an economic basis) or has been postponed (on a political basis).

In liberalized markets, the situation is more uneven. The mobile market, the bigger in terms of revenues, is interesting for appreciating the heterogeneity of trajectories (Tables 3 and 6). Israel, and to a lesser extent Turkey, became well-developed markets where sophisticated services are provided and where teledensity is close to the European level. The market structure is less concentrated. Four mobile operators are operating in Turkey, two started to provide GSM services in 1994 (*Turkcell* and *Telsim*) and the others in 2000 (*Aycell*, a Turk Telecom subsidiary and *Aria*, a consortium formed by Is Bankasi and Telecom Italia). In Israel, the mobile players are Bezeq, Cellcom since 1994, *Partner* since 1998 and *MIRS* since 2001.

In other big markets, the market structure has not been as efficient (the prices remained high or they increased). This is a common point for Algeria and Egypt. The duopoly situation has not introduced a competitive regime. In Algeria, the structural weakness of the incumbent (*Algerie Telecom*) let the new entrant (*Orascom*) into a quasi-monopoly situation. Competition has become effective since the end of 2004, when a third operator (*Al Watanya*) entered the market and the incumbent underwent organisational restructuring. In Egypt, the mobile market is shared equally between two operators (*Mobilnil and Vodafone*).

Table 6. Level of competition in the telecommunication market[8]

	Local services	Domestic long distance	International long distance	Data	DSL	VSAT	Leased lines	Mobile	Mobile satellite	GMPCS	Internet services
Algeria	●	●	●	○	○	●	○	●	●	●	○
Egypt	◉	◉	◉	○	○	○	◉	●	●	○	○
Morocco	●	●	●	○	●	○	○	●	○	○	○
Tunisia	◉	◉	◉	○	●	○	◉	●	○	○	○
Libya	◉	◉	◉				◉	●	◉		
Israel	◉	◉	○	○	○	○	◉	○	○	○	○
Jordan	●	●	●	○	○	○	○	●	●	○	○
Lebanon	◉	◉	◉	○							
Syria	◉	◉	◉	◉	◉	◉	◉	●	◉	◉	●
Turkey	●	○	○	○	○	○	○	○	○	○	○

Full competition ○ Partial competition ● Monopoly ◉

Source: ITU data (2005); author's observations (2006).

In Morocco and Tunisia, the mobile market has been essentially developed by the incumbent, which holds two-thirds of the market. The incumbent benefited from a strong position reinforced by asymetrical capacities and political support. New entrants (respectively, *Meditel* and *Orascom*) suffered from financial difficulties and a fragile competitive position, especially during the first years of the liberalization process.

In Lebanon, two mobile telecommunication firms, *France Telecom Mobile Liban* and *LibanCell*, have operated under the framework of Build-Operate-Transfer (BOT) contracts since 1994. Since that date, the Lebanese mobile market grew rapidly and became during the 1990s one of the most dynamic markets among Mediterranean countries. The demand for mobile services reached a penetration rate of 21% in 2000, from 3,6% in 1995, but was at only 27% in 2005. This slowdown can be partly explained by the specific political situation, and more precisely by a break in the liberalization process.

In Syria, two private companies, *InvestCom* (*Spacetel*) and *SyriaTel* were granted a license to operate the GSM network. But in each case, the political proximity between the operators' owners and the State representatives has been an issue. The operators tend to share the market through tacit agreement. In Lybia, the configuration is similar between the incumbent and the private operator (Madar).

In Palestine, *Paltel*, operating as a public shareholding, has acquired a 20-year license from the Palestinian National Authority (PNA), in place since 1997. Recently, a second player has been chosen to develop the second GSM network[9].

So, the way that reform has determined the market structure is different for each country, creating a diversity of configurations, explained by different institutional context and by different public choices. But, we can note one convergent point: except for Egypt and Turkey, a single operator is in a dominant position and can take advantage of this situation (through predatory behaviour), especially by limiting access to networks or increasing prices. The result could be a slowdown in network development and a setback to improvements in service quality[10].

