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### **THE ADVANCE OF THE REGULATORY STATE REGULATORY REFORMS IN THE ARAB WORLD AND LATIN AMERICA COMPARED**

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# **TELECOMS AND ELECTRICITY REFORMS IN THE LATIN AMERICA AND THE ARAB WORLD COMPARED**

## *Abstract*

While there is growing recognition of the role of emulation in the policy process in general and in policy transfer in particular there are only limited efforts to model it in a systematic way. This paper takes this challenge through a temporal analysis of the role of contagion in the diffusion of liberalization across countries and sectors. It offers a formal model where one's preferences, strategies and payoffs are dependent on others and where political and policy outcomes are the result of imitation and contagious behaviour. The model is examined against the advance of reforms in seventeen Latin America and their stagnation in seventeen Mediterranean countries. The empirical research cover eight indicators for electricity reforms (commercialisation, legislation, regulatory agency, independence of regulatory agency, IPPs, vertical and horizontal divestiture, privatisation of generation and privatisation of distribution) and eight indicators for telecommunications (commercialisation, legislation, regulatory agency, independence of regulatory agency, competition in international telecoms, privatisation of cellular market, privatisation of incumbent, competition in local loop). On the basis of these indicators a general grade for the effectiveness of the reforms is developed and is given to each country in each of the two sectors. The comparative method is then applied in order to examine within-region and cross-region variations and commonalities in order to shed some light on the obstacles for the advance and effectiveness of reforms.

## **REGULATORY REFORMS IN THE ARAB WORLD AND LATIN AMERICA COMPARED**

Recent studies of the process of the internationalisation of regulatory reform point to the strong ‘contagious’ effects of the process (Brune and Garrett, 2001; Simmons and Elkins, 2002; Meseguer, 2002; Levi-Faur, 2002; Brooks, 2002; Gilardi, 2002a). Decisions of some countries to liberalize were found to have significant affects on the probabilities of those who did not do so at any given time. Yet, the effects of the contagious advance of the reforms seem to vary across geo-political regions of the world. Most notable are the powerful contagious effects of regulatory reforms in Latin America and the insulation of the Arab World to these effects. While reforms in Latin America progressed swiftly they advanced much more slowly in the Arab World.<sup>1</sup> Explanations that suggest static casual process at either the global level or the domestic-national level have received only partial support. My aim in this paper is to suggest and discuss various explanations for the variations of the advance of the reforms across these regions and to offer diffusion perspective on the process. It is suggested that the international spread of the reforms is driven by group’s dynamics across structurally equal national policy makers that are looking to their peers in other countries in order to shape preferences and to borrow legitimacy.

The horizontal explanations offered here and our focus on the politics of imitation and ‘borrowed legitimacy’ are placed as an alternative for more popular explanations that examine the process of the internationalization of the reforms as a top-down process (pressures from international organizations and dominant nations) and bottom-up explanations (that emphasize the domestic institutional endowment as the determinant of change and its pace). Instead we turn for inspiration to theories of diffusion (Rogers, 1995; Valente, 1995), institutional isomorphism (Meyer and Rowan, 1977; DiMaggio and Powell, 1983) world-society (Meyer, 1980; Meyer et al. 1997; Finnemore, 1996) and the role of epistemic communities (Haas, 1992; 1997) and elites (Jacoby, 2001) in the production of ‘economic solutions’ in an environment of political competition. The “horizontal” explanation as suggested here not only challenge more popular approaches such as the top-down and down-top explanations but also adds critical dimension to a discussion that carry positivists and functionalist tone that emphasizes efficiency-driven considerations as the driving forces of the reforms.

Our point of departure is that the conviction that in an era of globalization it is necessary to examine processes at more than one level of analysis even if the ultimate aim of the inquiry itself is to explain variations at only one level (in our case the cross-regional level). We therefore examine the variations in the advance of the reforms across sectors and nations and not only across regions. At the cross-sectoral level we point to the greater propensity of policy makers to privatize, delegate and regulate-for-competition in telecoms when compared to electricity. At the cross-regional level we point to the greater propensity of the Latin American policy makers - when compared to the Arab ones - to privatize and to create separate regulatory authorities as well as to promote other aspects of the reform program. At the cross-national level we identify different groups of nations according to their propensity to adopt the reforms.

We first suggest that cross-sectoral variations might best be explained with attention to the political calculations of policy makers who face different institutional constraints in the telecoms and electricity sectors. Telecoms reforms are found to be less risky and more politically rewarding than electricity reform. We then suggests that the same logic might explain cross-regional variations, that is, a lesser degree of pressures from political competitors in authoritarian regimes of the Arab World reduces the usefulness of telecoms and electricity reforms and therefore their advance when in comparison to the situation in Latin America. We then farther advance the argument through an analysis at the national level looking at cross-national variations within each of the region. In this stage we employ diffusion perspective and focus on group dynamics in Latin America and its absence in the Arab World. The suggestion is examined through an empirical investigation of the process of diffusion of reforms in Latin America through a standard diffusion model. The explanation is than farther strengthen through elaboration of the process of diffusion at the micro-level using Mark Granovetter's (1978) threshold model.

We hope that our interpretation of the advance of the reforms bring a fresh view on the interaction of politics and economics and emphasize the strong effects of collective action on countries' understanding of their interests and on the shaping of their preferences. Instead of functionalists and positivists explanations we offer a critical interpretation that emphasize the political value of the reforms (or its dearth) rather than their contribution to social welfare or the

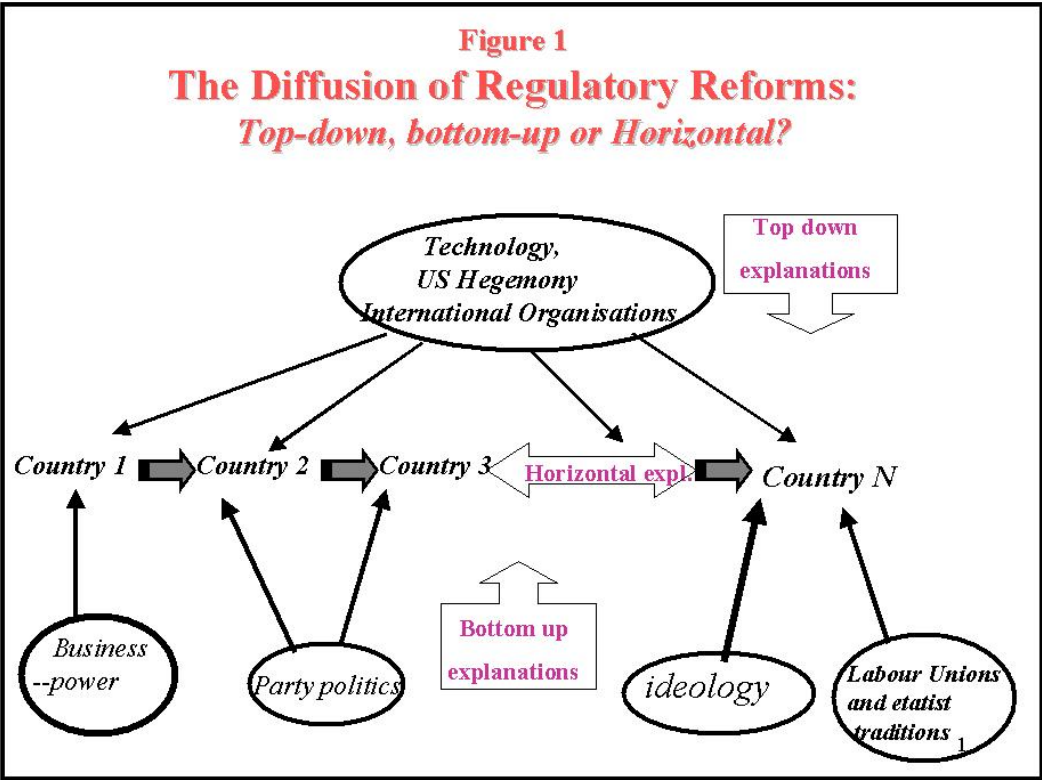
materiel benefit of the countries adopting them. This argument that emphasizes the political dimension of the reforms applies equally well to Latin America as much as it apply to the Arab World. Neither the enthusiasm of the Latin American to the reforms nor the lukewarm enthusiasm of the Arabs should be understood mainly via the economic point of view. Economic decisions at the sectoral level are by product of processes that are set primary at the national and the regional levels. In addition we raise some questions as to the limitation of case-oriented analysis in the context of diffusion process. We suggest that this issue is highly relevant to the understanding of the prospect for farther reforms in the Arab World.

In the first section of the paper we offer a theoretical framework for the study of the advance of the regulatory reforms. We start with a distinction between top-down, bottom-up and horizontal explanations. We than move to elaborate the implications of theories of diffusion, institutional isomorphism, world-society, epistemic communities and elite-oriented theories of imitation.<sup>2</sup> The second part of the paper examines the sectoral variations in the advance of the regulatory reforms and offer an explanation for these variations The third and the fourth parts of the paper move on to discuss the variations across regions and nations in relation to the same framework. The fifth part suggests a micro-level theory of the process of diffusion. Finally, the concluding part of the paper discusses some implications of the findings on the constraints for economic reforms in the Arab World.

