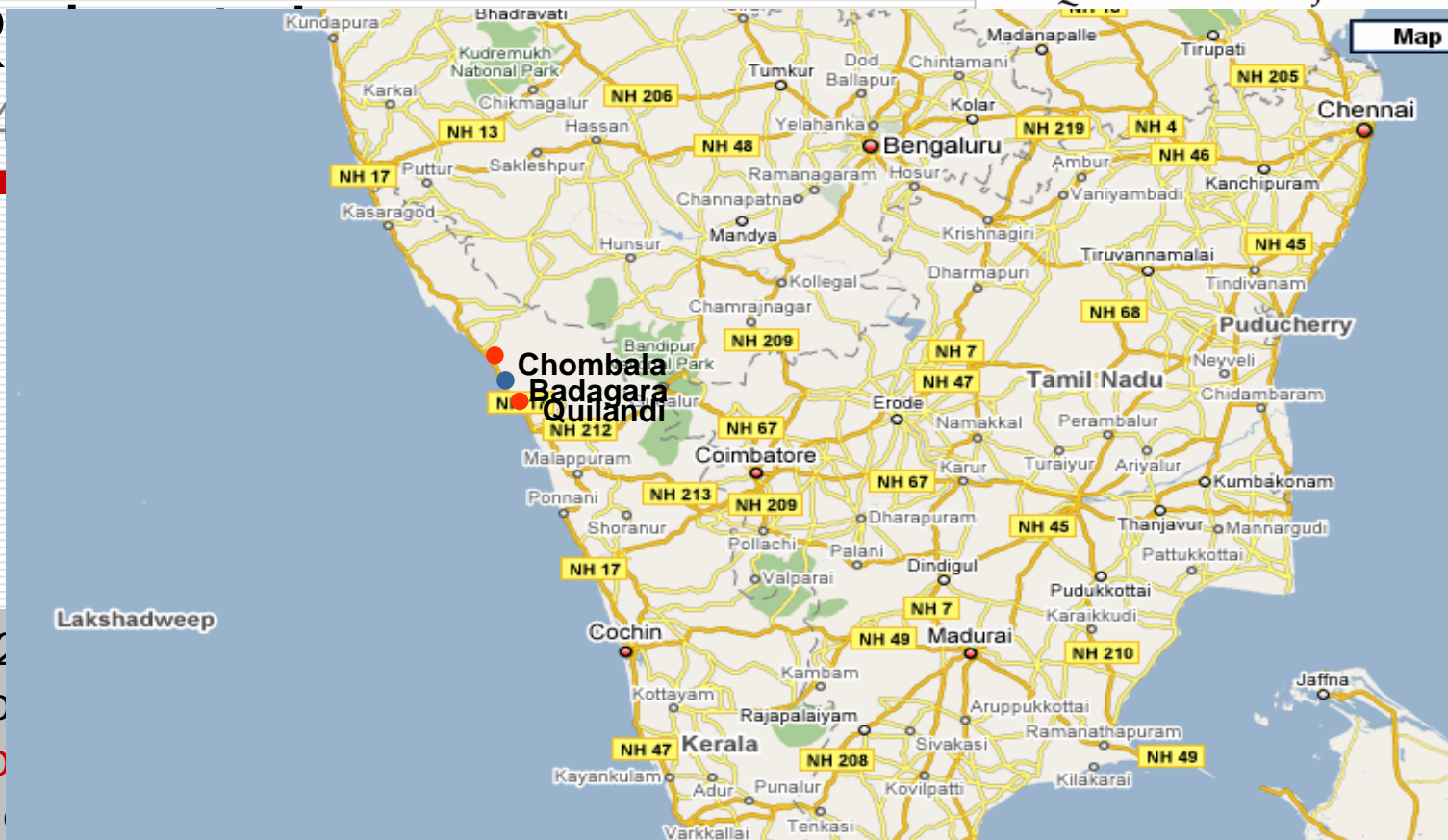


# What do regulators and operators need to know about demand?

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Executive Course on Telecom Reform  
Singapore, 11 June 2008

Harsha de Silva  
Lead Economist, LIRNEasia



By 2014, the number of people who disperse and adhere to their welfare increased."

Outside home market sales 0% → 35%



# Plan of presentation

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- Some technical issues on demand
- Understanding demand
  - Market dynamics
  - Market failures
  - Prioritizing expenditure
- To think about...

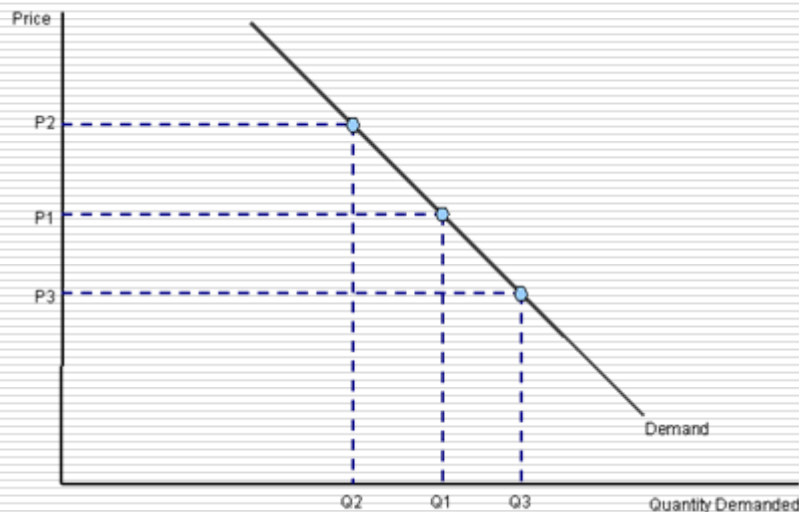


# What is demand

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## □ Demand?

- Quantity of service willing and able to purchase at a given price in a given time period
- A liner demand curve, for illustration only



# Price quantity relationship

Say, price falls for service A

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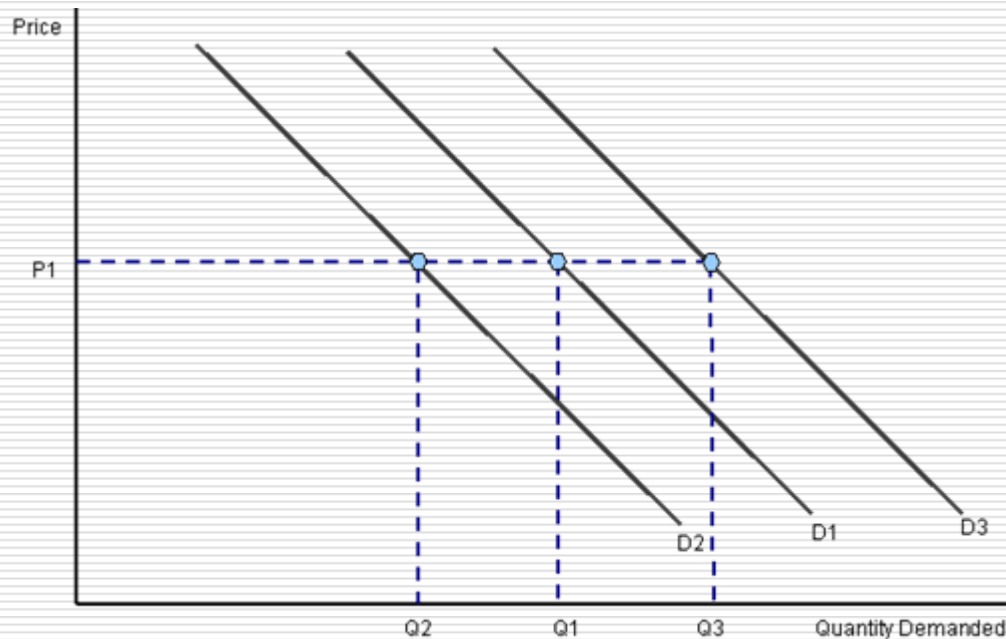
- Income effect
  - Some of the resulting increase in real income is used to buy more of service A
- Substitution effect
  - Some switching from alternative services to service A



# Changes in demand

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- Quantity demanded vs. demand
  - Shifting along the demand curve
  - Shifting demand



# Conditions of demand

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- $D = f (P, P_n \dots P_{n-1}, Y, T, \dots)$ 
  - $P$  = Price of the service
  - $P_n \dots P_{n-1}$  = Prices of other services
    - Prices of substitutes and complements
  - $Y$  = Consumer incomes
    - Level and distribution of income
  - $T$  = Tastes and preferences of consumers



# Variants of demand

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- Latent demand
  - Willingness
  - But, no ability
- Derived demand



# Demand for ICT

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- Define ICT service
  - Broad
  - Narrow
- What **exactly** is the service?
  - Is there clarity?
- Is there really a demand for telephones or for the Internet?
  - Demand for information? Fish prices?
- Derived demand; no change in fundamentals