[8] Such a table is relevant for countries where technological convergence is not in effect. Globally in MENA countries, each market segment is characterized by specific actors and the telecommunication supply is weakly integrated. If market shares were available for all the countries and the opening to competition was more advanced, the Herfindahl-Hirshman Index could give a more precise measure of market concentration.

[9] In 2007, a GSM license was allocated to a Kuwaiti company to operate the second mobile-phone network. Al Wataniya acquired a 40% stake in the company and the Palestine Investment Fund 30%.

[10] See annex.

2.3 Privatization of the incumbent

Privatization of the state-owned operator is considered a central operation. Such an operation aims to improve efficiency and quality, introducing technical and production standards, reducing public expenditures (subsidies), increasing budgetary revenues and tying into international networks. Papers insist also on the positive impact of privatization on sales, profits, investments and employment (Megginson et al., 1994). However, privatization can be considered outside the regulatory context (Bortolotti et al., 2001). Indeed, privatization improved the financial and operating performance of incumbents in most countries (in particular, by cutting absolute costs: finance and labor costs), but its positive impact tends to be lower if the telecommunication sector had not been restructured before (when the regulatory and operating fonctions have not been separated, and so an independent regulatory agency does not exist).

Breaking up monopolies can be problematic if it is not combined with the institutional framework necessary for allowing markets to function. In this context, the sequence of reforms is important. Opening to competition before conducting privatization, or a reverse sequence, do not determine similar performances and behaviours. Also, private vs. public ownership is important but not determinant[11]. Indeed, the incentives to improve services and reduce prices are weak in a monopoly situation (even in a duopoly situation in big markets), regardless of whether the operator is state-owned or private (changing a public monopoly to a private monopoly in developing countries has often been anti-productive). In any case, operators are stronger in a competitive environment.

In MENA, half of the countries have partially privatized the public operator. The path of the privatization process has been different, depending on local political and economic conditions. Countries such as Morocco, Tunisia, Israel, Turkey and Jordan have partially privatized the incumbent, while others such as Algeria, Egypt, Syria and Lebanon intend to privatize the incumbent but have opted until now for upholding a public operator. Among the first group, all the countries achieved the separation of regulatory and operating functions before privatization.

Table 7. Status of the incumbent operator

MENA countries	Incumbent operators	status
Algeria	Algerie Telecom	State-owned
Egypt	Telecom Egypt	State-owned
Lebanon	OGERO	State-owned
Syria	Syria Telecommunications Establishment	State-owned
Libya	General Post and Telecommunication Company	State-owned
Morocco	Ittisalat Al-Maghrib	Partially privatized
Tunisia	Tunisie Telecom	Partially privatized
Israel	Bezeq	Partially privatized
Jordan	Jordan Telecom	Partially privatized
Turkey	Turk Telekom	Partially privatized
West bank and Gaza	Palcell	Private

[11] "*The main lesson to be drawn is that the quality of regulation is a key determinant of performance, whether the utility is public or private. Compared to the quality of regulation, ownership seems relatively less important, though there may be more chance of high-quality regulation under private than public ownership*" (Newbery, 1999, p.127).

As observed in other developing regions (South America and Asia), when countries quickly privatize the incumbent, regulatory capacity is built up much more slowly (Wellenius *et al.*, 1992). For instance, privatization was completed in a relatively short amount of time in Morocco (a few months after the allocation of a GSM license to the new entrant and its commercial starting)[12]. Indeed, privatization permitted the increase in the incumbent's value (given its monopoly rights in the fixed network and a strong position in the mobile market), but it reinforced anti-competitive behaviors. Whereas the regulatory body was in a learning phase, there were weak incentives for the incumbent to allow access to its networks. This particular incumbent preferred to prevent competition in order to maintain its dominant position and profits (Gentzoglanis, 2001).

Other countries postponed privatization indefinitely (Egypt, Algeria), whereas some others were very slow to take bold steps towards privatization (Turkey[13], Tunisia), essentially for three reasons. First, privatization is constrained by strong political and social resistance (especially when the governement refuses to reduce employment or undergo a loss of supervision). Second, privatization could fail because of financial reasons (unfavorable stock market conditions) or uncertainty in the investment environment. Third, the government may be tempted to delay in order to obtain a higher sum of money from foreign investors (in that case, it depends often on the budgetary situation).