## **THE ADVANCE OF REGULATORY REFORMS: THEORETICAL FRAMEWORK**

Why do policy makers devote scarce resources and time in order to advance regulatory reforms?. Why do policy makers in different nations vary in their commitment to reforms? Why do policy makers in different regions vary in their commitment to reforms? and, finally, why do they vary in commitment to reforms from one sector to another?. A reasonable point of departure in dealing with these questions is the suggestion that policy-makers are confronted by different sets of institutional constraints and opportunities in different nations, sectors and regions (in other words, we are taking off in the framework of actor-centred institutionalism, see, Scharpf, 1997). We are moving on from here with a distinction between three major explanatory strategies that can be used in accounting to variations in the reforms - “top-down”, “bottom-up”, and “horizontal” (see figure 1). **Top-down explanations** interpret the advance of regulatory reforms

as a response of national policy makers to exogenous (and often common) pressures from various international sources on national policy communities. Specifically in our cases of the advance of the telecoms and electricity reforms in Latin America and the Arab World they would point to institutions such as the World Bank, the International Monetary Fund, the World Trade Organization (particularly in the case of telecoms), regional development banks (such as the Intern-American Development Bank as to Latin America), the International Trade Union (telecoms) and the World Energy Council (electricity). Not less important, and maybe critical element for this light of interpretation of change in general and the regulatory reform in particular is the power of the United State government. Direct and indirect influence and pressures from the only economic and military super-power as well as its unilateral actions are often argued to constrain the decision-making capacity of national policy makers.



**Bottom-up explanations** examine the advance of reforms as an outcome of domestic balance of power and specific national style. Indeed, this perspective gave rise to the most of the study of

the reforms and some of the most significant of them. The issues that were discussed and the interpretations that were offered vary significantly when one examines the literature of the 1980s and compares it with interpretations and issues that were raised by the end of the 1990s. A common point of departure in the study of regulatory reforms in the early 1980s was the ideological and party composition of the governing coalitions. This was a sensible point of departure at the time especially since the number of cases was relatively small (Margaret Thatcher's Britain was the 'paradigmatic case' although Augusto Pinochet's Chile was the real innovator here). With time and the slow increase in the number of countries that adopted privatization programs, comparative studies became more popular and comparative design in the form of comparison of the reforms in a particular sector in two or three countries. These studies usually confirmed the particular effects of national institutional endowments on the propensity of countries to adopt privatization programs. Generally, they have tended to conclude that national characteristics – such as state tradition – were significant factors in the advance of the reforms. Little was done in terms of cross-sectoral analysis (that is, comparison across sectors in one nation) not to mention more innovative research designs (such as two sectors in two countries).

It took a long time, probably not before the end of the 1990s, until comparativists and scholars of political economy began to notice that regulatory reforms had spread across the world regardless of the composition of the political coalitions, dominant ideological orientations, the fiscal situation of the country, its material resources, the composition of interest groups and the economic performances of the sector in question. All these factors – in the language of Brune and Garret (2001) 'the usual suspects in comparative political economy' - might be expected to have affected (at best) on the pace of the reforms but *not* on the decision *whether* to adopt them or not. The prevalence of the reforms was simply too wide to be constrained by either one or any combination of these factors. The growing awareness of this problem led scholars to suggest some elegant ways to go around the problem without changing their basic assumptions about the determinant of the process. Schamis for example has argued that the internal difficulties that were associated with the reforms were exaggerated and that the reforms created strong distributional effects for privileged political coalitions (Schamis, 1999). A similar strategy was taken by Murillo who argued that 'politicians may be losing influence about whether to privatize, but they still affect the choice of how to privatize' (Murillo, 2002, 463). Instead of looking at

variations in the decision-making about privatization Murillo suggests to look at variations in the implementation stages. These elegant responses to the observation that regulatory reforms are pervasive are reasonable in some respects but problematic in others. The problem with Schamis' solution is its ad-hoc nature. New evidences that run against the grain of the common wisdom lead him to not for an examination of his assumptions but to reverse the casual connections in his theory. In this way he keeps intact some major assumptions about the role of interests and political coalitions in politics. Yet, it might well be the case, that what is required by the sweeping change that the world is experiencing is not a minor change in our interpretation of the politics of these reforms but rather a radical one. The problem with Murillo's solution is that it is too early for comparativists to give up on the question of why privatization (or regulatory reforms in general). This is a major question and not a marginal one and therefore it deserve more effort. In additionb not all politicians privatize (even in her home-court of Latin America) and if they privatize they do it in different pace. This leave us still with enough variations to allow us to use the comparative method in order to advance our understanding the process of the internationalization of the regulatory reforms.

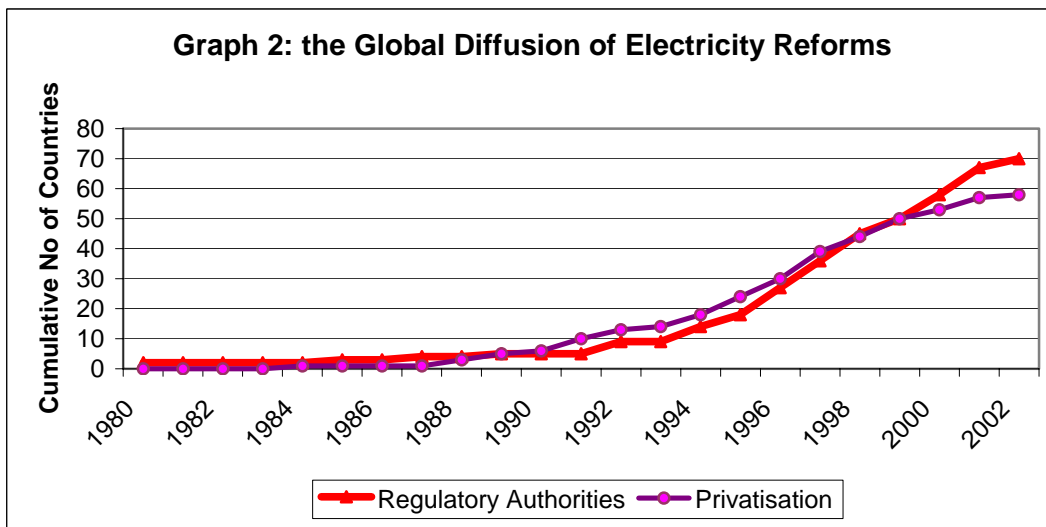
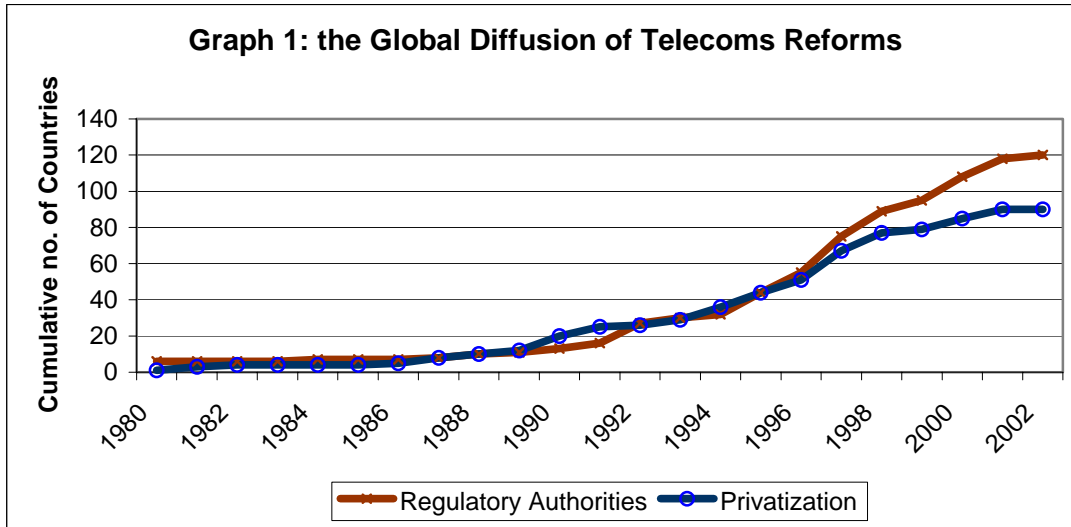
Unlike Murillo and Schamis, this paper takes a radical approach for the study of change. Instead of patching up the bottom-up we suggest an **explanatory strategy** that treats the spread of reforms as a "contagious process" of diffusion across interdependent group of policy makers. Internationalisation is produced and conditioned by formal and informal networks of actors who closely monitor the behaviour of each other. These actors are part of 'world societies' of epistemic communities. The causal relations in these diffusion processes are therefore 'horizontal', as the action of other members of the group is the driving force propelling the adoption of regulatory reforms across the world. To an important extent this approach suggests that policy makers are drawing their incentives from their fellow policy makers in various domains of action. These suggestions do not negate the assertion that the domestic setting (bottom-up considerations) and the effects of international organisations (top-down considerations) are important. It does however indicate that the study of the mechanism of diffusion is imperative and without it our understanding of systemic change is deficient.



## **TELECOMS AND ELECTRICITY – CROSS SECTORAL COMPARISON**

Telecommunications and electricity were closely intertwined with the nation-state as we have come to know it since the late nineteenth century. The rise of big business, the welfare state, the mixed economy, and the affluent society of the post-war era are all mirrored in the development dynamics of these industries and especially in the acceleration of rural and urban electrification; impelling the process of telephonization; nationalisation; nurturing national equipment industries; and constructing nationally-bounded electricity and telephony networks (Levi-Faur, 2000; 2003; Gomez\_Ibanez, 1999). Since the early 1980s, however, remarkable changes are clearly evident and the two industries have experienced sweeping changes.<sup>3</sup> In what follows we first point to the general manifestations of these change in each of the sectors and then point to the variations in the degree of change between the two industries.

Between these two it was telecommunications that have received most of the attention from politicians, the media and the academics. It was also the sector where change was more radical and comprehensive. Notable in the process of change in this field are the divestiture of AT&T (1984) as well as the privatisation of British Telecom (1984) and Nippon Telegraph and Telephone (1985) (Newbery, 1999).<sup>4</sup> In the 1990s privatisation and the establishment of Separate Regulatory Agencies (SRAs) became widespread across countries and sectors. Graph 1 presents the structural change affected in the governance of the telecoms industries since the mid-1980s. About 90 countries all over the world privatised at least some of their previously state-owned telecommunications operators. In 120 countries the Ministries of Telecommunications and Post relinquished at least part of their regulatory powers to SRAs bearing significant technological and economic orientation. The promotion of competition through a blend of regulation and deregulation was widely practised. Notable was the targeting of long-distance and local telecoms services and the development of a regulatory framework for the European Union with directives on open networks (1990) and on interconnection (1997) (Natalicchi, 2001).