# Understanding demand from a market dynamics context

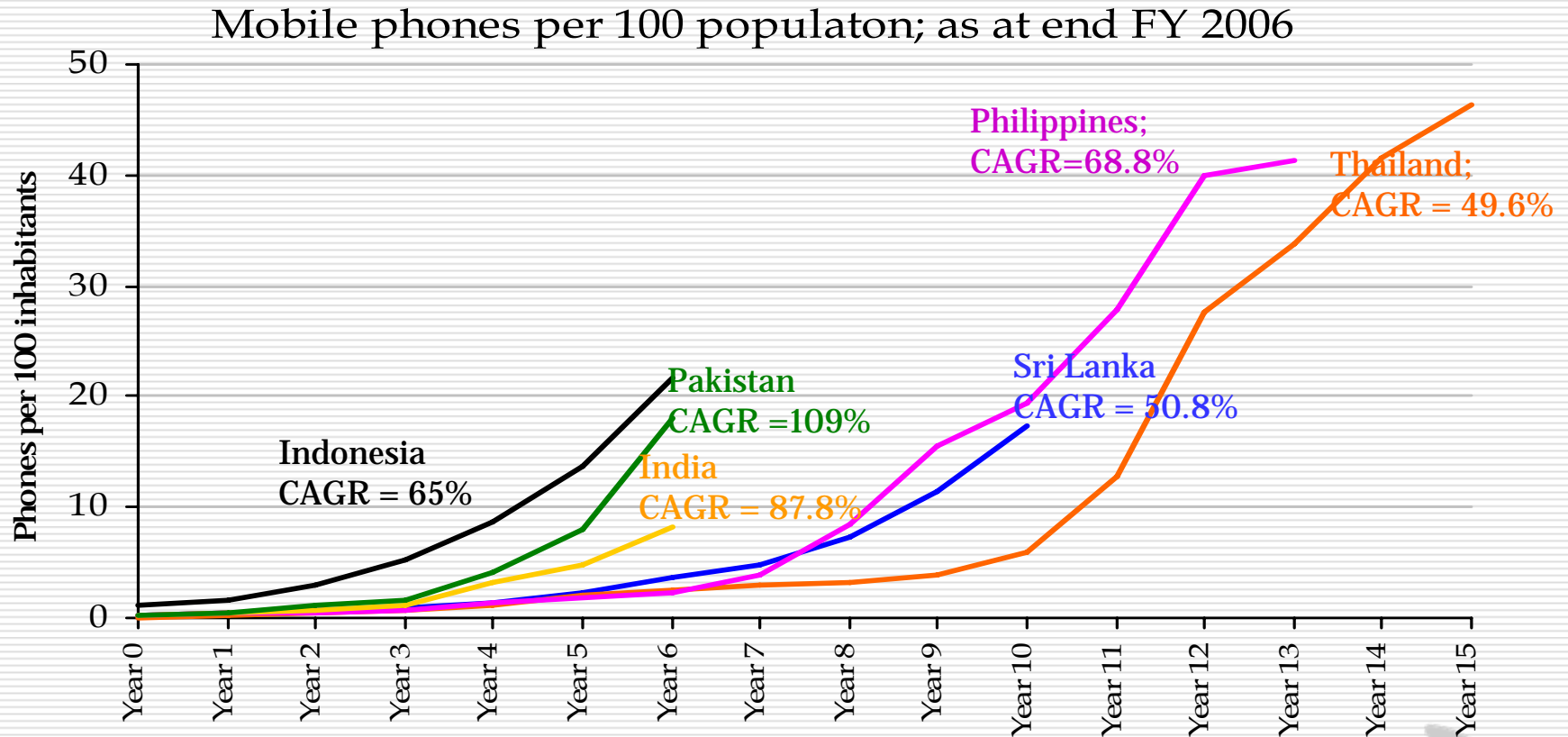
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- Market dynamics
  - Then → now
- Market failures
  - Policy formulation
    - Universal service obligations
    - ADC
  - Government failures
- Prioritizing expenditure
  - “Telecentres, full of computers but without customers ... A common question in many parts of the world”; Telecentre.Org, December 2007



# Market dynamics; mobile telephony

Then → now



# Understanding the user

## example

---

- LIRNEasia Teleuse@BOP 2
  - Pakistan, India, Sri Lanka, Philippines, Thailand
- Research questions
  - Understand usage and attitudes, perceptions on costs, benefits
  - Identify triggers and barriers to maximize use
  - Understand differences among countries
- Target group
  - Males and females, urban and rural, 18-60 years, at BOP
    - SEC classification of D&E



# Teleuse@BOP methods

Quantitative

Qualitative

Random sample 8,660 F-to-F interviews; in 5 countries  
50% diary

6 Focus Group Discussions per country (30)

Final output



# Findings on demand

---

- Usage and behaviour patterns
  - Fixed, mobile, Internet
  - Strategies at the BOP
  - Substitutes and compliments
- Ownership and potential ownership patterns
  - Income and affordability
  - Barriers
- Perceptions on benefits [and costs]
  - Tastes and preferences
- How to increase greater ownership; usage
  - All stakeholders



# Overall access is very high

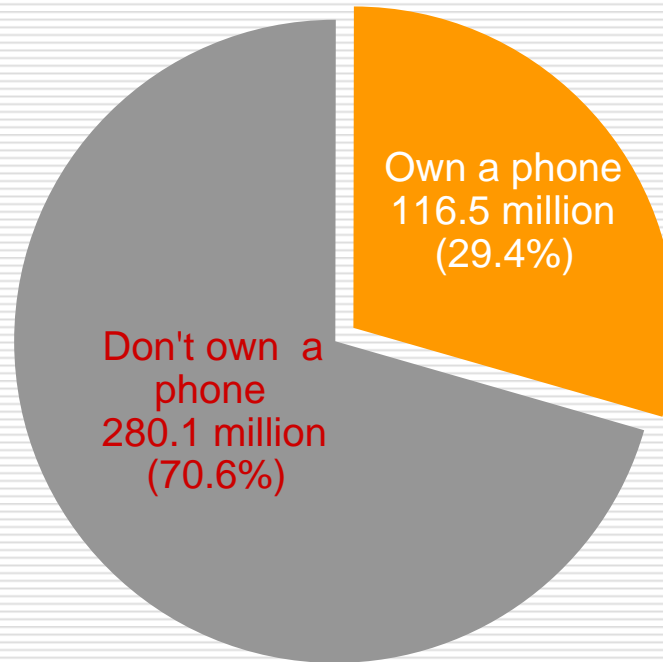
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	South Asia			South East Asia	
	Pakistan	India	Sri Lanka	Phils.	Thailand
Accessibility <i>(used a phone in the preceding 3 months)</i>	98%	94%	92%	93%	95%



# But, less than a third own a phone

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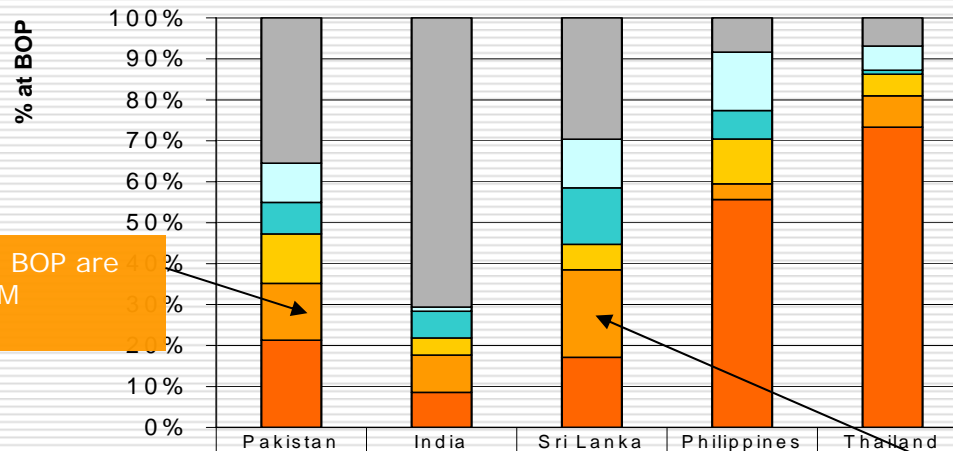
	Pakistan	India	Sri Lanka	Philippines	Thailand
Don't own a phone	63.6%	80.7%	59.0%	38.0%	18.0%



# Sharing and commercial purchase

- S Asia BOP mainly public phones; SE Asia mobiles

Most frequently used mode



"Fixed" phones at S Asia BOP are mostly CDMA; Mimic GSM features.

Also note that 12% in PK, 4% in IN & 6% in LK use the mobile of another household member



# Economic benefits from access

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## □ Indirect

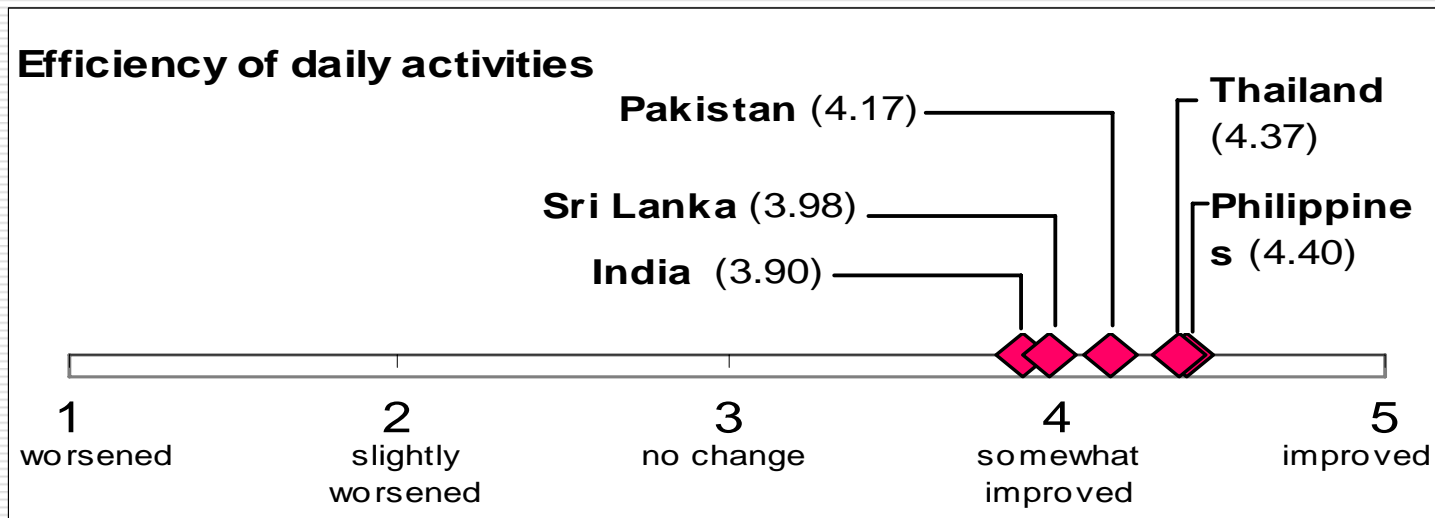
- Macro impact very high
  - Roeller and Waverman (2001) and others
- Use of a phone by an auto-rickshaw driver
- Obtaining agricultural price info by farmer
- Cost savings made by making a call instead of bus ride to town
  - Jensen (2007) on Kerala fishermen
  - Aker (2008) on Niger grain farmers