2.4 Diversity of the liberalization trajectories

Using the ITU regional database, complemented by our own observations (based on several sets of variables), we applied a multiple correspondence analysis to a sample of 30 countries (developed, emerging and developing countries, including MENA countries) in order to consider institutional divergence and convergence.

Multiple correspondence analysis (MCA) uses a set of observations described by nominal variables to analyze the pattern of relationships between several categorical dependent variables. The relationships are characterized by proximities between points in a low-dimensional map (two or three dimensions) defined by a chi-square distance. When two points are close to each other, it could mean that the two observations present similar characteristics.

The method used seeks not to measure correlations between these qualitative variables but to underscore some proximities between each category, thus characterizing the variables. So, it requires a reduction in the number of variables (by combining two or more variables into a single factor) in order to identify inter-related variables[14]. This methodology could be useful in creating a link between performance variables (teledensity) and institutional variables (market structure and regulation) and at the same time in highlighting some convergence and divergence factors of the liberalization process in the MENA area.

Performance

- *Mainline penetration:* defined by the number of telephone lines per 100 inhabitants that connect the subscribers' terminal equipment to the Public Switched Telephone Network (PSTN). This variable takes on the value of 1 when teledensity is less than 25%; 2 when it is between 25% and 50%; 3 when it is between 50% and 75%; and 4 when it is is more than 75%.
- *Cellular penetration:* defined by the number of mobile lines per 100 inhabitants that connect the subscribers to a mobile telephone service with access to the PSTN. This variable takes on the value of 1 when teledensity is less than 25%; 2 when it is between 25% and 50%; 3 when it is between 50% and 100%; and 4 when it is is more than 100%.

[12] Maroc Telecom was partially privatized when Vivendi Universal acquired 35% of the capital in 2000, and 16% in 2004. The government sold 15% of the capital via the stock exchange in 2004.

[13] In Turkey, the privatization of Turk Telekom started in 1994. In 2000, the government offered on tender a 20% block of Turk Telekom to international investors, but received no applications. In 2001, a law passed by the parliament included a plan for privatization and reinforced the operation mandate of the Telecommunications Authority. In 2005, a 55% share of Türk Telekom was acquired by Oger Telekom, a Saudi-Lebanese construction and telecommunications conglomerate, which also owns telecom assets in Saudi Arabia, Romania, Portugal, Jordan and South Africa.

[14] There is no specification of either dependent variables, independent variables or causality. Factor analysis assumes that all the rating data on different attributes can be reduced to a few important dimensions.

Market size

- *GDP per capita:* this variable takes on the value of 1 when the country is low income; 2 when it is lower middle income; 3 when it is upper middle income; and 4 when it is is high income.

Level of competition

- *Mobile telephony market structure:* this variable takes on the value of 1 when the market is full competition; 2 when it is partial competition; and 3 when it is a monopoly.
- *Fixed telephony market structure:* this variable takes on the value of 1 when the market is full competition; 2 when it is partial competition; and 3 when it is a monopoly.

Restructuring

- *Privatization of the incumbent:* this variable takes on the value of 1 when the incumbent operator is totally privatized; 2 when it is partially privatized; and 3 when it is state-owned.