Considerable changes – though less radical – are evident in the electricity industry as well. A first indication for systemic change was probably that of former US President Jimmy Carter in his Public Utilities Regulatory Policies Act (1978). This act opened electricity generation to independent power producers. Remarkable were the divestiture and privatisation programs of Chile (1979-1986) and even more so the divestiture and privatisation of the British electricity industry (1989-1995). While indications of change seemed sporadic in the 1980s, by the mid-1990s, it became clear that the world electricity industry was facing a tremendous transformation

(Gilbert and Kahn, 1996; Pollitt, 1997). Indeed, a significant development was the EU's electricity directive of 1996. In electricity as in telecoms privatisation and the establishment of SRAs became widespread. Graph 2 presents the advance of SRAs in the electricity industry. Some privatisation of state assets in the electricity sector is documented in 60 countries. Seventy-two countries now govern their electricity sector by separate regulatory authorities.

Graphs 1 and 2 demonstrate an extremely rapid pace of change. From a very modest start in the mid-1980s, the establishment of SRAs around the world became normal practice in the mid-1990s. The pace is so rapid and its spread so comprehensive that it is reasonably safe to predict that most countries are bound to privatise and establish SRAs for these industries in the near future.

The evidences we have presented until now point to the lesser propensity of policy makers to privatize and to create separate regulatory authorities in the electricity sector when compared with telecoms. These evidences about the lesser propensity of electricity to change is confirmed when one examines the degree to which countries which has already taken the decision to established separate regulatory agencies grant these agencies nominal autonomy.<sup>5</sup>

**Table 1: Regulatory Authorities in Telecoms and Electricity**  
(Data for 2002; Source: see Appendix C)

	Countries that Established Separate Regulatory Authorities (I)	Allow them Nominal Independence (II)
Telecoms (no of countries)	121 out of 172 (70%)	69 out 103 (67%)
Electricity (no of countries)	72 out of 172 (42%)	22 out of 40 (55%)

Table 1 presents both the growing tendency – usually explained as a reflection of best-governance practice – to create separate and sector-specific regulatory agencies and the lesser degree to which these regulatory agencies are designed as independent. Evidently, policy makers tend to create more separate regulatory authorities in telecoms than in electricity (70% and 42% respectively). When they establish these regulators they tend to give them nominal independence to a greater degree in telecoms than in electricity (67% and 55% respectively).

In addition to the evidence as to the lesser propensity to privatise and to transfer control in electricity (indicated by both the data on establishing separate regulatory authority and design it as independent agency), it is also possible to observe that policy makers are less prone to promote competition in electricity than in telecoms. At the one level this is probably reflection of the technological realities in telecoms that encourage more competitive markets in electricity than in telecoms. Yet, beyond the technological constraints that should and will probably effect degrees of competition in the two sectors, at the level of regime-design policy makers seems to act more cautioning in designing regimes-for-competition in the electricity sector when compared to the telecoms.

How can we explain these cross-sectoral variations?<sup>6</sup> We suggest that it is reasonable to explain these variations from the point of view of risk-averse and vote-maximizers politicians who face different sets of risks and rewards in the two sectors. In what follows I intend to demonstrate that for both economic and technological reasons liberalisation of electricity is less rewarding and more risky than the liberalisation of telecoms.

Five major factors are responsible for the higher political risks associated with electricity liberalisation. First, the gradual approach that allowed consensus-building in telecoms could be only partly applied to electricity. The liberalisation of telecoms first emerged in relatively small segments of the market and it took 15 year till it had extended to the local loop (that is, to the retail competition in the supply of local telephone services). This gradual process was only partly possible in electricity and thus consensus-building in this sector is more costly. The promotion of competitive markets in all segments of the electricity sectors had to be introduced simultaneously since they were closely interdependent.<sup>7</sup> Second, experimentation with competition was only

barely possible in electricity. Whereas it was possible to introduce competition to segments of the markets in telecoms (equipment, international and long-distance calls, mobile) and thus to experiment with competitive markets, the possibility of doing so in electricity was limited. Telecoms liberalisation was no doubt less risky than that of electricity.

A third reason for the higher risks of the liberalisation of electricity are the considerable costs involved in terms of levelling the field for new and old players. While entry of new suppliers is supported by innovative and efficient technologies of generation, the old integrated monopolies use less efficient methods such as nuclear energy and coal. Fair competition may mean that the incumbents be bailed out at a huge expense.<sup>8</sup> Compensating the incumbents, whether private or public, is a costly measure both politically and financially. Fourth, electricity liberalisation calls for state officials to relinquish some of their control over their nation's 'energy mix',<sup>9</sup> implying, for some states, a considerable increase in the extent of their energy dependency. Given the status of electricity as an essential service, national sensitivities over the control of the system, although gradually declining, are still strong enough to render reorganisation of the sector far more risky than the case with telecoms. Finally, system reliability is more critical in electricity as system failure may in the extreme cases involve loss of life and social and economic chaos. Although liberalisation does not necessarily lead to failure, it involves some problems of control during the transition periods that make it risky for state officials. All these reasons combined to render competition and the lessening of central control in electricity much more complex than with telecoms. The failure of the competitive regime in the electricity market in California had no equivalent in telecoms and may prove strong support for these assertions.

Telecoms liberalisation is no doubt more rewarding for state officials, politically and economically. To some extent, public officials' agenda is geared toward solving the most urgent issues. To that extent, telecoms liberalisation reflects their calculations that not only are the costs of electricity liberalisation higher but its benefits are lower than those of telecoms. While both telecoms and electricity are sources of competitive advantage for national economies, telecoms services are critical for the most dynamic segments of the business community -- the information economy. State officials' attitudes to liberalisation were also affected by the recognition that the extent of social support for liberalisation of telecoms was wider than for electricity. It was

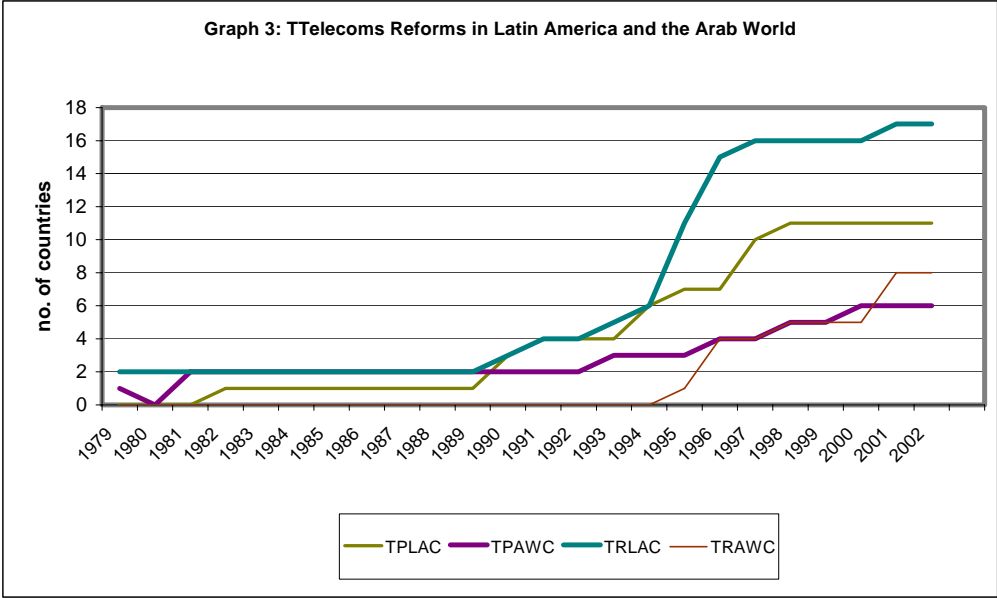
therefore more rewarding for them to commit themselves to telecoms liberalisation. Moreover, electricity competition, even if successful in reducing tariffs, would affect household bills only marginally. But most important is that telecoms liberalisation has acquired a special status in the political and social perceptions of large and important segments of the public. Telecoms technologies are commonly perceived as ‘technologies of freedom’ and represent the more positive aspects of the dynamics of global, economic, and political change (Pool, 1983). The contemporary popular notions of ‘information society’ and ‘information economy’ are not natural representations of future social and economic trends. They are among the ‘politics of symbols’ which have shaped our perceptions of the good and the bad, the possible and the inevitable. If electricity technology is identified in our minds with large, polluting, mysterious, and dangerous generation technologies, telecoms technologies are identified with the digital telephone, the fax, the modem, and more recently the Internet: all common household gadgets. The opening of new venues in telecoms has become popular with the elites and the wider public alike, whereas such support is lacking in electricity. To the extent that state officials are vote-maximizers, they have greater incentives to associate themselves with telecoms liberalisation than with that of electricity.