# Efficiency of daily activities

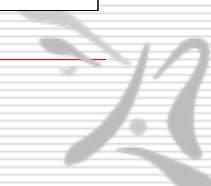
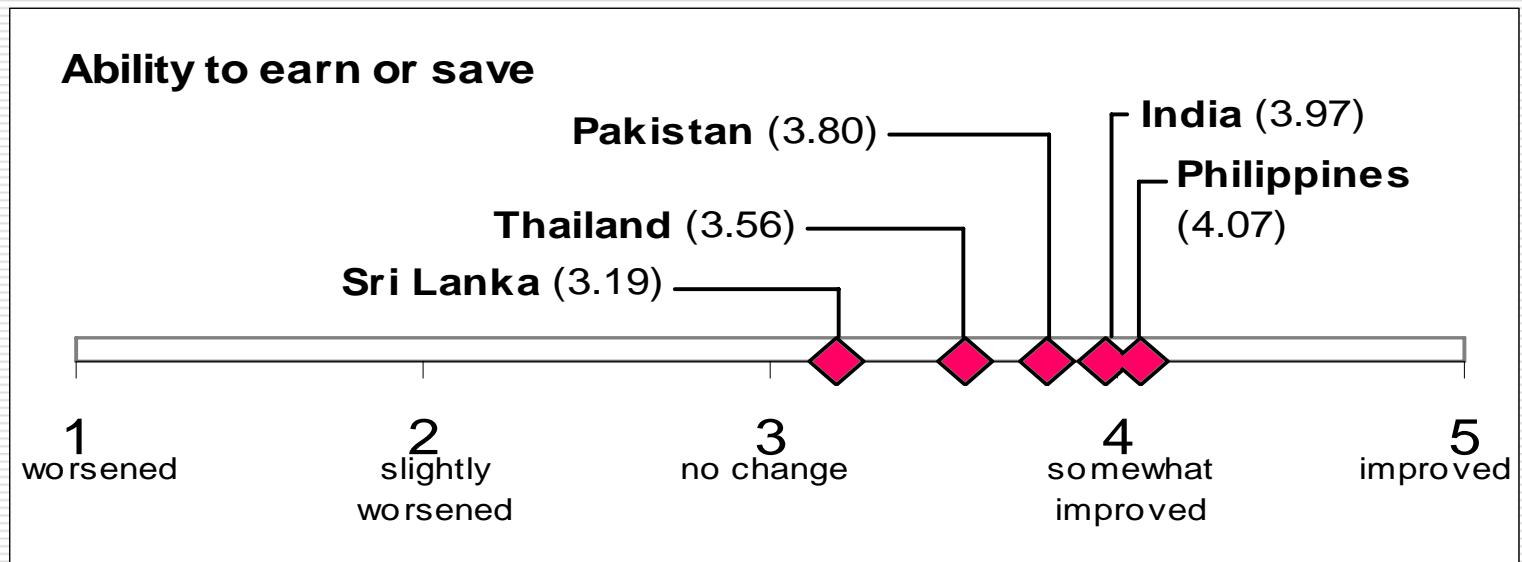
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- BOP sees the benefit



# Efficiency → income benefit?

- BOP does **not** see the benefit?
  - Except for in India, mean responses on efficiency of daily activities vs. ability to earn or save are significantly different at a 95 percent confidence interval



# Possible reasons...

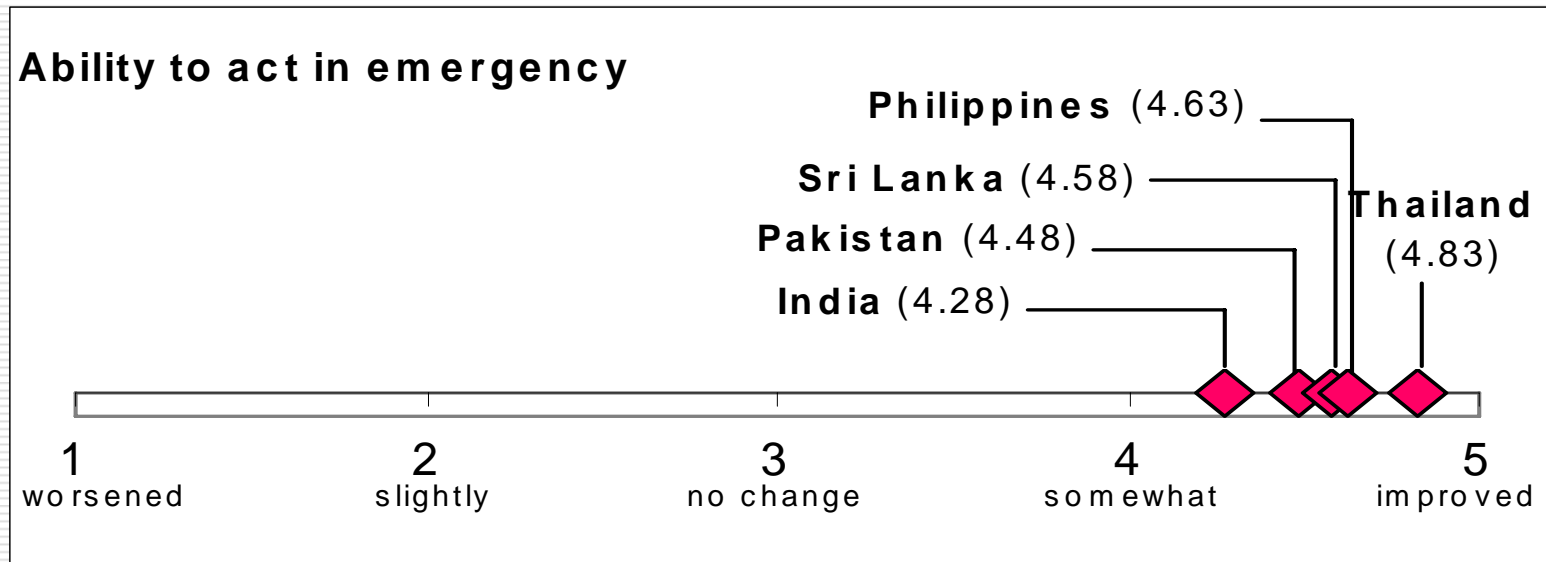
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- Do people actually make that connection?
  - Some do; services, trade, self employed...
- May see gains in saving travel time and cost but if the cost of using the telephone is high
  - Maybe no net benefit (RPP in LK?)
- Link may exist, but
  - Little business use; people prefer face-to-face interactions?
  - Not enough content?
  - Perception "time isn't money"
- Blurred distinction between economic transactions and social communications
  - Some 'Keep-in-touch' calls might have potential economic benefits
- Issues of 'trust'



# Sense of security is main benefit

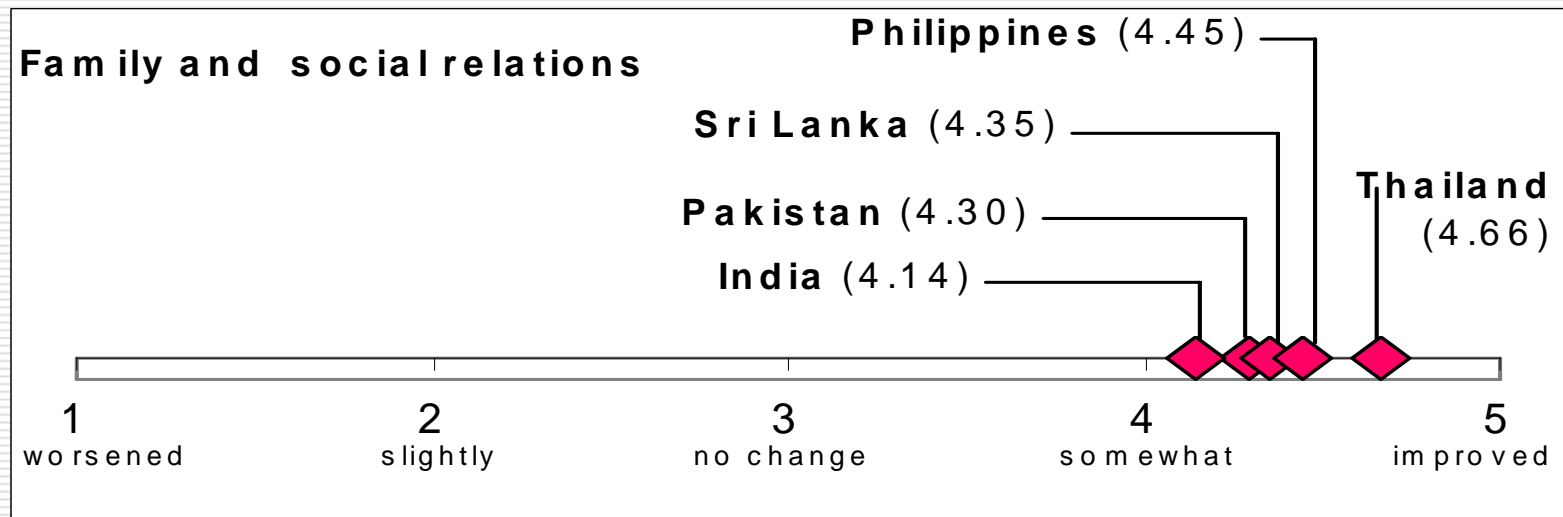
- Ability to act in an emergency is key



# Social networking is important

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- Keeping in touch with family and friends is a significant benefit

