Assessing and Managing the Impact of Telecom Deregulation

OECD Global Conference on Telecommunications Policy for the Digital Economy

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Director McKinsey & Company Brussels
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FORCES DRIVING REFORM OF THE TELECOMMUNICATIONS SECTOR

Globalization effects
- Increasing international trade and capital flows
- Competition between countries for foreign investment
- Importance of scale and access to capital
- International agreements – e.g., GATT/WTO
- Regional integration – e.g., European Union

Technological change
- Innovation no longer dependent on government subsidies
- Multiple competing technologies due to digitalization and wireless
- Improving cost/benefit ratios

Reform of telecommunications sector
- Goal of generating proceeds from privatization
- Desire to withdraw from role in the sector

Stakeholders’ interests
- Operators (incumbents, new entrants)
- Customers (business, residential)
- Equipment providers (domestic, foreign)
- Society (unions, etc.)

Governments’ interests

MAIN MESSAGES

• Details of deregulation represent potentially the largest value lever for operators and are an important wealth distribution and generation tool for countries

• Deregulation’s impact has been—and will continue to be—a critical determinant of industry development, but varies significantly by country

• Even in “deregulated” countries, sector reform challenges remain significant for regulators. Regulators need to adapt their approach and philosophy to the objectives and situation at hand
REGULATION MUST MAKE COMPLEX GROWTH AND VALUE TRADE-OFFS

OVERVIEW OF REGULATORY LEVERS

OVERVIEW OF FIXED REGULATORY LEVERS

Example of fixed regulatory levers:
- Number of competitors
- Ownership and control rules, including restrictions on foreign investment
- Eligibility and amount paid into competition
- Licensing procedures and conditions
- Pricing
- Price caps
- Profit rebalancing
- Tariffs for wholesale compensation
- Pricing regime for local calls
- Rights and obligations to interconnect
- Structures and level of charges
- Calculation and infrastructure sharing
- Contributions to extending network elements
- Interconnection for ISPs
- Numbering plan
- Number portability
- Length and ease of carrier pre-fixes
- Subscription mechanisms for current pre-selection
- Universal access and service obligation definitions
- Universal service funding mechanism
- Penetration targets
- Senior quality targets

Source: McKinsey
OVERVIEW OF MOBILE REGULATORY LEVERS

Example of mobile service levers:
- Number of network operators
- Ownership and contributions
- Licensing procedures and conditions
- Rights and obligations to interconnect
- Structure and level of charges
- Collection and infrastructure sharing
- Requirements for national roaming
- Universal access and service obligation definitions
- Service quality targets

Example of mobile service levers:
- Controls against abusive retail pricing
- Controls against abusive international roaming pricing
- Access deficit compensation applied to mobile operators
- Numbering plan
- Length and ease of call reception codes
- Subscription mechanisms for indirect access
- Universal service funding mechanism
- Network rollout and coverage requirements
- Service quality targets

REGULATORY MANAGEMENT IS LARGEST VALUE LEVER

Potential impact of lever on value of telco

Potential value at stake = 40-50%

THE IMPORTANCE OF LEVERS VARIES BY PLAYER

Potential value at stake by regulatory lever

Incumbent

Level of competition
Overall price cap
Tariff re-balancing
Interconnection charge
Equal access arrangements
USO funding
Delaying entry of competition
De-averaging of price

BASED ON EUROPEAN INCUMBENT EXAMPLES NOT MUTUALLY EXCLUSIVE IMPACT

EXAMPLE BASED ON EUROPEAN PSTN EXAMPLE AT NO MOMENT OF DEREGULATION MUTUALLY EXCLUSIVE IMPACT
**Details Underpinning Cost-Orientation Drive**

**Huge Impact on Interconnection Rates**

Single tandem interconnection rates (US cents per minute)

<table>
<thead>
<tr>
<th>Rate</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 - 1.8</td>
<td>LRIC-based rates in U.S. for IXCs*</td>
</tr>
<tr>
<td>1.5 - 1.7</td>
<td>LRIC-oriented rates in EU</td>
</tr>
<tr>
<td>1.5 - 2.5</td>
<td>Historical cost-based rates</td>
</tr>
<tr>
<td>3.0 - 5.0</td>
<td>Retail tariff-based rates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rate</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 - 8</td>
<td>LRIC*-based rates in U.S. for mobile and CLECs*</td>
</tr>
</tbody>
</table>

**Rationale**

- Aggressive implementation of LRIC* concept
- Aggressive LRIC plus ADC*
- Limited efficiency adjustments
- Implicit tapering/competition allowance
- Alternatively / European benchmarks
- Historical cost
- No cost orientation
- Alternatively / ADC included

**Aggressive Implementation of LRIC**

- Lower interconnection revenues due to lower prices
- Lower long-distance and intentional receive due to retail price erosion
- Loss of retail volume / market share and replacement with interconnection traffic
- Quicker loss of market share
- Lower prices due to less new entrant investment

**Necessary Points of Interconnection**

- France Telecom offers call origination service only at single tandem and local levels
- Deutsche Telekom was required to offer double tandem call origination service