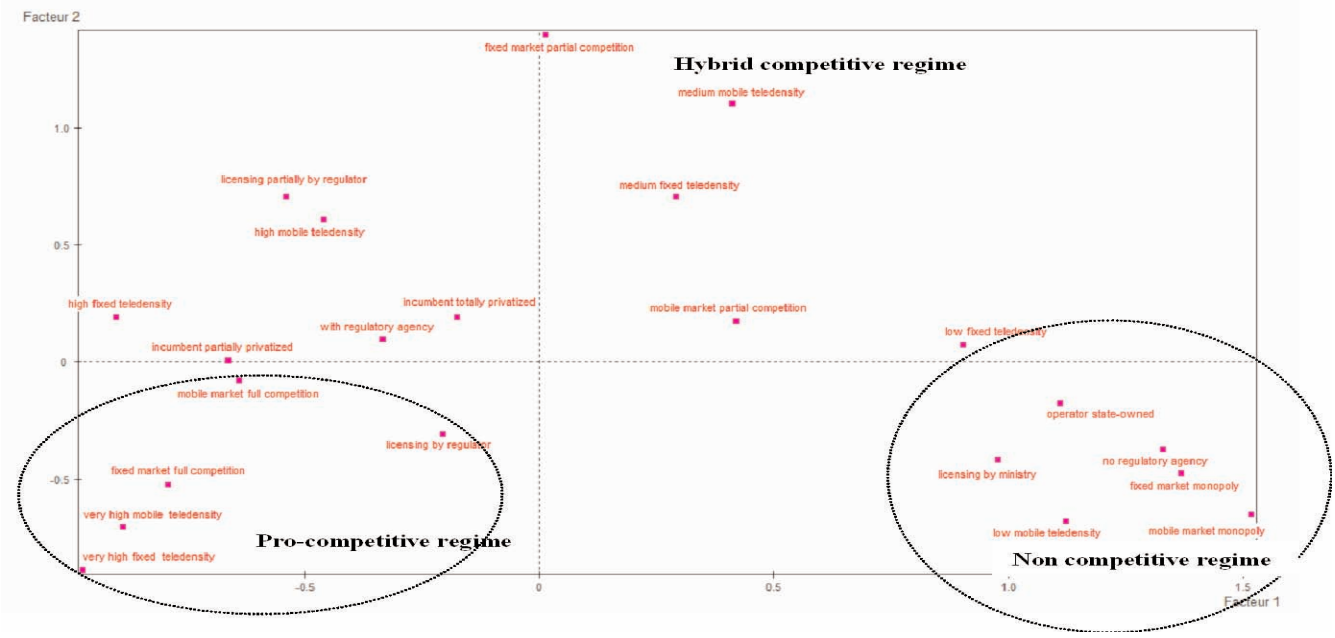
Regulation

- *Regulatory body:* dichotomous variable that takes on the value of 1 if there is a regulatory agency, and 2 otherwise.
- *Independence of the agency:* Dichotomous variable that takes on the value of 1 when the licensing is implemented by the regulatory agency; 2 when it is done by the regulatory agency and government; and 3 when licensing is done by the government.

The proportions of explained inertia (variance) are acceptable (close to 45% for the two factors). The results are synthetized by the two-dimensional representations (Figures 2 and 3).

Figure 2 shows clearly two opposite configurations. On the one hand, the attributes of a pro-competitive regime (full competition markets and autonomous regulator) are associated with high teledensity indicators; on the other hand, the attributes of a non- competitive regime (monopolies, no regulatory body, and state-owned operator) are associated with low teledensity indicators[15]. These results corroborate the hypothesis that the success of the liberalization process depends on the regulatory framework assuring transparency, competition and the protection of public interests (and consumers).

Figure 2. Liberalization process proximity



[15] Of course, these two models are relative. This means that a pro-competitive model does not describe a perfectly competitive regime and competition mechanisms can exist in a non-competitive model.

Nevertheless, between these two models, there are hybrid configurations that adopt attributes from each model. For instance, a duopoly situation (identified here as partial competition) could be an efficient market structure, particularly in small countries. Also, a privatized (even partially) incumbent is not clearly associated with good performance. This could be explained by the fact that privatization has not been systematically realized in a pro-competitive framework, or it had been realized before the creation of a regulatory body.