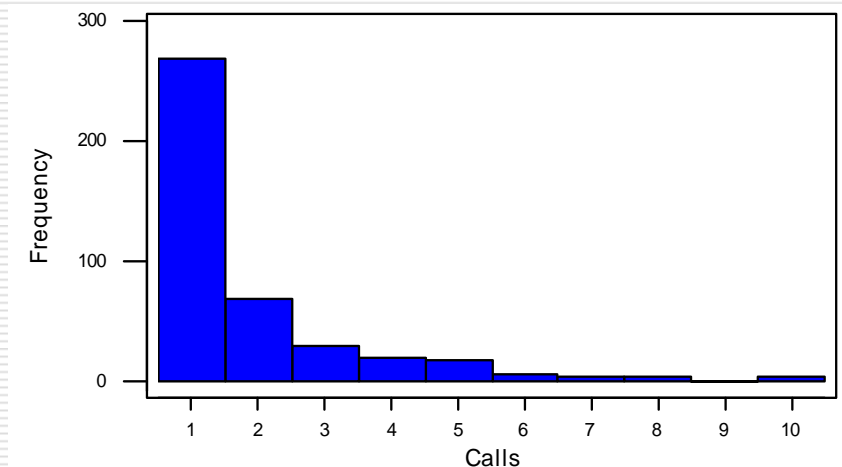


# Price elasticity of demand

## example

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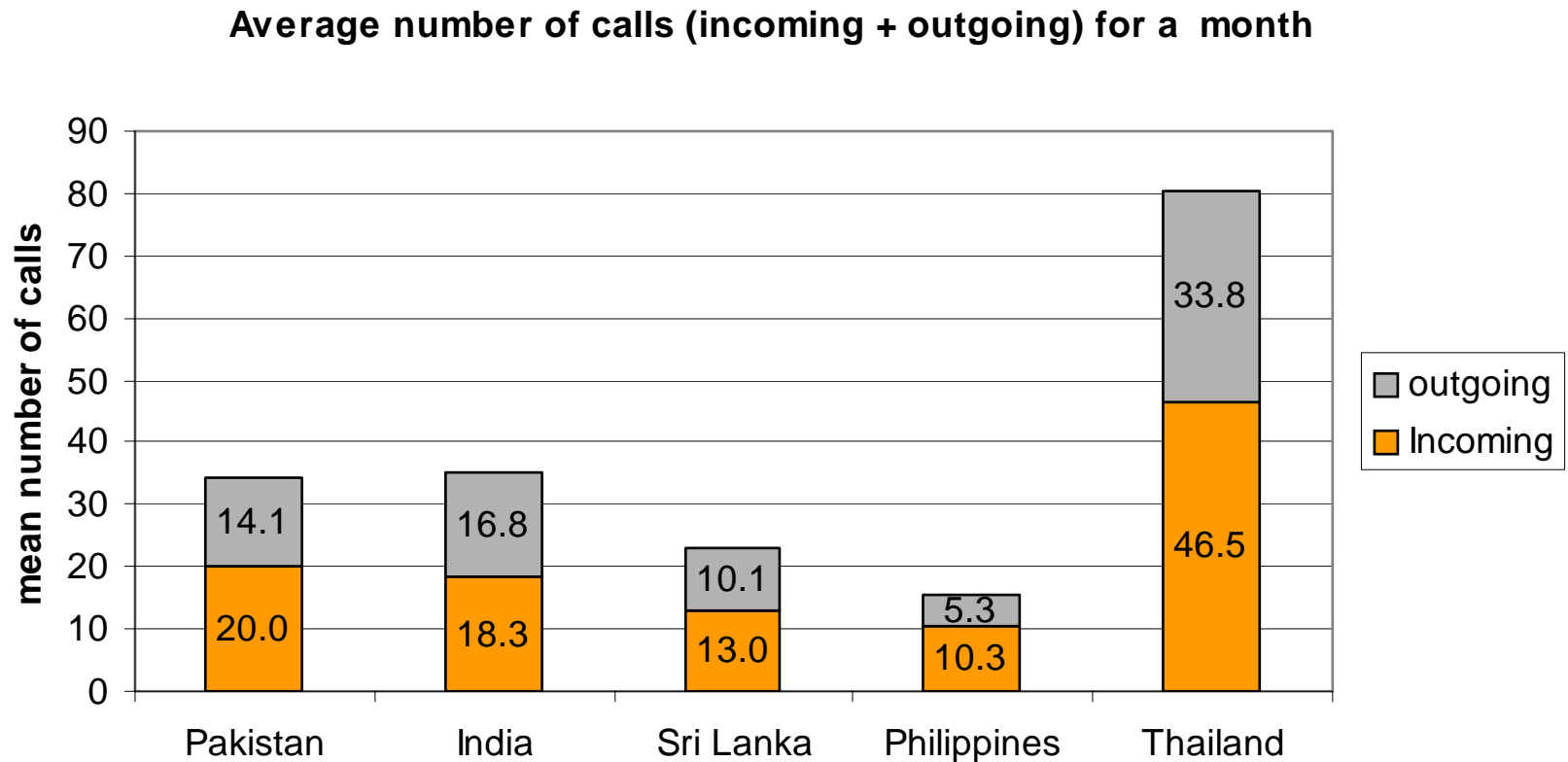
- For “all” and “keep in touch” calls in Sri Lanka
  - Poisson distribution



- Use a Generalized Linear Model
- Relatively inelastic at the BOP
  - Given tariff LKR 7/min; -0.15