**Minimum Interconnection Points to Qualify for Cost-based Tariffs**

- Competitor must have 18 interconnection points to have national presence

**Number of Entrants**

- Germany: 86
- France: 44
- France: 45
- US: 32
- US: 60
- US: 40

**Example**

- Competitor can have national presence with only one (interconnection) point
- Competitor required to build new points of interconnection if traffic in switch exceeded a specified Erlang limit

**Other Factors Such as WACC or Traffic Density**

- Other factors such as WACC or traffic density can radically alter outcome

**Number of Entrants**

- Germany: 86
- France: 44

**Source:** McKinsey
MAIN MESSAGES

- Details of deregulation represent potentially the largest value lever for operators and are an important wealth distribution and generation tool for countries.

- Deregulation’s impact has been and will continue to be a critical determinant of industry development, but varies significantly by country.

- Even in "deregulated" countries, sector reform challenges remain significant for regulators. Regulators need to adapt their approach and philosophy to the objectives and situation at hand.

INCUMBENT MARKET SHARE DECLINES HAVE BEEN SIGNIFICANT

<table>
<thead>
<tr>
<th>Country</th>
<th>International (%)</th>
<th>Long Distance (%)</th>
<th>Number of years since liberalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile (end 1998)</td>
<td>61</td>
<td>67 (share recovered)</td>
<td>9 01/91</td>
</tr>
<tr>
<td>Germany</td>
<td>-20</td>
<td>-25</td>
<td>2 01/98</td>
</tr>
<tr>
<td>Finland (end 1998)</td>
<td>30</td>
<td>34</td>
<td>6 01/94</td>
</tr>
<tr>
<td>Japan (NTT, KDD)</td>
<td>39 (92 &amp; 93)</td>
<td>-15</td>
<td>13 01/92</td>
</tr>
<tr>
<td>USA (AT&amp;T)</td>
<td>42</td>
<td>34</td>
<td>16 01/84</td>
</tr>
<tr>
<td>Australia</td>
<td>38</td>
<td>26</td>
<td>9 01/92</td>
</tr>
<tr>
<td>Sweden</td>
<td>30</td>
<td>34</td>
<td>6.5 07/93</td>
</tr>
<tr>
<td>UK</td>
<td>25</td>
<td>34</td>
<td>12 01/94</td>
</tr>
<tr>
<td>New Zealand</td>
<td>18</td>
<td>26</td>
<td>9 01/91</td>
</tr>
</tbody>
</table>

*  Price changes in local currency corrected for inflation
** Price changes only over 2 years after deregulation in Finland, 18 months in Germany

DEREGULATION DRIVES RAPID PRICE DECREASES IN MOST COUNTRIES

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<tr>
<th>Country</th>
<th>International (%)</th>
<th>Long distance (%)</th>
<th>Local (%)</th>
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<tr>
<td>Finland**</td>
<td>-30</td>
<td>-12</td>
<td>-24</td>
</tr>
<tr>
<td>Japan</td>
<td>-42</td>
<td>-39</td>
<td>-6</td>
</tr>
<tr>
<td>UK (post-1992)</td>
<td>-15</td>
<td>-30</td>
<td>9</td>
</tr>
<tr>
<td>USA</td>
<td>-12</td>
<td>-36</td>
<td>9</td>
</tr>
<tr>
<td>Australia</td>
<td>-15</td>
<td>-24</td>
<td>0</td>
</tr>
<tr>
<td>Sweden**</td>
<td>-15</td>
<td>-36</td>
<td>78</td>
</tr>
<tr>
<td>UK (pre-1992)</td>
<td>-9</td>
<td>-36</td>
<td>9</td>
</tr>
<tr>
<td>Germany</td>
<td>-50</td>
<td>-40</td>
<td>0</td>
</tr>
</tbody>
</table>

* Price changes in local currency corrected for inflation
** Price changes only over 2 years after deregulation in Finland, 18 months in Germany
DEREGULATION DRIVES INCREASE IN TELEPHONY USAGE PER LINE

% increase of telephony minutes per line

<table>
<thead>
<tr>
<th>Country</th>
<th>Annual usage increase over 3 years prior to deregulation</th>
<th>Annual usage increase over 3 years after deregulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>25</td>
<td>52</td>
</tr>
<tr>
<td>Finland</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>Japan</td>
<td>10</td>
<td>15</td>
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<td>16</td>
</tr>
<tr>
<td>Australia</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Sweden</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>UK (pre 1992)</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>New Zealand</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Germany*</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>

* 1 year before and after deregulation

DEREGULATION DRIVING MOST INCUMBENTS TO REBALANCE ACCESS PRICES, AND ELIMINATE CROSS-SUBSIDIES

Percent (local currency)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>International (to US)</td>
<td>-33</td>
<td>-69</td>
<td>-77</td>
<td>-35</td>
<td>-82</td>
</tr>
<tr>
<td>Long distance</td>
<td>-44</td>
<td>-37</td>
<td>-45</td>
<td>-30</td>
<td>-60</td>
</tr>
<tr>
<td>Local</td>
<td>22</td>
<td>27</td>
<td>33</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Access (rental)</td>
<td>48</td>
<td>35</td>
<td>-19</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