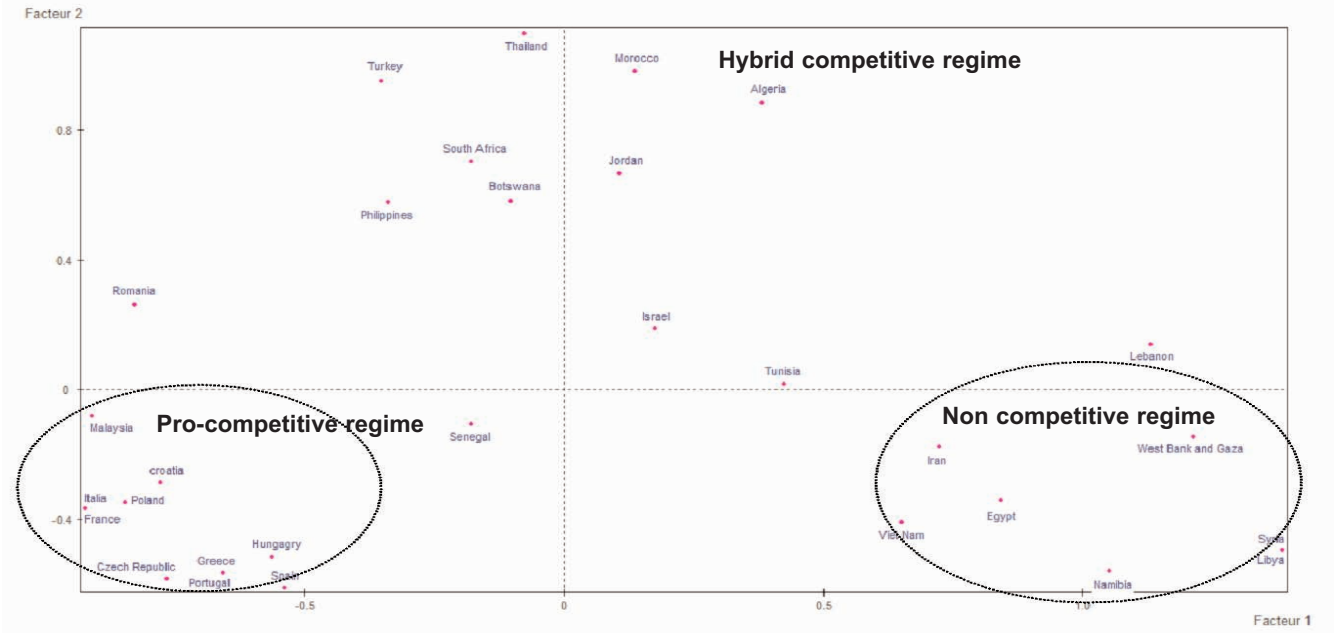
Concerning MENA countries, we can underscore three lessons:

(i) First, even if some countries have converged towards the European level (Israel, Turkey) or realized progress in liberalization (Maghreb, Jordan), they are still characterized by some attributes closer to a non-competitive regime, such as a weak regulator (controlled by government supervision) or dominant position (anti-competitive behaviours, information asymmetry, market opacity). Due to the lack of human resources, political interferences, or insufficient sanction power, the regulators are not yet in a position to provide sufficient pressure on the operators to respect the competition rules.

(ii) Second, despite high growth in the mobile market, the telecommunication market (in particular core infrastructure and Internet services) has been held back by market failures, especially that of high pricing[16]. Theses market failures can be explained by institutional failures, such as the weakness of the regulatory body and the other competition-focused bodies (the judicial system, consumers associations, etc.). In that sense, since the market is not completely structured in some MENA countries, there is a risk that liberalization efforts may not lead to a pro-competitive regime but for a time to a non-competitive regime characterized by markets dominated by opportunistic operators. In others countries, the reduction of institutional obstructions could foster an effective transition towards a pro-competitive regime.

(iii) Third, the success of the opening process depends primarily on the public will and capacity to build a coherent institutional framework, and in particular to give real power to the regulatory agency. For instance, Israel and to a lower extent Jordan and Morocco - considered liberal countries - have been more interventionist than Libya, in the sense that the liberalization of the telecommunication sector is part of an industrial strategy.

Figure 3. MENA countries and liberalization process proximity



[16] We did not use the collected information on prices because of heterogeneity and imperfect comparability. But globally, it clearly appears that prices remain high in most countries (except tarification access, and to a lower extent, communication tarification in the mobile market).