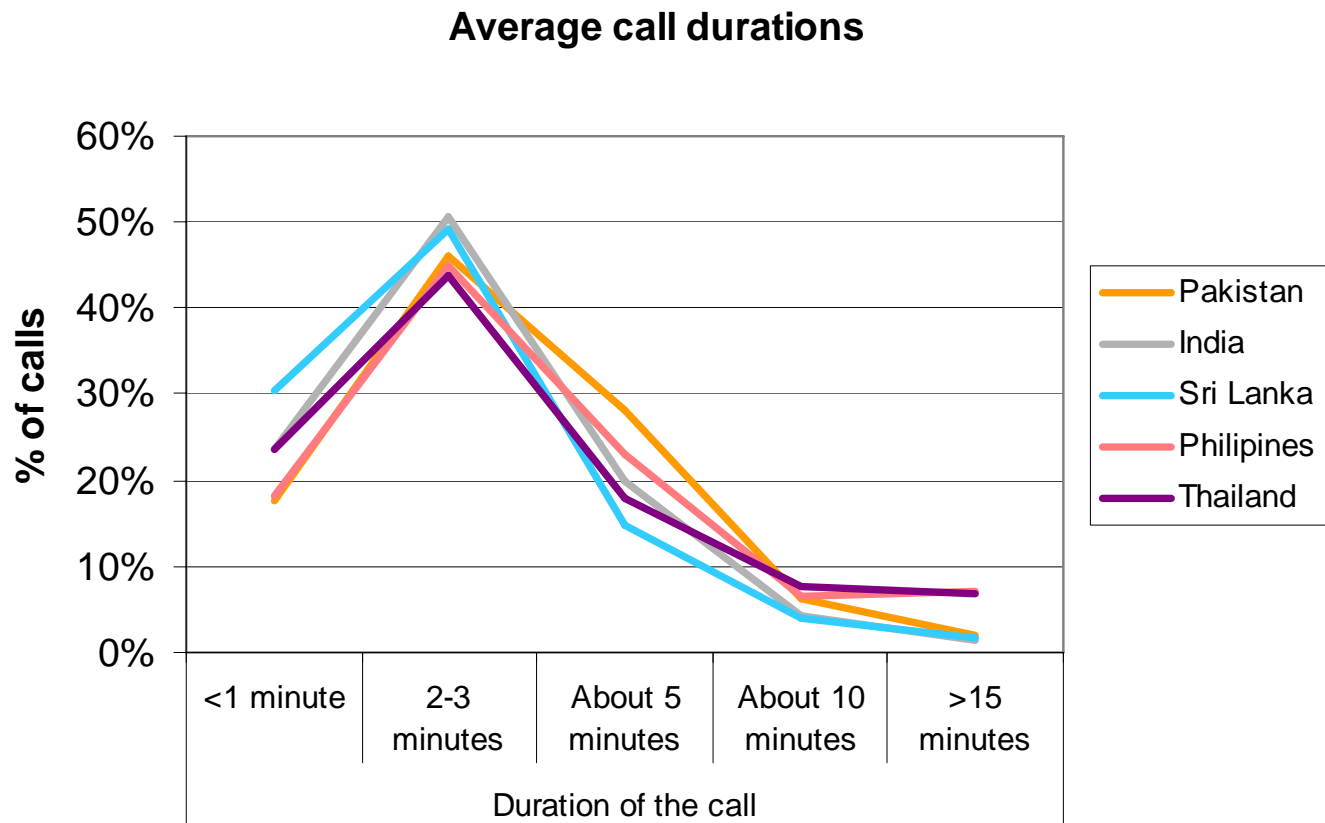
# One call a day at the BOP



Source: Diary



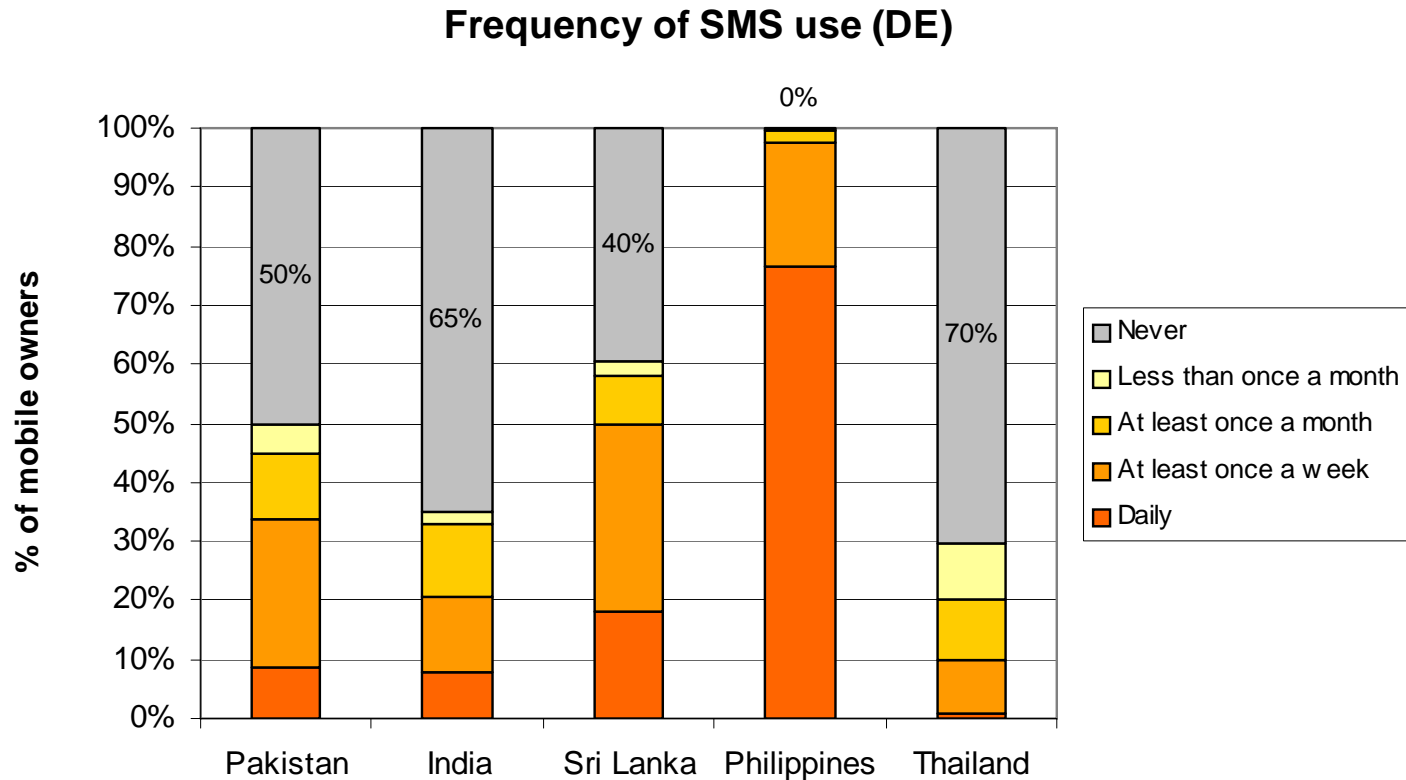
# ...and short duration



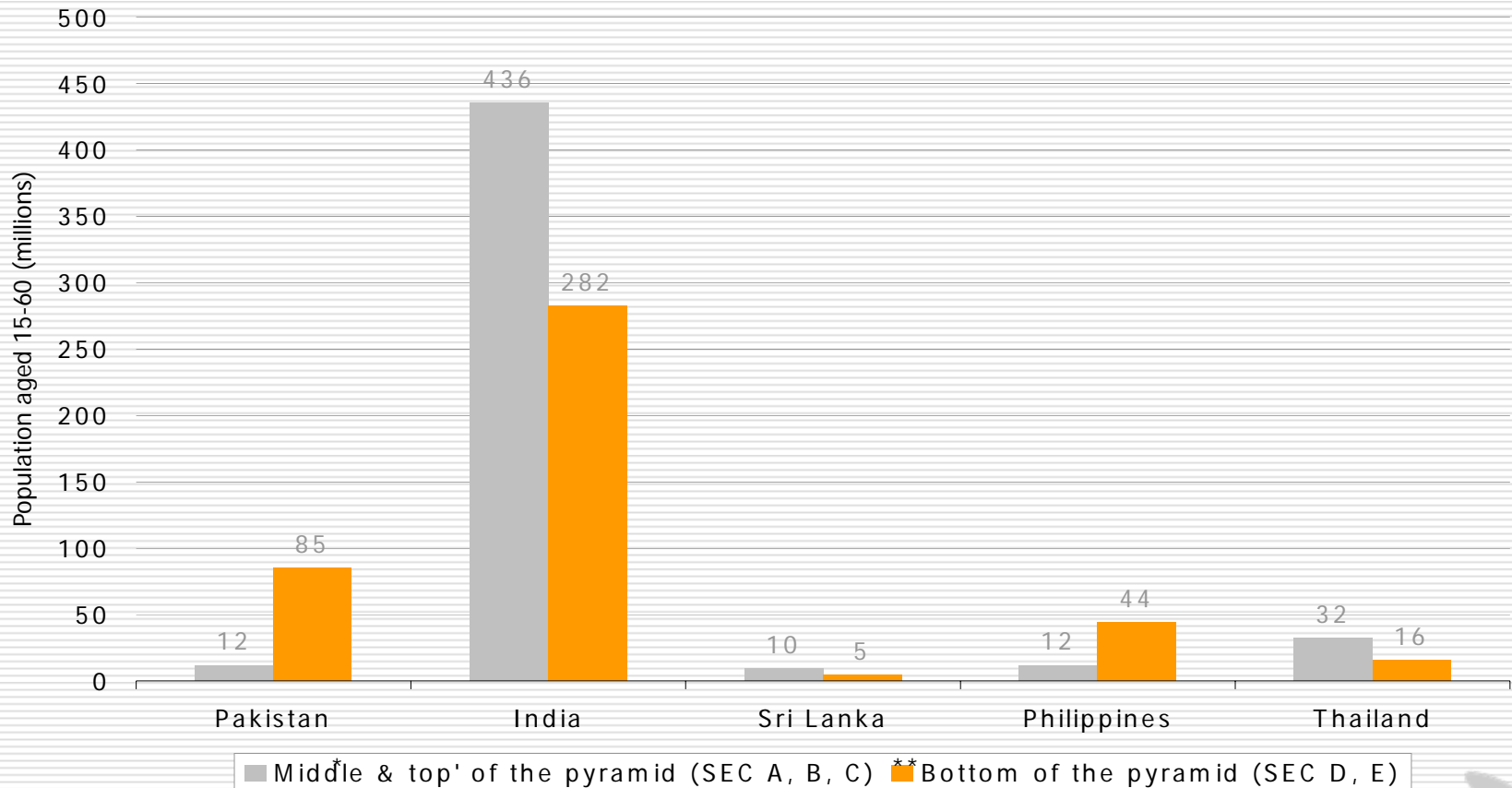
Source: *Diary*



# SMS is the main non-voice application



# How big are the markets in emerging Asia: BOP and M & TOP?

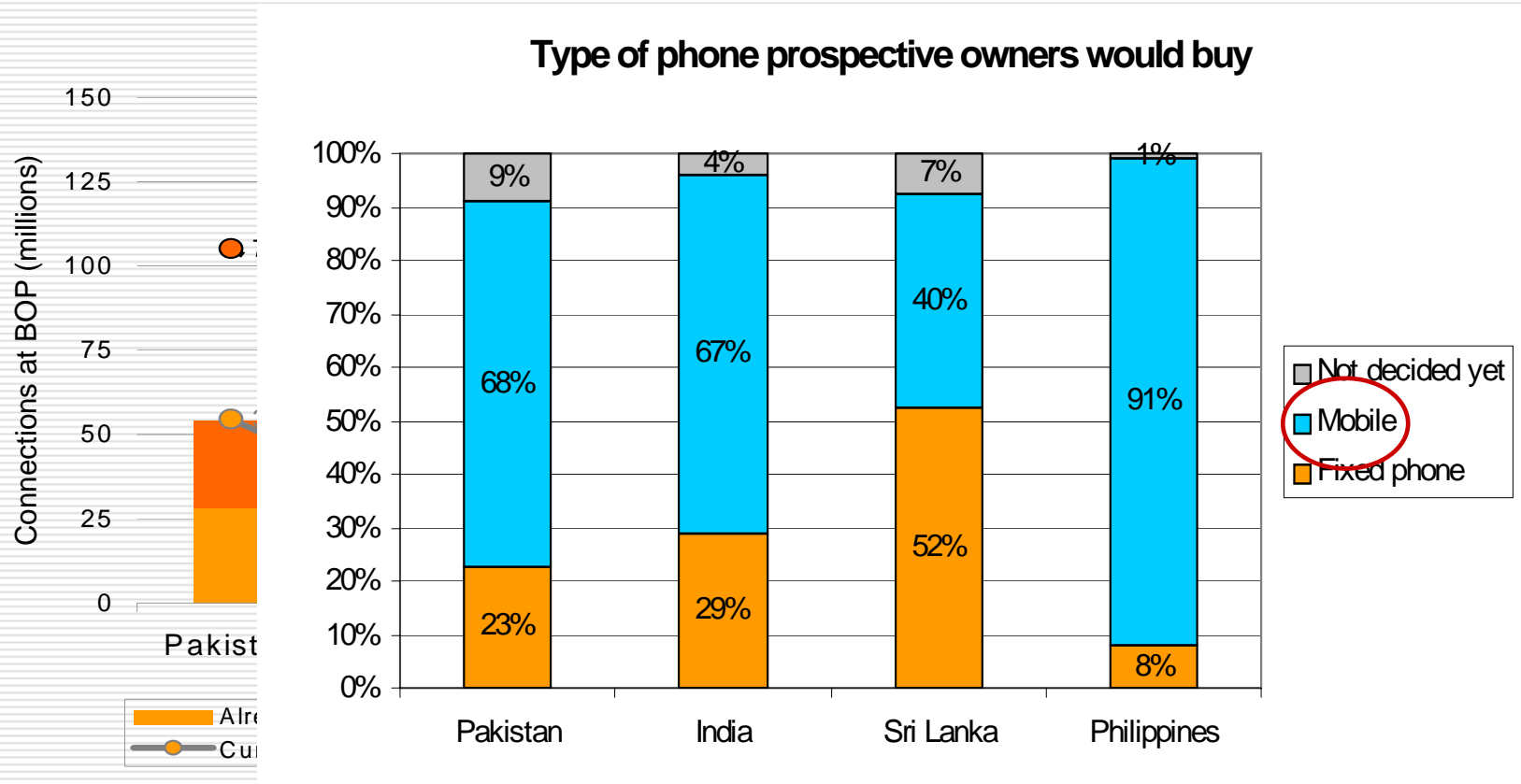


\*excluding FANA/FATA Tribal Areas; \*\*excluding North & East Provinces



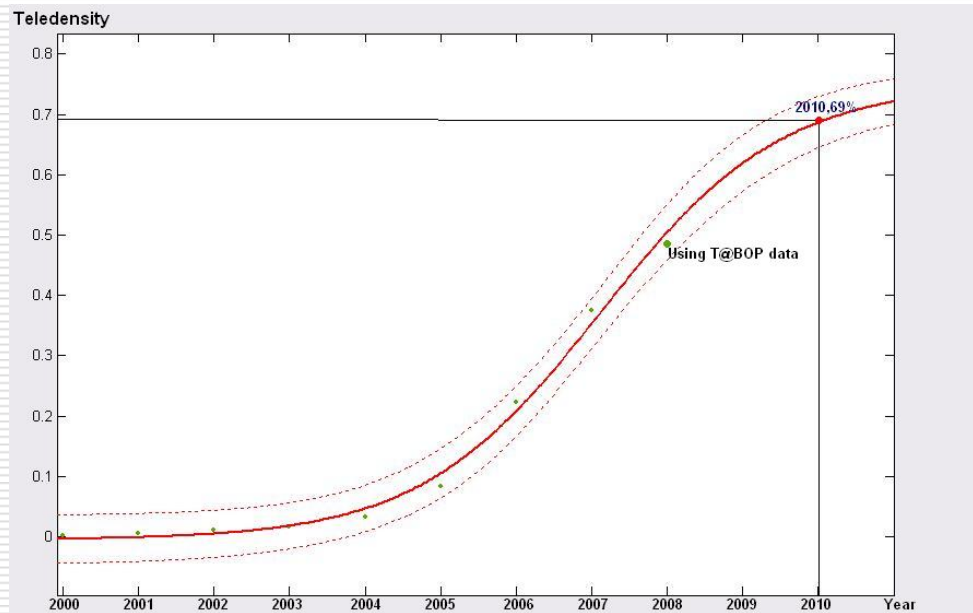
# Mobile access is high ... and growing

latent demand → actual



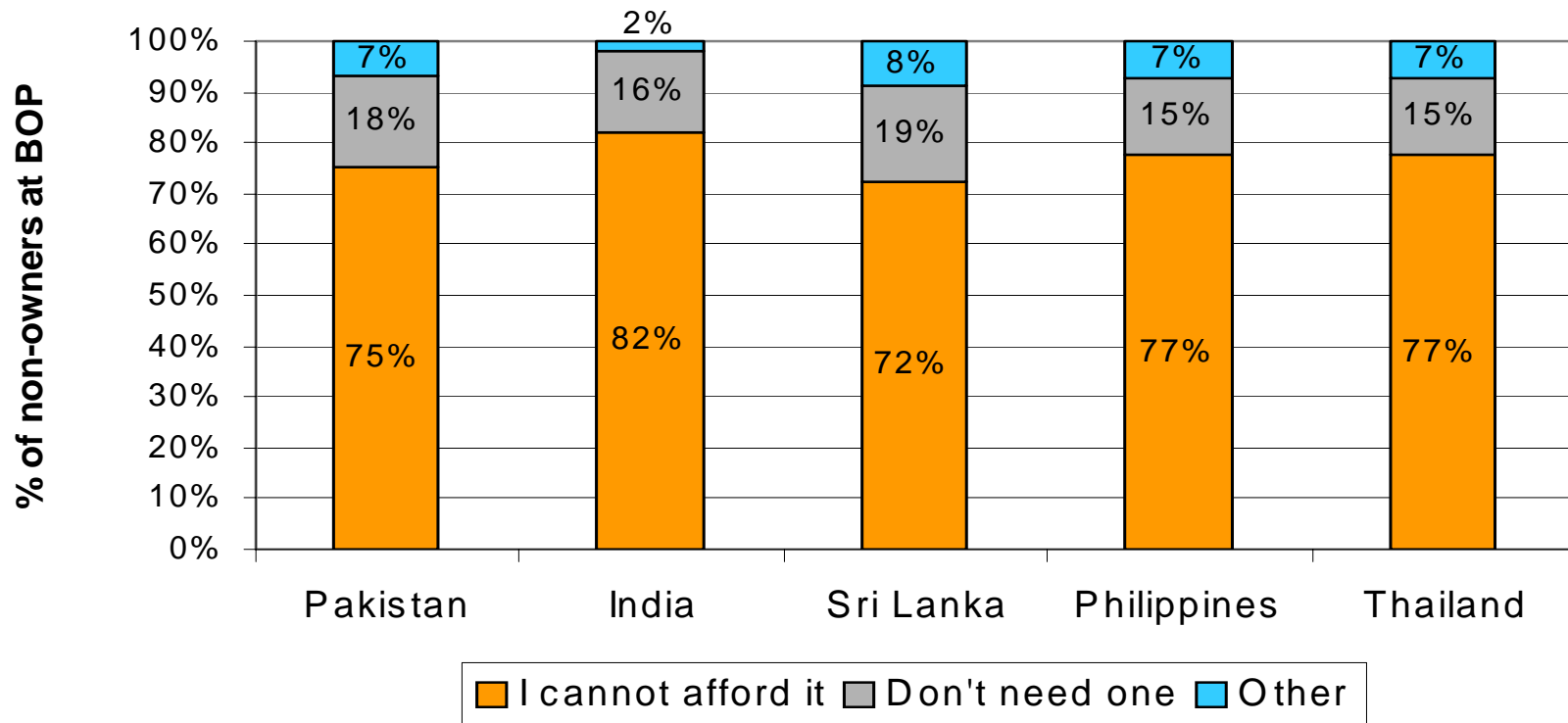
# Further analysis

- Forecasting demand using BOP and other available data
  - Pakistan example