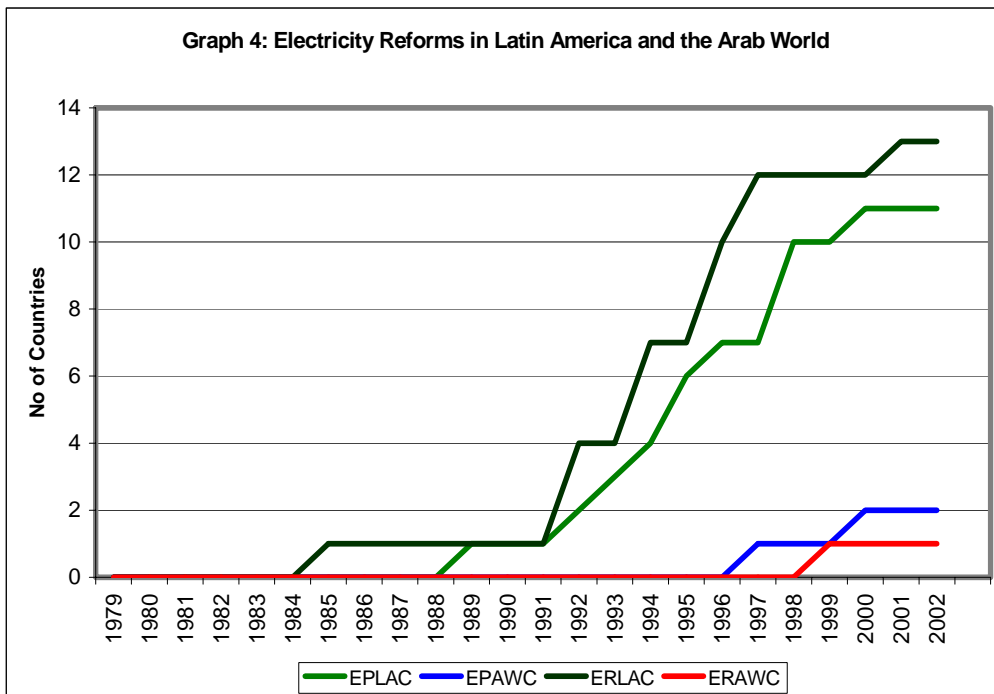
### **CROSS-REGIONAL VARIATIONS: LATIN AMERICA AND THE ARAB WORLD COMPARED**

We can now move from cross-sectoral analysis to a cross-regional analysis of their advance. The wide scope of the comparison (34 countries, 17 in each region) requires some simplified measures of comparison that will hold not only across the regions but also later on across the two sectors. We have found these measures first by recording time-varying data on the advance in the creation of separate regulatory authorities and privatisation of incumbents in the two regions. Second, following Bacon’s (1999) scoreboard on the advance of regulatory reforms in the energy sector (oil, electricity, gas) we design a measure that is functionally equivalent for telecoms. The data covered by the scoreboard is partly covered by our first measures but it is more comprehensive (though not time sensitive) than our first measure.

Graph 3 presents the advance of the reforms in the telecoms industry in Latin America and the Arab world. It is hard to miss the contrast between the rapid advance of the reforms in telecoms

and electricity in Latin America and their slow advance in the Arab world. The data covers again (like in graph 1 and 2) measures of the timing of the creation of separate regulatory authority and than the first step in the partial or full privatisation of the telecoms' incumbent. While the number of separate regulatory authorities in Latin America have rise from 3 in 1990 to 17 in 2001 (that is 100% of the population) and while the numbers of Latin American countries that have privatised has risen in the same period from 3 to 11 the corresponding number where meagre 8 cases of establishment of regulatory authorities in the Arab world (47%) and 7 cases of privatisation. Graph 4 presents the same data for the electricity sector. Here the gaps between the regions are even more considerable. While 11 out of the 17 Latin American countries privatise part of their electricity incumbents only 2 Arab countries did so. Similarly, while 13 Latin American countries established separate regulatory authority for electricity only 1 Arab country did so. The process of privatisation in this sector that has started as early as 1989 in Latin America has started only in 1997 in the Arab world. Similarly the first act of establishment of separate electricity regulatory authority was as early as 1985 in Latin America but only in 1999 in the Arab world.





**Key for Graphs 3 and 4**

T/EPLAC – Telecom/ Electricity Privatisation Events, Latin America, Cumulative  
 T/EPAWC – Telecom/Electricity Privatisation Events, Arab World, Cumulative  
 T/ERLAC – Telecom/Electricity Regulatory Authorities, Latin America, Cumulative  
 T/ ERAWC – Telecom/Electricity Regulatory Authorities, Arab World, Cumulative

Another perspective on the cross-regional variations in the reforms is presented in Appendix A (telecoms) and Appendix B (electricity). Summary table of the finding is presented in table 2. Whereas the aggregate telecoms score of the reforms for all 17 Latin American countries is 91 the score for the Arab world is only 38. Again the gaps in electricity reforms are even bigger and the score for Latin America 93 is while for the Arab world is meagre 18. Similar gaps between the two regions are revealed by looking at the median year of the time of privatisation and the establishment of regulatory authority in the two sectors. The median years for the enactments of the reforms in the Arab World are systematically behind that of Latin America. One aspect of the data that needs clarification regards the surprising similarities in the scores for telecoms and electricity reforms in Latin America that is also reflected in the similarity in media year from telecoms and electricity privatisation events and establishment of regulatory authorities (1994,



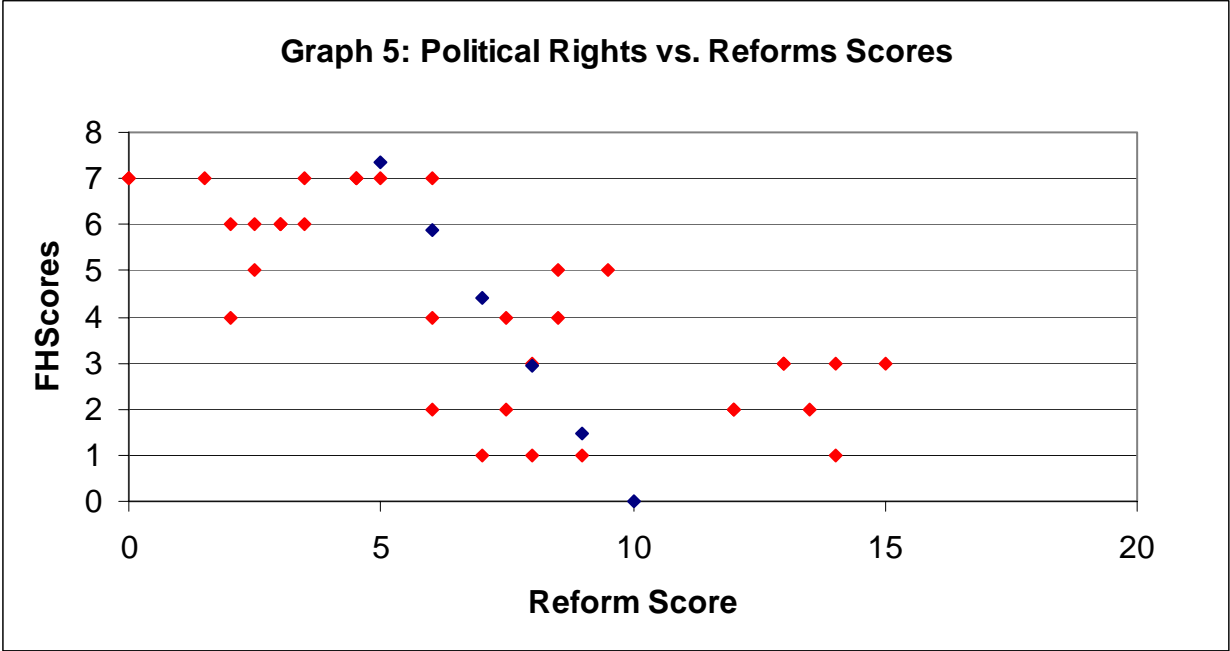
1995, 1995, 1995). This is interesting observation since it does not conform to the general picture of much bigger progress in telecoms reforms than in electricity. Indeed, in this sense, of the study of cross-sectoral variations, it is the Arab world that conforms to the general ‘global trend’ since its advance in telecoms is significantly faster than in electricity. Yet, at this stage of the research we leave these observations and move on to suggest an explanation of the variations across these two regions.

**Table 2: Regional Scores of the Regulatory Reforms in Telecoms and Electricity  
(Source, see Appendix C)**

	<b>Latin America</b>	<b>Arab World</b>
<b>Regional Telecoms’ scoreboard</b>	91 (n=17)	38 (n=17)
<b>Regional Electricity scoreboard</b>	93 (n=17)	18 (n=17)
<b>Telecoms Privatisation Events (median year)</b>	1994 (n=11)	1996 (n=6)
<b>Electricity Privatisation Events (median year)</b>	1995 (n=10)	2000 (n=2)
<b>Establishment of Telecoms Regulatory Authority (median year)</b>	1995 (n=16)	1998 (n=8)
<b>Establishment of Electricity Regulatory Authority (median year)</b>	1995 (n=12)	1999 (n=1)

The explanation we offer is tentative and at best may serve as guidance for deeper investigation. In the name of systematic thinking we ground our explanation in actor-centred institutionalism and continue the line of thinking that was applied in order to explain the cross-sectoral variations. The trust of our argument is based on the observation that while Latin America experienced rapid process of privatisation since the 1980s, the Arab World didn’t. If liberalization and regulatory reforms are product of political calculations of politicians who are looking for domestic support via economic reforms, we can safely suggest that the higher pressures of political competition in Latin America make economic reforms more likely than in

