How the developing world may participate in the global "Internet Economy"

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The problem
After all these years: Internet use & awareness among the poor in Indo-Gangetic Plain in 2008, acc. to large-sample survey

**Internet use (% of BOP teleusers)**

- **Bangladesh**: 56% I haven't heard about the Internet, 23% I have heard about the Internet but I haven't used it, 43% Less than once a month, 74% Once a month, 70% 2-3 times a month, 70% Daily
- **Pakistan**: 57% I haven't heard about the Internet, 20% I have heard about the Internet but I haven't used it, 41% Less than once a month, 70% Once a month, 70% 2-3 times a month, 70% Daily
- **India**: 63% I haven't heard about the Internet, 10% I have heard about the Internet but I haven't used it, 36% Less than once a month, 74% Once a month, 70% 2-3 times a month, 70% Daily
- **Sri Lanka**: 23% I haven't heard about the Internet, 10% I have heard about the Internet but I haven't used it, 23% Less than once a month, 70% Once a month, 70% 2-3 times a month, 70% Daily
- **Philippines**: 41% I haven't heard about the Internet, 20% I have heard about the Internet but I haven't used it, 10% Less than once a month, 70% Once a month, 70% 2-3 times a month, 70% Daily
- **Thailand**: 20% I haven't heard about the Internet, 10% I have heard about the Internet but I haven't used it, 57% Less than once a month, 70% Once a month, 70% 2-3 times a month, 70% Daily

**Use the Internet**

- **Bangladesh**: 0.6%
- **Pakistan**: 2.2%
- **India**: 0.8%
- **Sri Lanka**: 3.2%
- **Philippines**: 20.7%
- **Thailand**: 23.0%
What is the Internet?
Is it this? And this only?
Alternatively, is the Internet a metamedium that allows one to engage in . . .

- Communication in multiple forms, synchronous/asynchronous, one-to-one/one-to-many, etc.
- Information retrieval
- Publication
- Transactions (including payments), and
- Remote computing??

And does using **some** of these functions over distance, using electronic means, constitute participation in the Internet Economy?
Poor are participating, according to teleuse@BOP survey . . . .

- If the answer is yes, millions of poor people in the Indo-Gangetic Plain are beginning to participate in the Internet Economy through the mobile networks and handsets
  - Inchoate, but understandable as services are just beginning to be offered & business models are being worked out
  - The dongle/netbook surge had not yet occurred in 2008
10,000-sample, 6-country Teleuse@BOP survey in 2008 found that most poor people had . . .

**Used a phone in the last 3 months**

<table>
<thead>
<tr>
<th>Country</th>
<th>Bangladesh</th>
<th>Pakistan</th>
<th>India</th>
<th>Sri Lanka</th>
<th>Philippines</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of BOP (outer sample)</td>
<td>95%</td>
<td>96%</td>
<td>86%</td>
<td>88%</td>
<td>79%</td>
<td>77%</td>
</tr>
</tbody>
</table>

**Used a phone in the last week**

<table>
<thead>
<tr>
<th>Country</th>
<th>Bangladesh</th>
<th>Pakistan</th>
<th>India</th>
<th>Sri Lanka</th>
<th>Philippines</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of BOP (outer sample)</td>
<td>82%</td>
<td>66%</td>
<td>65%</td>
<td>77%</td>
<td>38%</td>
<td>72%</td>
</tr>
</tbody>
</table>

Caused by SMS reliance

Among BOP (OUTER SAMPLE)
Among non-owners, ~80% can get to a phone in under 5 minutes

**Time to reach the nearest phone (% of BOP non-owner teleusers)**

- > 60 minutes
- 45-60 minutes
- 30-45 minutes
- 15-30 minutes
- 10-15 minutes
- 5-10 minutes
- 3-5 minutes
- 2-3 minutes
- < 2 minutes

Most non-owners walk to the nearest phone
Clearly, success has been achieved with mobile voice in South Asia

• How has this region which has a large concentration of poor people (world’s largest is in the Indo-Gangetic Plain), achieved this?
  – Despite or because of policy and regulatory actions?
• How can the lessons be applied to Internet access?
Budget Telecom Network Business Model
How were this many poor people connected electronically?