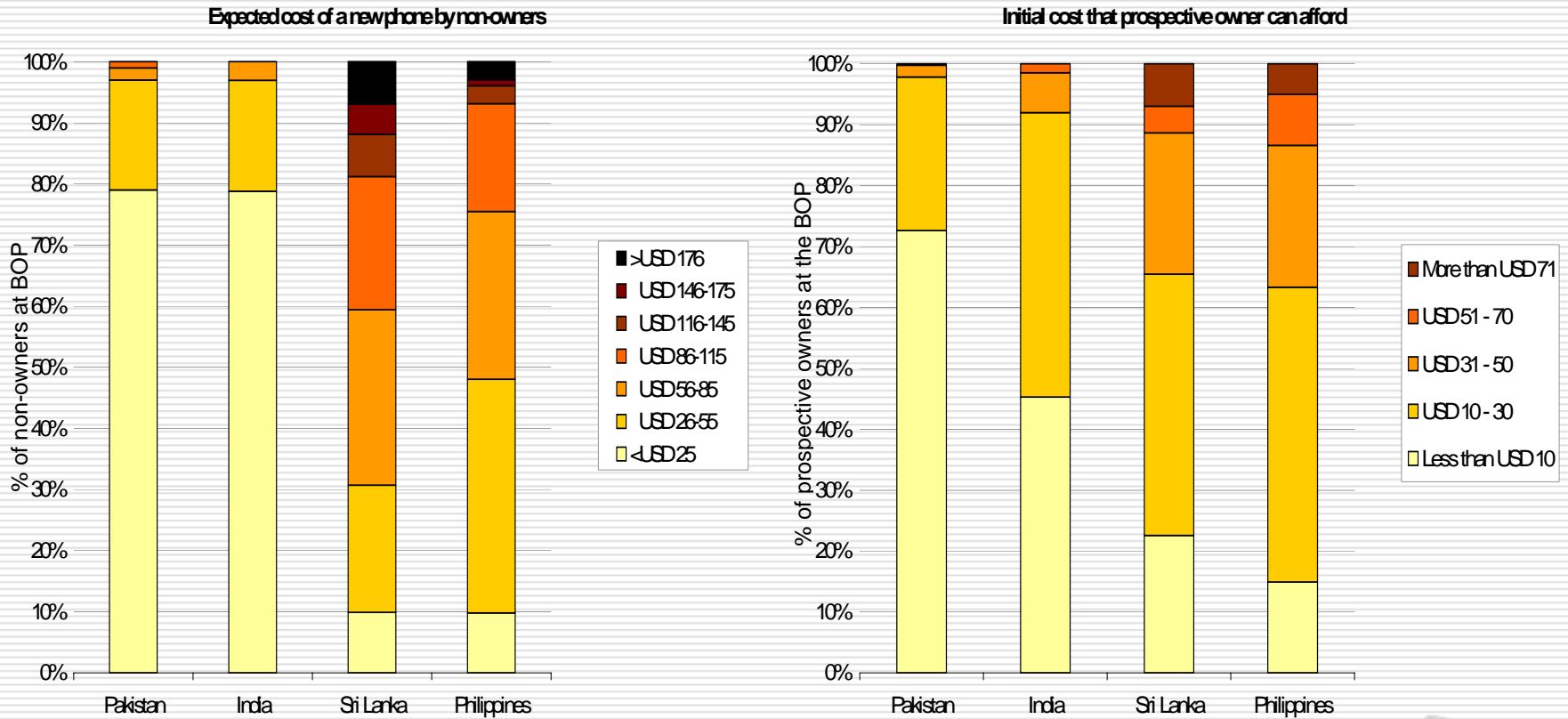
# Key barrier to ownership is affordability

Reasons for not owning a phone



# The cost of getting connected...

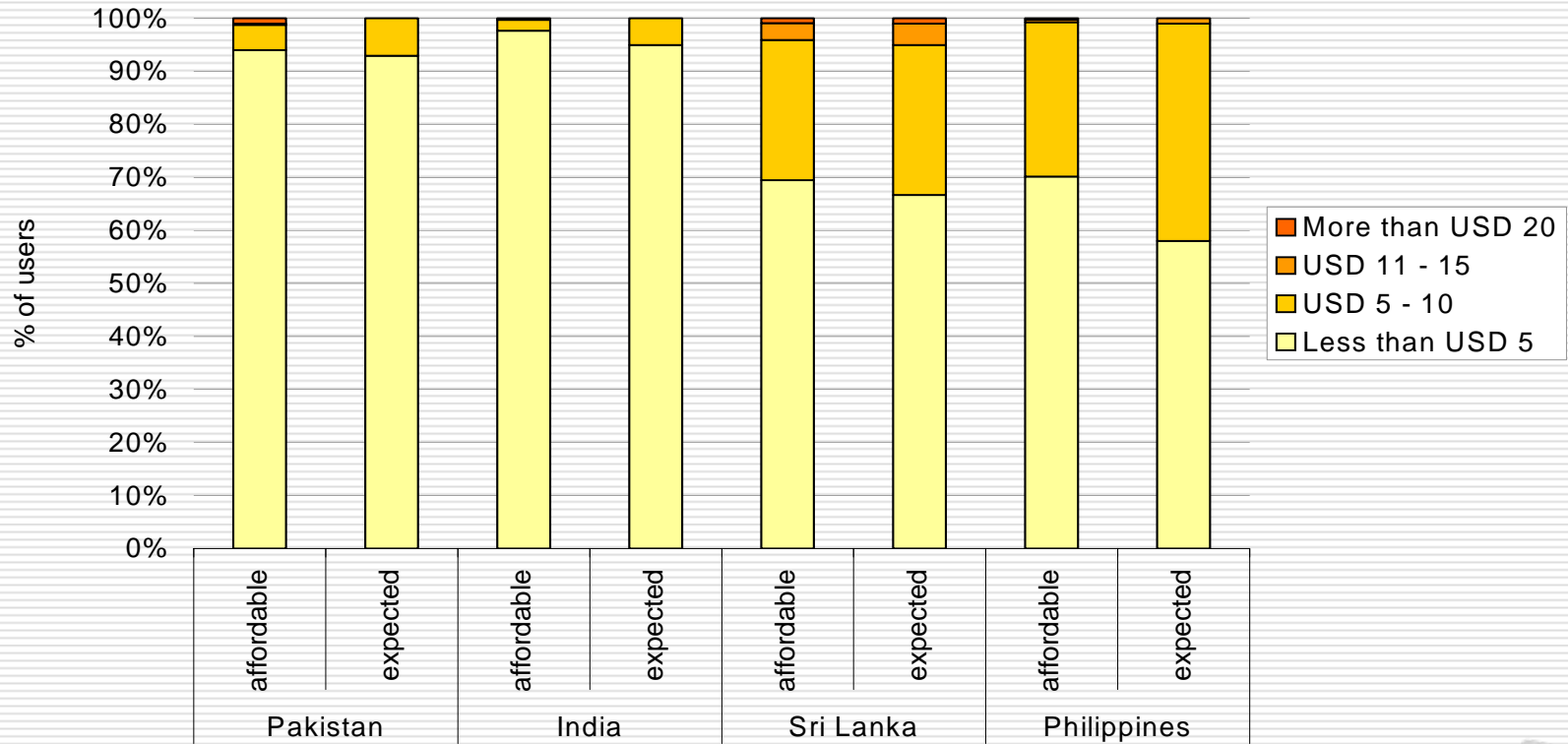
## Expectation vs. affordability gap



# Use cost

USD5 per month on communication

Monthly charges: expected vs. affordable



# Use for market demand dynamics

---

- Service providers
  - Telecommunication
  - Infrastructure
  - VAS
  - Financiers
    - Banks, venture capital companies etc.
- Equipment manufacturers
- Regulators
  - Conducive regulation for efficient markets
    - Service providers
    - Consumers
  - Removing barriers to realize latent demand