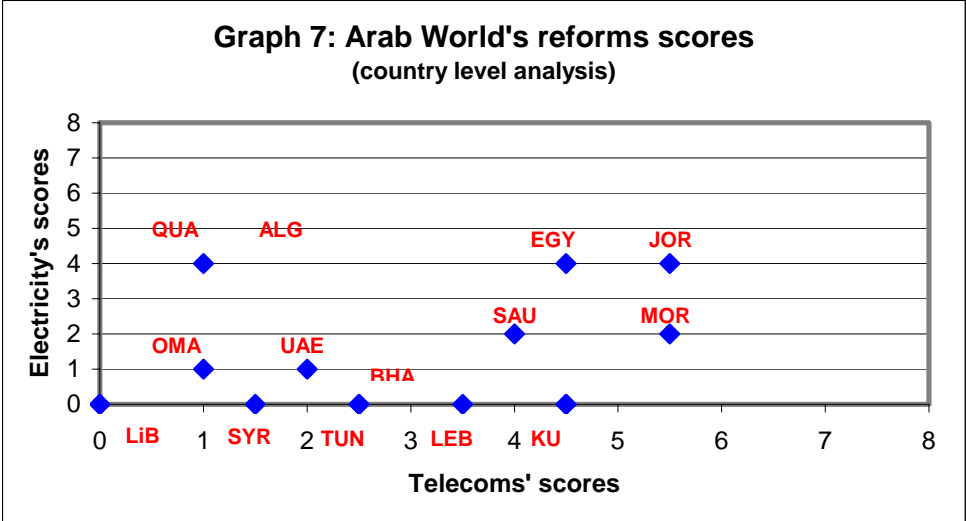
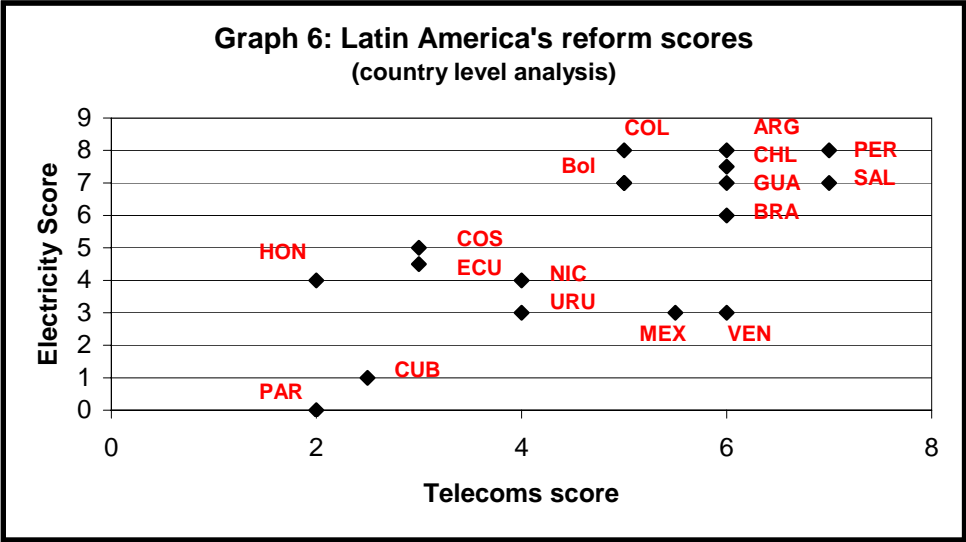
the Arab World. The connection between telecoms and electricity reforms and the country ‘political rights’ score from the freedom house data. The telecoms and electricity reform score range between 0 (no reforms at all in either sectors) and 16 (full reforms in the two sectors). The freedom house score range on a scale of one-to-seven, with one representing the highest degree of freedom and seven the lowest. The implication is that democratisation in the Arab World might prove as great impetus for reforms. Yet, we suggest that this is only partial condition. What is missing is an explanation that connects the domestic calculations of policy makers and the regional dynamics. We found this connection in diffusion theory.



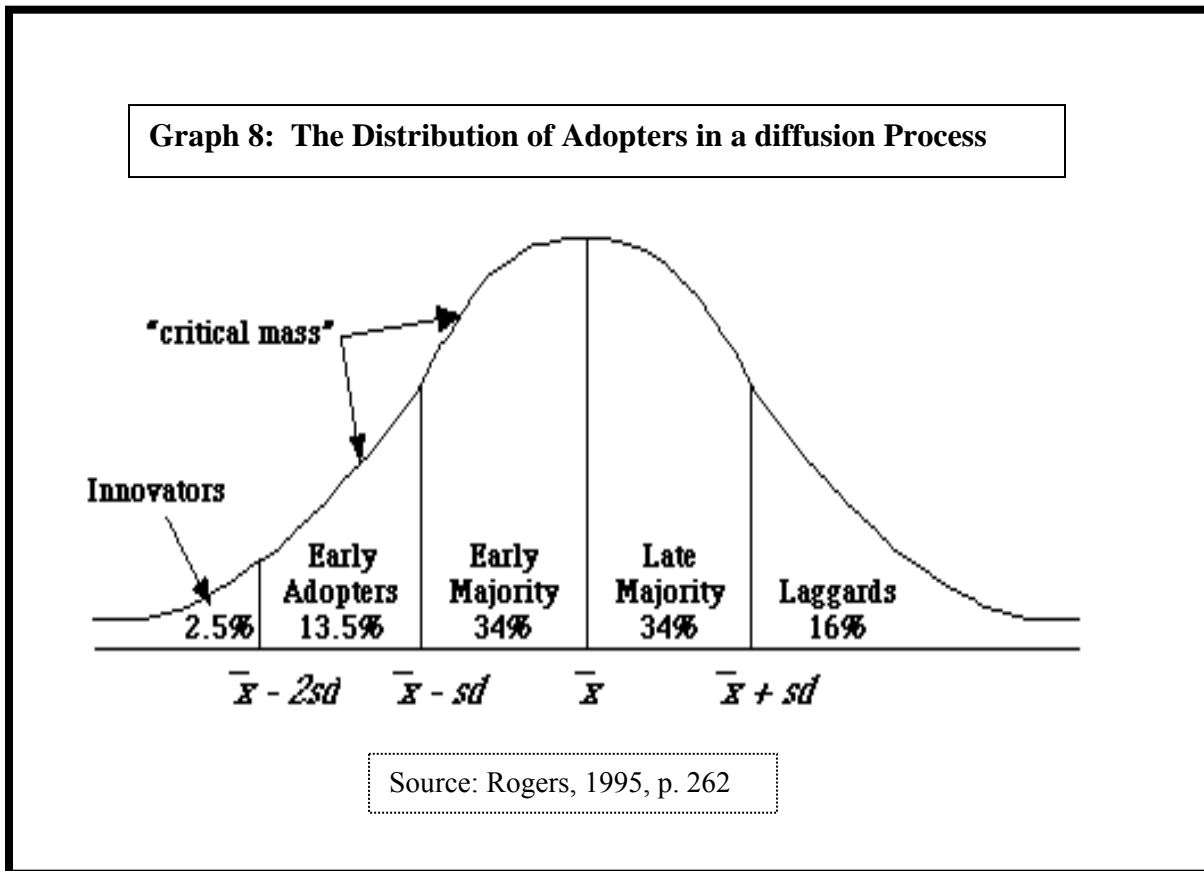
**CROSS-NATIONAL VARIATIONS AND DIFFUSION THEORY**

To what extent is it sensible to use nations, rather than sectors or regions, as the proper level of analysis?. One way to answer this question is to look at the patterns of choice at the level of nation? if nations adopt reforms systematically, meaning that there is a degree of coherence between their choice in electricity and in telecoms, it might be useful to treat them as a critical unit of analysis. If choices differ between telecoms and electricity and between regions one might well opt to other level of analysis. Our data as to the consistency of choice is drawn in Graphs 6 and 7. It is clear that there is consistency between the choices in telecoms and

electricity in Latin America while in the Arab World the connection is much weaker (the coefficient of regression failed the significance test). In other words, it makes more methodological sense, on the basis of the limited data that we collected to compare national reforms sectors in Latin America than in the Arab World. This however does not imply that it is senseless to compare countries in the Arab World but it does suggest that conjectural causality effect differently the reforms in the two regions.<sup>10</sup> This is the reason that we chose to focus our attention on within-region analysis of national decisions making.



We start with the Latin American countries and suggest that instead of a study of bottom-up or top-down factors the process of adoption of the reforms in this region can be studied as a diffusion process. In such a process we can expect the population of potential adopters to have different propensities to adopt the reforms. The most authoritative categorization of these different propensities for adoption is Rogers' (1995). This categorization is presented in graph 8 that describes the adopter distribution through a bell-shaped curve that approach normality. The population of countries and policy makers is expected to include five groups: a innovators (about 2.5% of the population), early adopters (about 13.5%), early majority (34%), late majority (34%) and laggards (16%). If we are to accept this process as a diffusion process – which works through a ‘group dynamics’ we should first provide some empirical support to the argument and second shed some light on the mechanism that propel the process of diffusion. We use the standard diffusion model for the first task and Granovetter’s threshold mechanism for the second task (Mahajan and Peterson, 1985, Granovetter, 1978).



The following differential equation provides a basic model describing the rate of diffusion at any moment in time (Mahajan and Peterson, 1985):

$$(1) \quad \frac{d\pi(t)}{dt} = g(t)[N - \pi(t)]$$

where  $\pi(t)$  represents the cumulative number of adopters at time  $t$  and  $N$  the total number of potential adopters. The left side of the equation represents the rate of diffusion at time  $t$ . Analytical distinction between external and internal sources of diffusion allows us to express the coefficient of diffusion  $g(t)$  as a function the following two parameters:.

$$(2) \quad g(t) = \alpha + \beta\pi(t)$$

$$\left\{ \begin{array}{l} \text{Coefficient} \\ \text{of the Rate} \\ \text{of adoption} \\ \text{at time } t \end{array} \right\} = \left\{ \begin{array}{l} \text{Coefficient of the} \\ \text{influence from} \\ \text{outside the} \\ \text{population of} \\ \text{potential} \\ \text{adopters} \end{array} \right\} + \left\{ \begin{array}{l} \text{coefficient of the} \\ \text{effect of contagion} \\ \text{between adopters and} \\ \text{laggards times the} \\ \text{cumulative number} \\ \text{of adopters at time } t. \end{array} \right\}$$

The first component of equation (2)  $\alpha$  is constant over time and does not depend on the number of adopters. It might therefore be conceived as the parameter that represents the effect of external influence on the rate of diffusion over time. External influence includes all the factors that affect the decision to adopt innovation (in our case to liberalize) that are external to the community of interacting agents. In our case this parameter may reflect the power of new knowledge about the costs of public ownership. Or it may reflect the introduction of new technologies that open new options (and constraints) for governance, pressures from international institutions such as the World Bank and the IMF, as well as the effect of new economic conditions on the propensity of officials to liberalize. A diffusion process that is purely driven by external factors (where  $\beta=0$ ) is appropriate when officials are completely isolated from each other. These conditions are however rare, so the second component of equation (2) aims to capture the effect of interacting, socially embedded, agents. This component  $\beta\pi(t)$  increases with the increase in the cumulative number of adopters, hence reflects the pressure of increasing numbers of liberalizers over those

who have not yet jumped onto the bandwagon. It is this component rather than the first ( $\alpha$ ) that points to contagion as a major component of the diffusion process.