Annex

Annex 1.a. Fixed teledensity from 1998 to 2006: convergence to Europe

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Algeria	13,3	13,7	14,6	15,1	14,9	16,9	17,2	23,8	20,7
Morocco	13,4	13,6	12,5	10,1	9,3	9,9	10,8	10,4	10,0
Tunisia	21,5	23,2	25,0	27,0	29,9	28,7	30,0	30,5	30,2
Egypt	17,3	19,4	21,7	25,7	25,3	31,0	33,5	34,3	34,8
Libya	24,2	25,9	27,1	27,1	26,7	33,1	33,6	33,1	35,4
Jordan	22,3	29,8	30,6	31,9	31,2	27,7	27,2	26,8	25,6
Lebanon	51,9	51,9	44,0	46,3	48,6	48,5	44,0	67,6	45,8
Syria	25,3	25,6	26,0	25,5	25,2	30,0	36,2	37,2	40,4
Gaza and West Bank	15,4	17,7	21,7	21,9	21,1	21,3	24,0	23,0	22,3
Turkey	70,8	72,4	70,7	70,6	68,7	67,6	65,5	68,2	61,8
Israel	125,7	121,7	119,1	115,4	114,1	110,5	108,3	104,8	106,8
Europe	100	100	100	100	100	100	100	100	100

Base 100: Europe

Annex 1.b. Internet penetration from 1998 to 2005: convergence to Europe

	1998	1999	2000	2001	2002	2003	2004	2005
Algeria	0,1	0,7	3,5	3,6	7,7	6,7	8,2	17,3
Morocco	2,7	1,8	5,0	7,6	8,1	11,2	36,7	43,3
Tunisia	2,0	16,2	18,7	22,9	24,8	26,8	26,4	28,1
Egypt	3,0	3,3	5,1	5,2	4,5	16,6	17,5	20,0
Libya	0,0	1,3	1,3	2,0	1,7	12,2	11,4	10,7
Jordan	18,4	25,1	18,2	25,1	21,7	35,1	33,5	33,3
Lebanon	58,1	63,3	65,6	43,2	56,3	49,4	53,0	58,1
Syria	1,2	1,3	1,3	2,0	1,7	5,4	13,8	17,1
Gaza and West Bank	0,0	0,0	8,0	10,1	11,1	16,9	13,6	19,5
Turkey	13,1	23,9	22,0	33,6	35,0	33,9	44,3	64,8
Israel	185,9	134,2	145,6	153,8	145,0	127,0	146,3	138,3
Europe	100	100	100	100	100	100	100	100

Base 100: Europe

Source: ITU data through 2006; author's calculation.

Annex 2. Results, multiple correspondence analysis

			Contributions		Squared Cosines	
	P.Rel	Dist.	1	2	1	2
low fixed teledensity	4.76	2.00	7.0	0.1	0.41	0.00
medium fixed teledensity	3.81	2.75	0.6	6.4	0.03	0.18
high fixed teledensity	1.90	6.50	2.8	0.2	0.12	0.01
very high fixed teledensity	3.81	2.75	6.5	10.3	0.34	0.29
low mobile teledensity	3.33	3.29	7.6	5.2	0.38	0.14
medium mobile teledensity	3.81	2.75	1.2	15.6	0.06	0.44
high mobile teledensity	2.38	5.00	0.9	2.9	0.04	0.07
very high mobile teledensity	4.76	2.00	6.7	8.0	0.39	0.25
incumbent totally privatized	3.81	2.75	0.2	0.5	0.01	0.01
incumbent partially privatized	6.19	1.31	4.9	0.0	0.34	0.00
incumbent state-owned	4.29	2.33	9.5	0.5	0.53	0.01
with regulatory agency	11.43	0.25	2.3	0.3	0.44	0.04
without regulatory agency	2.86	4.00	9.1	1.4	0.44	0.04
fixed market full competition	6.67	1.14	7.5	6.2	0.55	0.24
fixed market partial comp.	3.81	2.75	0.0	25.0	0.00	0.70
fixed market monopoly	3.81	2.75	12.8	2.9	0.68	0.08
mobile market full competition	6.67	1.14	4.9	0.1	0.36	0.01
mobile market partial comp.	6.67	1.14	2.1	0.7	0.15	0.03
mobile market monopoly	0.95	14.00	4.0	1.4	0.17	0.03
licensing by regulator	5.71	1.50	0.4	1.8	0.03	0.06
licensing partially by reg.	4.76	2.00	2.5	8.0	0.14	0.25
licensing by ministry	3.81	2.75	6.6	2.3	0.35	0.06

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