# What about the “Internet”?

---

	Pakistan	India	Sri Lanka	Philippines	Thailand
Use the Internet Urban; Rural	0% 3.0;0.7	0% 0.2;0.1	1% 2.1;1.4	9% 12.8;4.3	10% 22;2.3
Not heard of Internet	36%	72%	29%	14%	36%



# Understanding demand from a market failure context

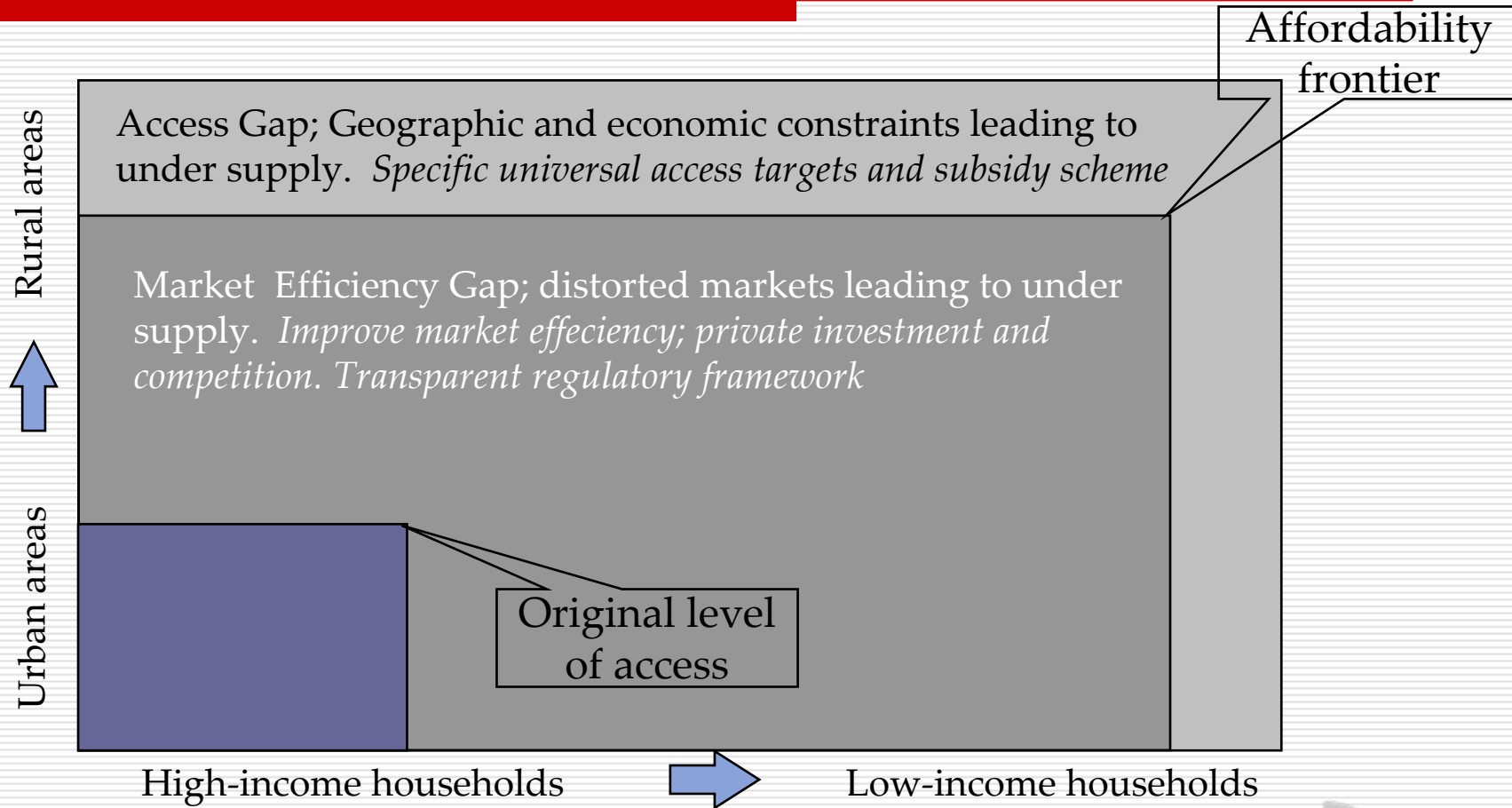
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- Market dynamics
  - Then → now
- Market failures
  - Policy formulation
    - Universal service obligations
    - ADC
  - Government failures
- Prioritizing expenditure
  - “Telecentres, full of computers but without customers ... A common question in many parts of the world”;  
Telecentre.Org, December 2007