We use a procedure for parameter estimation proposed by Mahajan and Peterson (1985) to estimate the effect of  $\alpha$  and  $\beta$  for the diffusion of privatization and a separate regulatory authority in the telecom and electricity industries in Latin America (i.e., the data represented as to Latin America in graphs 3 and 4). Nesting equation (2) in equation (1) results in the following diffusion model:

$$(3) \quad \frac{d\pi(t)}{dt} = (\alpha + \beta\pi(t))[N - \pi(t)]$$

Thus equation (3) allows us to account for the process of diffusion as the outcome of both external and internal influences. Equation (4) introduces the discrete analogue equivalent of equation (3) and rearranges the right side of equation (3).

$$(4) \quad \pi(t+1) - \pi(t) = \alpha N + (\beta N - \alpha)\pi(t) - \beta\pi^2(t)$$

This is a 3-parameter models ( $\alpha, \beta, N$ ) that can be solved by means of time-series data on the number of adoptions in each year through the following linear regression.

$$(7) \quad \pi(t+1) - \pi(t) = A1 + A2\pi(t) + A3\pi^2(t) + e(t)$$

**Table 3: Diffusion parameters for Latin America’s telecom and electricity liberalization**

Indicators	Year of first-move (t=0)	No. of adopters (Year 2002)	Regression Constants (& standard error)			Diffusion Model Parameters		
			A1	A2	A3	$\alpha$	$\beta$	N
Telecom and Electricity Privatization	1979	20	-0.12 (0.38)	0.43** (0.12)	-0.02** (.006)	0.006	0.02	20
Telecom and Electricity Regulatory Authority	1979	26	-1.02 (0.63)	0.49** (0.16)	-0.015* (.001)	-0.03	0.015	30

Note: \*\* p<.01 \* p< 0.5

## The results

The results of this regression are presented in table 3. They confirm what was already evident from graphs 3 and 4, namely the pace and extent of telecom liberalization are far more advanced than in electricity; and when they liberalize, public officials are more inclined to move towards the creation of separate regulatory authorities than to privatization. More important however, the diffusion model and the regression parameters also provide us with estimates of the external and internal effects of the process, things that are not visible directly from the graphs. They thereby offer us a comparable measure of the extent of contagious behavior ( $\beta$ ) and distinguish the effects of external and internal influences ( $\alpha$  and  $\beta$ ) in the process of liberalization. It is the ability to demonstrate that there are some contagious effects in Latin America that makes the study of the process of the internationalization of regulatory reforms so promising.

## MECHANISM OF DIFFUSION: FROM AGGREGATE EVIDENCE TO MICRO-LEVEL THEORY

Can we move from aggregate evidences as to the contagious effects of the reforms in Latin America to a micro-model understanding of the process?. One way to do so is via Granovetter's threshold model (1978) of collective behaviour. The threshold model demonstrates the contagious effect across a population of would-be liberalizers (or, in Granovetter's specific case, would-be rioters). Granovetter notion of 'threshold' aims to capture the number or proportion of others who must make a decision before a given actor does so. The threshold is the point where net benefits begin to exceed net costs for that particular actor. The cost to an individual of joining in a riot declines as riot size increases, since the probability of being apprehended is smaller the larger the number involved. Let us demonstrates the dynamics of diffusion according to Granovetter (this illustration of is derived from Kuran (1991)). Imagine a situation where ten officials have the following threshold sequence:

$$S1 = \{0, 1, 2, 2, 6, 7, 7, 7, 8, 10\}$$

Official 1 with a threshold of 0 ( $L^1 = 0$ ) will liberalize regardless of the costs involved, just as official 10 with a threshold of 10 ( $L^{10} = 10$ ) will always oppose liberalization (i.e., will supports the status quo). While the threshold points of the two officials at either extreme are not sensitive to the number of liberalisers, the thresholds of the other eight officials depend on the cumulative

number of officials who have liberalized  $[\pi(t)]$ . For instance, official 6 ( $L^6=7$ ) will not liberalize until at least seven others liberalize. His threshold is therefore bigger than that of official 5, whose threshold is 6. The chain reaction of herding starts when the first official ( $L^1=0$ ) decides to liberalize. His action triggers the second official, who needs only one other official to decide to liberalize (as  $L^2=1$ ). The actions of the first two officials then trigger the third and fourth officials ( $L^3=L^4=2$ ). Here the process of herding stagnates. The threshold point of official 5 ( $L^5=6$ ) is bigger than the number of officials who liberalize (4). The process of herding will therefore produce divergent outcomes. While four countries chose to liberalize, the rest opted for the status quo. Yet sometimes the process of herding might produce convergence on a larger scale. Imagine a slightly different distribution of thresholds in a similar group of ten officials:

$$S2 = \{0, 1, 1, 2, 4, 5, 6, 6, 7, 10\}$$

The mean and the average in the first group (S1) are similar to the mean and the average in the second group (S2) but the scope of herding is very different. Official 1 triggers the two next officials, who trigger the fourth official ( $L^4=2$ ). Now official 5 is triggered and his action triggers at the same time the next two officials ( $L^6=L^7=6$ ). The seventh official then triggers official 8 ( $L^8=7$ ) and here the process stagnates, with nine out of ten officials opting for liberalization.

Until now and following Granovetter we assume that the distribution of threshold does not vary during the process of herding. Officials have a rather fixed threshold point that is exogenously determined. A more realistic and less vulnerable process of herding is produced when the distribution of thresholds in the population itself changes in the process of herding. Let us illustrate this through the gradual transformation of the example of group S1. In Granovetter's model the distribution equilibrium was 4 where the process became self-sustaining. Now consider the effect of herding by official 4 at time  $t$  on official 5 at time  $t+1$ . The threshold point of official 5 was 6, but now her cost calculations are affected by her colleagues' herding and it is reduced to 5 ( $L_t^5=6 \rightarrow L_{t+1}^5=5$ ). Since similar effects are observable on the threshold points of some of the other officials, the following distribution is now relevant to the process of herding:

$$S1_{t+1} = \{0, 1, 2, 2, 4, 5, 6, 7, 8, 10\}$$



This new distribution of thresholds differs from the original (S1) by the relatively small reductions in the threshold points of three officials ( $L^5$ ,  $L^6$ ,  $L^7$  with threshold points of 4,5,6 respectively). The equilibrium point however changes from 4 to 9, implying that the process of herding will result in liberalization by nine out of the ten officials. Thus, relatively minor changes in the threshold point result in considerable changes in the aggregate outcomes.

Granovetter's threshold model is especially appealing for two reasons. First, while many macro theories of political and social behaviour derive the preferences of individuals from macro-outcomes, the connection between the micro and the macro is not necessarily that simple (Schelling, 1978, 13; Coleman, 1990, 197). Granovetter breaks the 'aggregate assumption' when he asserts and demonstrates that "knowing the norms, preferences, motives, and beliefs of participants in collective behaviour can, in most cases, only provide a necessary but not a sufficient condition for the explanation of outcomes" (Granovetter, 1978, 1421). Modelling the interaction of individuals allows us to demonstrate that aggregate outcomes are not a simple reflection of the mean or the average of the preferences of individuals. Second, Granovetter's model lets us take into account the heterogeneity of the subjects. In his model of rioters different individuals require different levels of safety before entering a riot and also vary in the benefits they derive from rioting (i.e., they have different thresholds). A 'radical' will have a low threshold: the benefits of rioting are high to him, the cost of arrest is low. Conservatives will have high thresholds: the benefits of rioting are small or negative to them and the consequences of arrest are high since they are likely to be 'respectable citizens'.<sup>11</sup>

All in all, we can summarize the discussion on cross-national choice with the following observations. First, national level choices are more systematic in Latin America than the Arab World. Second, there are empirical evidences in the aggregate level for a contagious process of diffusion in Latin America. Third, we can suggest a micro-level model that interprets these interdependent choices and group dynamics as the product of decisions at the individual level. Fourth, while diffusion is possible even without these contagious effects and interdependent decisions it would be slower and weaker without them.

## **SO WHAT ABOUT THE ARAB WORLD?**

So why less and slower reforms in the Arab World?. Our interpretation emphasized the following combinations of factors. First the lack of political competition that lead to a lesser degree for demand to reforms by politicians who use them in a symbolic fashion in order to signal for their commitment for modernization and progress on the one hand and in order to ‘borrow legitimacy’ from prestigious actors in the international arena on the other. Second, while the existence of political competition is important condition for the advance of the reforms, their spread might also be driven by contagious process within specific regional groups.

There are at least two important implications for these suggestions. First, the explanatory variables for the advance of the reforms should be looked for at the level of political competition over societal support rather than the performance of the sectors and the relative benefits of nationalized *vs.* liberalized economies. Second, small-N or case-oriented research that looks for the explanation for the particular stagnation of reforms in some country (and equivalently to their rapid advance in other country) should offer some controls over the effects of diffusion or maybe better to start with diffusion explanations rather than with the traditional explanatory variables that are so popular among comparativists.

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## **Notes**

<sup>1</sup> In fact the Advance of the reforms in Latin America is equal in scope and rate (although not in at the implementation level) to that of Europe, See, Levi-Faur (forthcoming a; forthcoming b)

<sup>2</sup> This part of the paper is underdeveloped in the current draft due to time constraints.

