China’s Telecommunications Universal Service in a Competitive Environment

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Outline of the paper

- Introduction
- History of Telecom Deregulation and Universal Service in China
- Provision of Universal Service in a Competitive Environment: Recipes from Economic Theory
- International experience in telecommunications universal service
- Conclusions: Steps for Providing China’s Universal Services in Telecommunications
1. Introduction

Why should we provide universal service in telecommunications
1. Introduction

Reasons for Telecom Universal Service:
- Necessity/Merit Goods
- Network Externality
- the concern for economic development and spatial inequality
<table>
<thead>
<tr>
<th>Region</th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern region</td>
<td>9298.877</td>
<td>10032.02</td>
<td>10693.4</td>
</tr>
<tr>
<td>Central region</td>
<td>4852.37</td>
<td>5136.056</td>
<td>5285.528</td>
</tr>
<tr>
<td>Western region</td>
<td>3810.008</td>
<td>4051.929</td>
<td>4216.937</td>
</tr>
<tr>
<td></td>
<td>Telephone Penetration Rate</td>
<td>Main Line Penetration Rate</td>
<td>Main Lines in City (per hundred people)</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td><strong>The whole nation</strong></td>
<td>25.90</td>
<td>13.90</td>
<td>20.40</td>
</tr>
<tr>
<td><strong>Eastern</strong></td>
<td>41.47</td>
<td>20.81</td>
<td>21.24</td>
</tr>
<tr>
<td><strong>Central</strong></td>
<td>20.35</td>
<td>12.02</td>
<td>18.14</td>
</tr>
<tr>
<td><strong>Western</strong></td>
<td>16.97</td>
<td>9.22</td>
<td>21.68</td>
</tr>
</tbody>
</table>
### Table 1  Telephones per 100 people VS. GDP per capita in the year-end of 2001

<table>
<thead>
<tr>
<th>Region</th>
<th>GDP per capita (US$)</th>
<th>Telephones lines per 100 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western</td>
<td>5006.843</td>
<td>16.97</td>
</tr>
<tr>
<td>Middle</td>
<td>6658.61</td>
<td>20.35</td>
</tr>
<tr>
<td>Eastern</td>
<td>13539.87</td>
<td>41.47</td>
</tr>
</tbody>
</table>
Figure 1 Telecommunications facilities per capita at the year-end of 2001

Source: <china statistical yearbook 2002>
2. History of Telecom Deregulation and Universal Service in China

- History of Universal Service in China

- Regional Disparity in Economic Development and Universal Service in China
History of Universal Service in China

In the early 1990s, the monopoly provider of China’s telecommunications industry——China Telecom initiated the massive project “telephone connection to every administrative village in the rural districts”.

Percentage of Villages with Telephone Connection

- 1996: 53.50%
- 1997: 55.60%
- 1998: 67.10%
- 1999: 79.80%
History of Universal Service in China

In 1999, China Telecom was broken up. The entire telecommunication industry was made up of seven operating companies —— China Telecom, China Unicom, China Netcom, China Jitong, China Railcom and China Satellite. However, the universal service was still born by “China Telecom”.
In 2002, China’s telecommunications industry experienced a second round of reform. The market of telecommunication is now made up of six operating companies—China Telecom, China Netcom, China Mobile, China Unicom, China Satellite and China Railcom.
Universal Service Process Slowed down after Deregulation

Increase of Telephone Connection in China's Rural Areas

- 1763
- 1630
- 1003

10 thousand

2000 2001 2002
Percentage of Villages with Telephone Connection

- Whole nation: 85.30%
- East: 96%
- West: 73%
- Qinghai Province: 40%
- Gansu Province: 55%
History of Universal Service in China

Market Monopoly

Universal Service China telecom

Provider

Competition
Monopoly: Cross-Subsidy
In a Competitive Environment
Case 1: Symmetric Entrance

Model 2.1
In a Competitive Environment

Case 1: Asymmetric Entrance

Model 2.2
Provision of Universal Service in a Competitive Environment: Recipes from Economic Theory

monopoly                  competition

Funding: cross-subsidy   • general tax system
                      • universal service fund

Provision: the monopoly  the winner in auction
4. International Experience in Telecommunications

Universal Service

- the United States
- Peru
5. Conclusions: Steps for Providing China’s Universal Services in Telecommunications

First, setting the goals and scopes of universal service in telecommunications
Table 4: Five Stages of Universal Service in Telecommunications

<table>
<thead>
<tr>
<th>Stage 1: Network establishment</th>
<th>Stage 2: Wide geographic reach</th>
<th>Stage 3: Mass market take-up</th>
<th>Stage 4: Network competition</th>
<th>Stage 5: Service to individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>The penetration rate of firms</td>
<td>0%-30%</td>
<td>20%-80%</td>
<td>70%-100%</td>
<td>100%</td>
</tr>
<tr>
<td>The penetration rate of households</td>
<td>0%-20%</td>
<td>5%-30%</td>
<td>20%-85%</td>
<td>75%-100%</td>
</tr>
<tr>
<td>Universal service goal type</td>
<td>Technological goals (acquire new technology)</td>
<td>Geographic goals (maintain regional parity)</td>
<td>Economic goals (stimulate economy)</td>
<td>Social goals (achieve national cohesion)</td>
</tr>
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<tr>
<td>Examples of universal service goals</td>
<td>Long distance service linking all major centers; public telephones where demand warrants.</td>
<td>Telephone service available in all population centers; widespread adoption of telephony in business.</td>
<td>Widespread residential takeup of telephony; meet all reasonable demands for telecoms.</td>
<td>Telephone affordable to all; telephone service adaptable to special needs (e.g., disabled)</td>
</tr>
<tr>
<td>Typical universal service policy measures</td>
<td>License conditions on network roll-out</td>
<td>Profitable licenses subject to unprofitable obligations</td>
<td>Control speed of price rebalancing</td>
<td>Targeted subsidies</td>
</tr>
</tbody>
</table>
Second, determining quality requirement and pricing policy
Third, choose the source of funding for universal service.
Fourth, choosing the provider of universal service