# Market failures

understanding reality



# Policy

## Bridging the market efficiency gap

---

- 1999
  - UN Secretary General Kofi Annan at ITU Telecom “Half the world's people have never made or received a telephone call”
- 21<sup>st</sup> Century telecom policy
  - How to meet the latent demand ← willingness to purchase the service, but no ability
    - Sri Lanka → progressing → 40 per 100
    - Nepal → slow → 8 per 100
- Discussed in earlier session



# Policy

## Bridging the access gap

---

- Unable to service on 'pure' market mechanisms
  - How to meet the latent demand ← willingness to purchase the service, but no ability
    - Smart subsidies; not always smart



# Smart subsidies

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- Minimum [asked for] subsidy given to a bidder to bridge a defined access gap
  - Competitive bidding process
  - Forced to consider the most cost effective technology and other cost-saving options to bid for the lowest required subsidy
- Understanding demand is critically important
  - South American experience
  - Nepal experience



# South American experience

## The Chilean success story

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- Critical success factors for developing realistic business models → Smart subsidies
  - Good regulatory practices
  - Identification of license areas and bundling
    - Extensive demand research by Regulator shared with bidders
    - Bundling; multiple areas
      - Low demand + high demand
  - Attractive licenses
    - Demand research to assess the latent demand not just for voice but other services
  - Technology neutrality



# Nepal experience

## How to make a smart subsidy not so smart

---

- Main reasons [selected] for failure
  - Tough politico-regulatory regime
    - Exclusivity violations
    - Arbitrary interconnection charges etc.
    - Arbitrary changes in license areas
  - Exclusivity violations ← lack of understanding on negative impact on the business plan of operator
    - No demand studies done by Regulator
    - No evidence of comprehensive demand studies by bidders
  - Changes in license areas
    - Replace original license areas with areas that are 'near military facilities...'



# Market failure leading to Government failure

---



STM Public Call Office. Eastern Development Region, Nepal

Source: Harsha de Silva

- Justifiably closed
  - July-Aug 2005:  
Average minutes of use/day = 0.36
- "No demand?"
  - At what price?
    - x18; x6



# Importance of understanding demand

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- Market dynamics
  - Then → now
- Market failures
  - Policy formulation
    - Universal service obligations
    - ADC
  - Government failures
- Prioritizing expenditure
  - “Telecentres, full of computers but without customers ... A common question in many parts of the world”; Telecentre.Org, December 2007



# Prioritizing expenditure

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- “Telecentres, full of computers but without customers ...”
  - A common question in many parts of the world; Telecentre.Org, December 2007
- USD millions of development assistance going to Telecentres
  - What is the reality?
  - Interesting discussion at LIRNEasia blog
  - True story:
    - Prof. Subash Bhatnagar to e-Chopal manager seeing his computer switched off “Why is the computer not switched on?”
    - Reply “Well...it has not been switched on for weeks!”



# ICT Demand is derived

---

- What is the info. and comm. demand at the BOP?
  - Local content
    - Market prices, daily work in village etc.
  - Emergency
  - Keep-in-touch, social networks for BOP [Buzz City?]
- What is the vehicle?
  - Usage of telephone services > 90%
  - Usage of Internet < 1%
  - Will user care which vehicle as long as the service is available?
- e-Gov
  - 100,000 Common Services Centres in India?
  - Recent LIRNEasia work on Dial-a-Gov?



# Mobile phone as transactional device

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- Pre-paid mobile at BOP > 90%
  - Sri Lanka's largest GSM operator [> 4 million subscribers]
    - 86% prepaid subscribers, overall
    - Approx. 50% of prepaid top-ups are via electronic reload; other 50% via card system
    - 12,000+ electronic reload outlets
    - Mobile payment system recently launched for the first time in South Asia
      - Philippines is the world leader
    - Personal accident insurance system via mobile connection also recently launched



# The foreseeable future at BOP → Mobile 2.0

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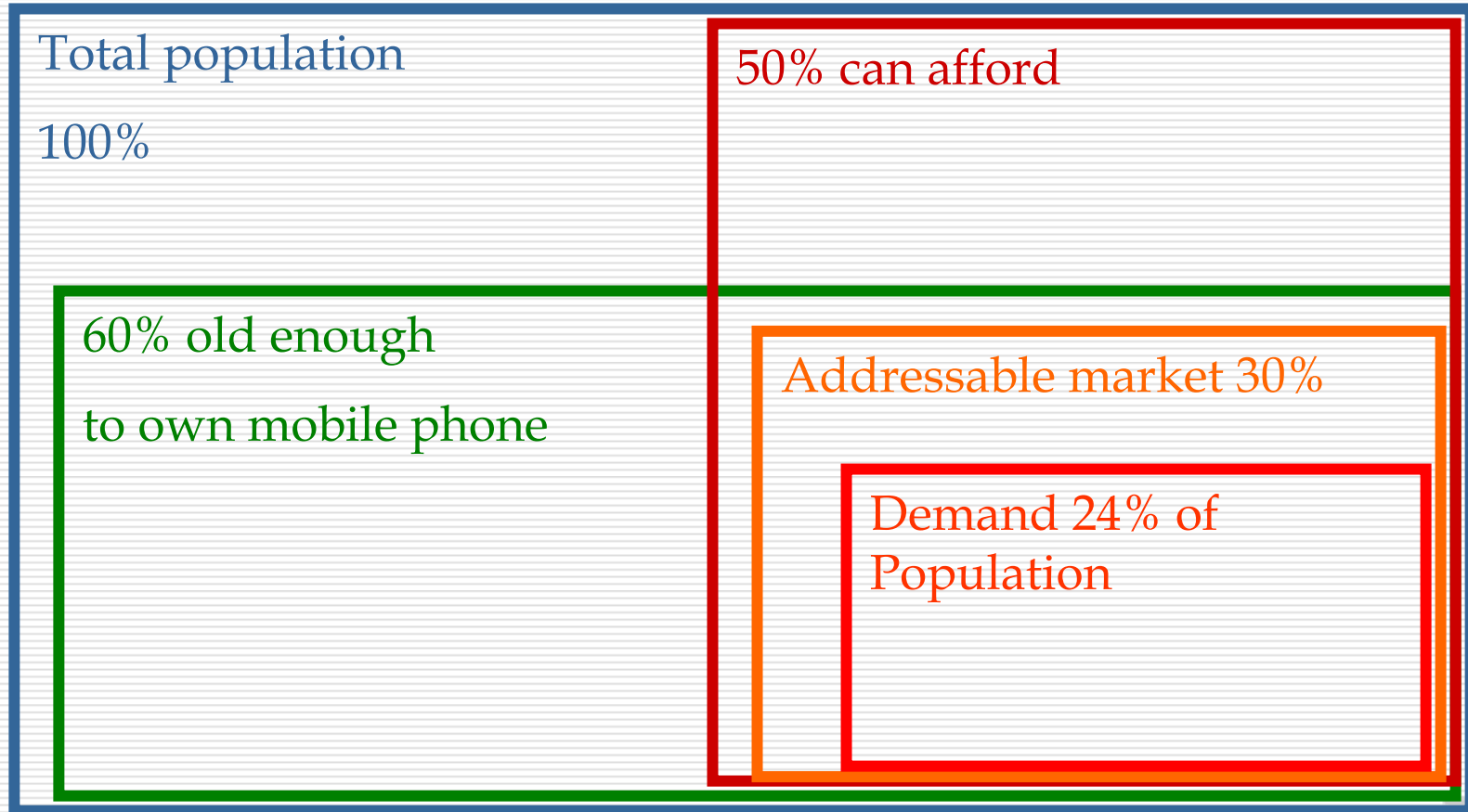
- Understanding demand for telecom + services is going to be key



# Potential demand

an example

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# Summary

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- Technical issues on demand
  - What is demand
  - How does demand change
  - Derived demand for ICT
- Understanding demand in the context of
  - Market dynamics
  - Market failures
  - Prioritizing expenditure
- Need to understand demand to understand what happens next



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