<sup>3</sup> Indeed, the extent of change in these two industries exceeds that of other infrastructures in the modern economy (e.g., post, gas, oil, railways, roads, airlines, and media).

<sup>4</sup> Other notable developments in the 1980s were the opening of the end-user equipment market and the creation of an open environment for switching equipment and cellular telephony.

<sup>5</sup> Nominal independence is one of the least precise but the only one that is available on large scale. For a more thorough examination of the issue see the work of Gilardi (2002b) who is using measures that were developed for the measurement of central bank independence to regulatory authorities in general.

<sup>6</sup> This following explanation is adopted from Levi-Faur (1999; forthcoming b)

<sup>7</sup> A counter-argument may suggest that it was possible to introduce new economic players to the generation segment and to enforce choice of electricity suppliers, at first to big consumers. Yet this strategy of gradualism could not be consensual in the same way that gradualism of telecoms was possible. Promoting choice for big consumers and reducing entry barriers for new electricity generation is a measure which promotes big business and thus cannot win the same level of consensus as the promotion of consumer choice in telecoms.

<sup>8</sup> The sum transferred to the electricity supply industry in California for competition purposes was about \$7 billion. In the Netherlands the bill is estimated to be \$1 billion.

<sup>9</sup> The primary energy sources for the generation of electricity.

<sup>10</sup> See Ragin (2000) on conjunctural causality.

<sup>11</sup> However, the threshold values are combinations of various characteristics of individuals' behavior. Therefore they do not have any special conceptual status.

## **References**

Bacon, Robert (1999) *A Scorecard for Energy Reform in Developing Countries*, The World Bank, Washington.

Bacon, Robert and Besant-Jones J. (2001) *Global Electric Power Reform, Privatization, and Liberalization of the Electric Power Industry in Developing Countries*, *Annual Review of Energy and the Environment*, Vol. 26, pp. 331-59.

Badie Bertrand, (2000) *The Imported State: The Westernization of the Political Order*, Stanford: Stanford University Press.

Barker Ernest (1944) *The Development of Public Services in Western Europe 1660-1930*, Oxford, Oxford University Press.

- 
- Bartle, I. (1999) Transnational interests in the European Union: globalization and changing organization in telecommunications and electricity. *Journal of Common Market Studies*, 37(3), 363-383.
- Bartle, I. (2002) When Institutions No Longer Matter: Reform of Telecommunications and Electricity in Germany, France and Britain, *Journal of Public Policy*, Vol. 22(1), pp. 1-27.
- Brooks Sarah, (2002) *Interdependent and Domestic Foundations of Policy Change: The Diffusion of Pension Privatization around the World*. Unpublished Manuscript.
- Brune Nancy and Geoffrey Garrett, (2000) The Diffusion of Privatization in the Developing World, Unpublished Manuscript.
- Coleman James (1990) *The Foundations of Social Theory*, The Belknap Press of Harvard University Press, Cambridge, Mass and London.
- Covadonga Meseguer (2002) The Diffusion of Privatization in Industrial and Latin America Countries: What Role for Learning?, Paper presented at the Workshop on the Politics of Regulation, Barcelona, November 2002.
- Bikhchandani Sushil, Hirshleifer David and Welch Ivo, (1992) "A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades", *Journal of Political Economy*, Vol. 100, pp. 992-1026.
- DiMaggio Paul and Powell Walter (1991). "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields, In: DiMaggio Paul and Powell Walter (eds). *The New Institutionalism in Organizational Analysis*, The University of Chicago Press, Chicago and London, pp. 63-81.
- Financial Times Energy, (1995) *Electricity Generation in Latin America : Sector Reform and Privatisation*, FT, London.
- Financial Times Energy, (1997) *Electricity in Europe: Into the Single Market*, FT, London, Two Volumes.
- Financial Times Energy, (1998) *Electricity and Gas Regulation in Latin America*, FT, London.
- Finnemore, Martha, (1996) *National Interests in International Society*, Ithaca, N.Y.: Cornell University Press.
- Gilardi Fabrizio (2002a) Functionalist and Non-Functionalist Logic of Diffusion: Delegation to Independent Regulatory Agencies in Western Europe, Paper tabled at the Workshop on the Politics of Regulation, Barcelona.

- 
- Gilardi Fabrizio (2002b) Policy Credibility and Delegation to Independent Regulatory Agencies: A Comparative Empirical Analysis, *Journal of European Public Policy*, Vol. 9, No. 6, pp. 873-893.
- Gilbert Richard and Kahn Edward (1996) *International Comparisons of Electricity Regulation*, University of Cambridge Press, Cambridge.
- Gomez-Ibanez A. Jose, (1999) *The Future of Private Infrastructure: Lessons from the Nationalization of Electric Utilities in Latin America, 1943-1979*, Discussion Paper, Taubman Center for State and Local Government, John F. Kennedy School of Government and Harvard University. Revised 20.12.2000
- Granovetter Mark, (1978) "Threshold Models of Collective Behavior", *American Journal of Sociology*, Vol. 83, pp. 1420-1443.
- Haas M. Peter, (1992) "Introduction: Epistemic Communities and International Policy Coordination", *International Organization*, Vol. 46, No. 1, pp. 1-36.
- IEA, (1996) *The Role of IEA Governments in Energy*, International Energy Agency, Organization for Economic Co-operation and Development, Paris.
- IEA, (2001) *Competition in Electricity Markets*, International Energy Agency, Paris.
- Ikenberry G. John, (1990) "The International Spread of Privatisation Policies: Inducements, Learning, and "Policy Bandwagoning", In: Suleiman Ezra and Waterbury John, *The Political Economy of Public Sector Reform and Privatisation*, Westview Press, Boulder, pp. 88-110.
- Kuran, Timur, (1991) Now Out of Never: The Element of Surprise in the East European Revolution, *World Politics*, Vol. 44, pp. 7-48.
- Lerner, Daniel (1964) The Transfer of Institutions, In: Hamilton B. William (ed), *The Transfer of Institutions*, Duke University Press, Durham, N.C. and Cambridge UP, London, pp. 3-26.
- Levi-Faur, David (1998) "The Competition State as a Neo-Mercantilist State", *The Journal of Socio-Economics*, Vol. 27 No. 6, pp. 665-685.
- Levi-Faur, David (1999) "The Governance of Competition: the interplay of technology, economics, and politics in the making of the European Union's electricity and telecoms regimes", *Journal of Public Policy*, Vol. 19, No.2, pp. 137-169.
- Levi-Faur, David (2000) "The Rise of the Competition State: Regulatory Reforms in the UK and the US", *Current Politics and Economic in Europe*, Vol. 9, No. 4, 2000, pp. 427-455.

---

Levi-Faur, David (2002) "Herding towards a New Convention: On herds, shepherds and lost sheep in the liberalisation of the telecommunications and electricity industries", *Nuffield College Working Papers in Politics*, No 6.

Levi-Faur, David (2003) "New regimes, new capacities: the politics of telecommunications nationalisation and liberalisation", In, Weiss Linda (ed.) *States in the Global Economy: Bringing Domestic Institutions Back In*, Cambridge University Press, Cambridge, pp. 161-178.

Levi-Faur, David (Forthcoming a) 'On the "Net Impact" of the European Union Policy Process: The EU's telecoms and electricity Regimes between the global and the national', *Comparative Political Studies*

Levi-Faur (forthcoming b) 'The Politics of Liberalization: Privatization and regulation-for-competition in Europe's and Latin America's Telecoms and Electricity industries', *European Journal of Political Research*.

Levi-Faur David, (forthcoming c) "Comparative Research Design in the Study of Regulation: How to Increase the Number of Cases without Compromising the Strengths of Case-oriented Analysis", In Jacint Jordana and Levi-Faur David (eds), *The Politics of Regulation*, Elgar and the Centre on Regulation and Competition, University of Manchester.

Levy Brain and Spiller Pablo (1996) *Regulations, Institutions, and Commitment; Comparative Studies of Telecommunications*, Cambridge University Press, Cambridge.

Mahajan Vijay and Peterson, Robert (1985) *Models of Innovation Diffusion*, Sage University Paper, Series on Quantitative Applications in the Social Science.

Manzetti, Luigi, (1999) *Privatisation South American Style*, Oxford University Press.

Meyer W. John (1980) 'The World Polity and the Authority of the Nation-State', in Bergesen Albert (ed), *Studies of the Modern World-System*, Academic Press, New York, pp. 109-137.

Meyer, W. John and Rowan, Brian (1977) "Institutionalised Organizations: Formal Structure as Myth and Ceremony" *American Journal of Sociology*, Vol 83, No. 2, pp. 340-363.

Meyer W. John, Boli John, Thomas M. George and Ramirez O. Francisco (1997) 'World Society and the Nation-State', *American Journal of Sociology*, Vol. 103, No. 1, pp. 144-81.