* Metropolitan, Peak time, excluding set-up fees, digital line (non ISDN)

Source: Tarifica 1999; Eurodata

INTERNET PENETRATION ENCOURAGED BY REFORM IN MOST COUNTRIES

% change in population with internet access from 1996-2000

<table>
<thead>
<tr>
<th>Region</th>
<th>% change in population with internet access from 1996-2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower high income</td>
<td>+11</td>
</tr>
<tr>
<td>Emerging countries</td>
<td>+16</td>
</tr>
<tr>
<td>Developing countries</td>
<td>+25</td>
</tr>
<tr>
<td>Developing countries</td>
<td>+4</td>
</tr>
<tr>
<td>Developing countries</td>
<td>+8</td>
</tr>
<tr>
<td>Developing countries</td>
<td>+0.9</td>
</tr>
<tr>
<td>Developing countries</td>
<td>+0.9</td>
</tr>
<tr>
<td>Developing countries</td>
<td>+1.2</td>
</tr>
</tbody>
</table>

Note: All upper high income countries have pursued reform. Internet penetration in these countries has grown from 7% to 38% of the population from 1996 to 2000

Source: ITU, UNESCO, WEFA, McKinsey

* Includes countries that have privatized and liberalized

Source: ITU, UNESCO, WEFA, McKinsey
**TELECOMMUNICATIONS INFRASTRUCTURE GROWTH MORE RAPID AMONG COUNTRIES WITH REFORM**

<table>
<thead>
<tr>
<th>% change in population with internet access from 1996-2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower high income</td>
</tr>
<tr>
<td>+21 (Fixed) +48 (Mobile) +53 (Total)</td>
</tr>
<tr>
<td>Emerging countries</td>
</tr>
<tr>
<td>+13 (Fixed) +20 (Mobile) +26 (Total)</td>
</tr>
<tr>
<td>Developing countries</td>
</tr>
<tr>
<td>+3 (Fixed) +5 (Mobile) +5 (Total)</td>
</tr>
</tbody>
</table>

Note: All upper high income countries have pursued reform. Teledensity in those countries has grown from 70% to 123% from 1996 to 2000.
* Fixed plus mobile lines per 100 population
** Includes countries that have privatised and liberalized
Source: ITU, EMC, WEFA, McKinsey

**MAIN MESSAGES**

- Details of deregulation represent potentially the largest value lever for operators and are an important wealth distribution and generation tool for countries.
- Deregulation’s impact has been and will continue to be – a critical determinant of industry development, but varies significantly by country.
- Even in “deregulated” countries, sector reform challenges remain significant for regulators. Regulators need to adapt their approach and philosophy to the objectives and situation at hand.

**GOVERNMENT AND REGULATORS’ CHALLENGES REMAIN SIGNIFICANT**

- Understand and react to differences in performance relative to other countries.
- Fine-tune/correct key regulatory policies and processes to improve sector performance.
- Determine the degree to which regulation should be adjusted to create regulatory parity between the incumbent and competitors.
- Improve the quality of networked experiences by promoting broadband and 3G sector reform (e.g., local infrastructure incentives, cable industry reform, unbundling and indirect/direct funding mechanisms).
- Focus on attracting private investment to unlock value.
- Develop capabilities to manage reform process including understanding of industry economics.
- Establish the prerequisites of sector reform: a credible legal framework and a capable, adequately resourced regulator.
- Establish clear policies on critical regulatory levers, such as timing, industry structure, interconnection and rebalancing.

Source: McKinsey
SECTOR REFORM FEEDBACK LOOP

- Initiates
- Stakeholders
- Markets outcomes
- Feedback
- Executing process and define the levers
- Define philosophy and understand economics and trade-offs
- Set objectives
- Government / Regulator

ELEMENTS OF THE REGULATORY PHILOSOPHY

- Regulatory philosophy
- Degree of regulatory invocation: Laissez-faire vs. interventionist attitude
- Degree of regulatory intervention: Ex ante vs. ex post approach
- Timing and degree of intervention approach
- Critical decision when universal service is main objective
- Critical decision when critical infrastructure is at stake
- Critical for profitability of the industry
- Critical for protecting the industry
- Critical for ensuring the quality of service

REFORM WILL CONTINUE TO MATTER

- Teledensity still has a long way to go. Several billion people still lack a phone
- Wide improvement potential to increase usage for existing infrastructure already enabled for internet
- Huge opportunity to enable existing phone lines (fixed or wireless) for internet use effectively
- Increases quality of internet usage. Current penetration of about 40 million connections is expected to rise to 190 million connections by 2005, but reform in several areas - unbundling cable television, price and subsidy support among others - will be needed to achieve this and beyond
- Increases quality and availability of infrastructure
- MVNO: data pricing, bundling, licensing and voice regulation among many levers that will determine success moving forward

Source: McKinsey