• “Budget Telecom Network Model” that allowed South Asian telcos since 2005-06 to make excellent (if highly volatile) returns by serving “long-tail” markets of poor people by
  – Dramatically reducing transaction costs primarily through prepaid
  – Allowing poor people to pay for services when they need it and when they have money (as opposed to fixed monthly payments)
  – Controlling operating expenses through business-process innovation
  – Focusing on revenue-yielding minutes rather than ARPU

• Akin to Budget Airline Model that allows Air Asia to make profits while conventional airlines flounder

• Downsides
  – Patchy quality of service for consumers
  – Volatile returns; increased risks for suppliers
Total cost of mobile ownership in 77 emerging economies
Competition as the necessary condition

• Despite being similar to Bangladesh, India, Pakistan and Sri Lanka, Nepal had high prices until 2009
  – Backdoor entry to mobile space by “fixed” CDMA operators was the explanation for prices dropping in 2009
October 2008

Mobile price baskets (USD)
Average monthly prepaid mobile cost for a Low User

February 2009

Mobile price baskets (USD)
Average monthly prepaid mobile cost for a Low User, USD

Source: http://lirneasia.net/projects/2008-2010/indicators-continued/benchmarks/
Low prices ➔ greater participation by the poor (urban and rural)
Extending BTNM to broadband
Investment, over all

• Mobile voice success was achieved because the conditions were created for massive investment in network buildout

• Building networks capable of broadband is not just incremental; it is the building of an overlay network that requires massive investment, but
  – Not enough cashflow from commodity voice business
  – Governments have gotten greedy and are extracting lots of taxes
  – Great Recession (tempered by Arab & other funds seeking non-US locations)
  – Regulation has become politicized with higher profile
Internation bandwidth

- Lower prices require lower costs
  - Reduce international backhaul costs

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**Analysis: Traceroute to www.yahoo.com**

This trace was started on 24-Jul-09 PM 01:50. The host 'www.yahoo.com' (known as f1.www.vip.re1.yahoo.com) has been found, and is reachable in 14 hops.

In general this route is reasonably quick, with hops responding on average within 139ms. However, all hops after hop 7 in network 'Cable & Wireless' respond particularly slowly.

**Route Graph: Traceroute to www.yahoo.com**

*International is the bottleneck*
Prepaid “sachet” pricing

• Same as with voice and shampoo, poor people need to be able to pay when the need arises and when money becomes available

• Broadband use in HSPA+ networks, where the relation between the base station and users is in any case not fixed is conducive to this form of pricing

• Of course, sachet pricing can include “buckets” of minutes, MB, etc., and need not be seen as a taxi meter
New services/applications needed

Today CellBazaar can only do search; if payment policy firmed up they can add payments; if postal system improved they can start delivery, etc.
Policy & regulation
What role for policy and regulation?

- Restating the key point made by Levy & Spiller back in 1994: solutions must fit institutional conditions
- Institutional conditions include the operative business model ➔ policy and regulation must support and leverage the business model, not work at cross purposes to it
- The question then is what can policy and regulation do to leverage the “Budget Telecom Network Model”? 

Policy & regulation to leverage BTNM for public objectives such as greater Internet use

• Market entry and spectrum management, including refarming, have to be given highest priority; uncertainty caused by license terms ending needs to be reduced
• More emphasis on availability of, and wholesale access to, “fat pipes” than termination rates per se
• Attention to anti-competitive practices, especially vertical price squeeze
• Old style price regulation to be replaced by forms of forbearance, if necessary bounded to address competition concerns
• Gentle on Quality of Service (QOS) regulation
• Phase out universal-service levies and rationalize taxes