Molano Walter, (1997) *The Logic of Privatisation: The Case of Telecommunications in the Southern Cone of Latin America*, Westport, Conn. ; London : Greenwood Press,

- 
- Müller-Jentsch D. (2000) *The Euro-Mediterranean Energy Partnership: Sector Policies for the 21<sup>st</sup> Century*. Washington, DC: World Bank.
- Murillo, M. V. (2002) Political bias in policy convergence: privatisation choices in Latin America. *World Politics*, 54(4), 462-493.
- Natalicchi Giorgio, (2001) *Wiring Europe: Reshaping the European Telecommunications Regime*, Lanham, Boulder: Rowman & Littlefield Publishers.
- Newbery M. David, (1999) *Privatisation, Restructuring, and Regulation of Networks Utilities*, Cambridge, Mass.: The MIT Press.
- Petrizzini, Ben, (1995) *The Political Economy of Telecommunications Reform in Developing Countries: Privatisation and Liberalisation in Comparative Perspective*, Westport, Conn; London: Praeger.
- Pool, Ethel de Sola (1983) *Technologies of Freedom*. Cambridge, Mass.: Balkan Press.
- Pollitt G. Michael, (1997) "The Impact of Liberalisation on the Performance of the Electricity Supply Industry: An International Survey", *The Journal of Economic Literature*, Vol. 3, pp. 3-31.
- Ragin C. C. (2000) *Fuzzy-Set Social Science*, Chicago: Chicago University Press.
- Rogers M. Everett (1983) *Diffusion of Innovations*, The Free Press, New York, 3<sup>rd</sup> edition.
- Ruffin, Carlos (2000) "The Political Economy of Institutional. Change in the Electricity Supply Industry," PhD Dissertation, Harvard University.
- Schamis, Hector (1999) "Distributional Coalitions and the Politics of Economic Reform in Latin America", *World Politics*, January.
- Scharpf, Fritz (1997). *Games Real Actors Plays: Actor Centred Institutionalism in Policy Research*, Westview Press, Boulder.
- Schelling Thomas, (1978) *Micromotives and Macrobehavior*, W.W. Norton and Company, New York and London.
- Schmidt, Susanne K., (1997) 'Sterile Debates and Dubious Generalisations: European Integration Theory Tested by Telecommunications and Electricity'. *Journal of Public Policy*, 16, 233-271.
- Beth Simmons and Zachary Elkins (2001) Competition, Communication or Culture?: Explaining Three Decades of Foreign Economic Policy Diffusion, Unpublished Manuscript.

---

Stone, Diane (2000) Learning Lessons, Policy Transfer and the International Diffusion of Policy Ideas, Centre for the Study of Globalisation and Regionalisation, 9th February 2000, Mimeo.

Valente, Thomas W. (1995) *Network Models of the Diffusion of Innovations*. Cresskill, NJ: Hampton Press.

Veljanovski, C. (1987) *Selling the State*, London: Weidenfeld and Nicolson.

Vogel, Stephen K. (1996) *Freer Markets, More Rules: Regulatory Reform in Advanced Industrial Countries*, Cornell University Press, Ithaca and London.

Wade Jacoby (2001) *The Politics of Imitation*, Cornell University Press, Ithaca.

Wellenius, Bjorn, (2000) 'Regulating the Telecommunications Sector: The Experience of Latin America', In: Manzetti Luigi, *Regulatory policy in Latin America: Post-Privatisation Realities*, Coral Gables, Fla. : North-South Center Press, pp. 189-241.



### Appendix A: Reform Indicators for Telecoms

Country	Corporatization	Law	Regulator	Nominal independence of regulator	Cellular Competition	Competition international Calls markets	Privatisation of incumbent	Competition in the local loop	Reform Indicator
Argentina	1	1	1	0	1	1	1	0	6
Bolivia	1	1	1	0	1	0	1	0	5
Brazil	1	1	1	1	0.5	0.5	1	0	6
Chile	1	1	1	0	1	1	1	0	6
Colombia	1	1	1	0	1	1	0	0	5
Costa Rica	1	0	1	1	0	0	0	0	3
Cuba	1	0	0	0	0.5	0	1	0	2.5
Ecuador	0	0	1	1	0.5	0.5	0	0	3
El Salvador	1	1	1	1	1	1	1	0	7
Guatemala	1	1	1	0	1	1	1	0	6
Honduras	1	1	0	0	0	0	0	0	2
Mexico	1	1	1	0	0.5	1	1	0	5.5
Nicaragua	1	1	1	0	1	0	0	0	4
Panama	1	1	1	0	1	0	1	0	5
Paraguay	0	0	1	0	1	0	0	0	2
Peru	1	1	1	1	1	1	1	0	7
Uruguay	1	0	1	1	1	0	0	0	4
Venezuela	1	1	1	0	1	1	1	0	6
Algeria	1	1	1	1	0	0	0	0	4
Bahrain	1	1	0	0	0	0	1	0	3
Egypt	1	1	1	1	0.5	0	0	0	4.5
Iraq	0	0	0	0	0	0	0	0	0
Jordan	1	1	1	1	0.5	0	1	0	5.5
Kuwait	1	1	0	0	0.5	1	1	0	4.5
Lebanon	1	0	1	1	0.5	0	0	0	3.5
Libya	0	0	0	0	0	0	0	0	0
Morocco	1	1	1	1	0.5	0	1	0	5.5
Oman	1	0	0	0	0	0	0	0	1
Qatar	0		0	0	0	0	1	0	1
Saudi Arabia	1	1	1	1	0	0	0	0	4
Sudan	1	1	1	0	0.5	0	1	0	4.5
Syria	1	0	0	0	0.5	0	0	0	1.5
Tunisia	1	0	1	0	0.5	0	0	0	2.5
United Arab Emirate	1		0	0	0	0	1	0	2
Yemen	1	0	0	0	0.5	0	1	0	2.5

### Appendix B: Reform Indicators for Electricity

Country	Corporatization	Law on liberalization	Regulator	Nominal independence of regulator	IPPs	Restructured	Generation Private	Distribution Private	Summary Reform Indicator
Argentina	1	1	1	1	1	1	1	1	8
Bolivia	1	1	1	1	0	1	1	1	7
Brazil	1	0	1	1	1	1	0	1	6
Chile	1	1	1	0.5	1	1	1	1	7.5
Colombia	1	1	1	1	1	1	1	1	8
Costa Rica	1	0	1	1	1	1	0	0	5
Cuba	0	0	0	0	1	0	0	0	1
Ecuador	0	1	0.5	0	1	1	0	1	4.5
El Salvador	1	1	1	1	1	1	0	1	7
Guatemala	1	1	1	1	1	1	1	0	7
Honduras	1	1	0	0	1	1	0	0	4
Mexico	0	1	1	0	1	0	0	0	3
Nicaragua	0	1	1	1	1	0	0	0	4
Panama	1	1	1	0	1	1	1	1	7
Paraguay	0	0	0	0	0	0	0	0	0
Peru	1	1	1	1	1	1	1	1	8
Uruguay	0	1	1	1	0	0	0	0	3
Venezuela	0	1	1	0	1	0	0	0	3
Algeria	1	1	0	0	1	0	0	0	2
Bahrain	0	0	0	0	0	0	0	0	0
Egypt	0	1	1	0	1	1	0	0	4
Iraq	0	0	0	0	0	0	0	0	0
Jordan	1	1	1	0	0	1	0	0	4
Kuwait	0	0	0	0	0	0	0	0	0
Lebanon	0	0	0	0	0	0	0	0	0
Libya	0	0	0	0	0	0	0	0	0
Morocco	1	0	0	0	1	0	1	1	4
Oman	0	0	0	0	1	0	0	0	1
Qatar	1	0	0	0	1	0	1	1	4
Saudi Arabia	0	0	1	0	1	0	0	0	2
Sudan	0	0	0	0	0	0	0	0	0
Syria	0	0	0	0	0	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0
United Arab Emirate	0	0	0	0	1	0	0	0	1
Yemen	0	0	0	0	0	0	0	0	0

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## **Appendix C: Note on the Data and its Sources a**

### **Note on the Data:**

A privatisation event is documented when the some shares in the incumbent public operator(s) are transferred to private ownership. For regulatory authorities, the years refer to the start of operation, not to legislation. The classifications of independence of regulatory authority are nominal, that is, they refer to the role perceptions of the regulatory agency and the general statement by the legislators as to their intentions. But there are considerable variations in the degree of independence, which can be ignored only because the research design includes a relatively large number of cases.

### **Data and Construction of the Electricity's Scoreboard**

The scoreboard in Electricity Represents updated and extended information of a research which was carried in 1998 by a World Bank's team led by Robert Bacon (Bacon, 1999). Bacon's original research was based on survey that referred to the situation in mid-1998. I updated his data to 2002 by using his own original criteria but by adding two additional questions (g & h) and changing one of his original questions (about privatization) so as to distinguish between privatization of generation and privatization of distribution assets. Un like Bacon's study that was based on questionnaire I relied on secondary material. Finally, I extended the original country's coverage by Bacon by adding more countries (Specifically, Cuba, Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates)

The five questions from Bacon's study that were used in the scoreboard in Appendix B are:

- a. "Has the utility [state owned enterprise] been commercialized and corporatized?"
- b. "Has an 'Energy Law' been completely passed by Parliament [a law which would permit the creation of a sector that could be unbundled and/or privatized in part or in whole]?"
- c. "Has a regulatory body started work [a body that is separate from the utility and from the Ministry]?"
- d. "Is there any private sector investment on greenfield sites in operation, or under construction?"
- e. "Has the core state-owned utility been restructured/separated?"

In addition I added the following questions:

- f. "Has any of the existing state-owned enterprise been privatized in the generation sub-sector [including outright sale, voucher privatization or joint ventures]?"
- g. "Has any of the existing state-owned enterprise been privatized in the distribution sub-sector [including outright sale, voucher privatization or joint ventures]?"
- h. "Is the regulatory body (if established, see question c) nominally autonomous?"

Each question was answered by a "yes" or "no," with a "yes" counting for one point; thus countries could score between zero and eight points.

### **Data and Construction of the Telecoms's Scoreboard**

The scoreboard for telecoms was constructed by myself with an attempt to create functional equivalent for each of the questions in the electricity scoreboard:

- 
- a. “Has the utility [state owned enterprise] been commercialized and corporatized?”
  - b. “Has an ‘Telecoms Law’ been completely passed by Parliament [a law which would permit competition]?”
  - c. “Has a regulatory body started work [a body that is separate from the utility and from the Ministry]?”
  - d. Is the regulatory body (if established, see question c) nominally autonomous?”
  - e. “Is there competition in the cellular market?”
  - f. “Is there competition in the international telephony market?”
  - g. “Has the existing state-owned enterprise been privatized [including outright sale, voucher privatization or joint ventures]?”
  - h. “Are there rules that encourage competition in the local loop?”