

# Interrogating supply-side data

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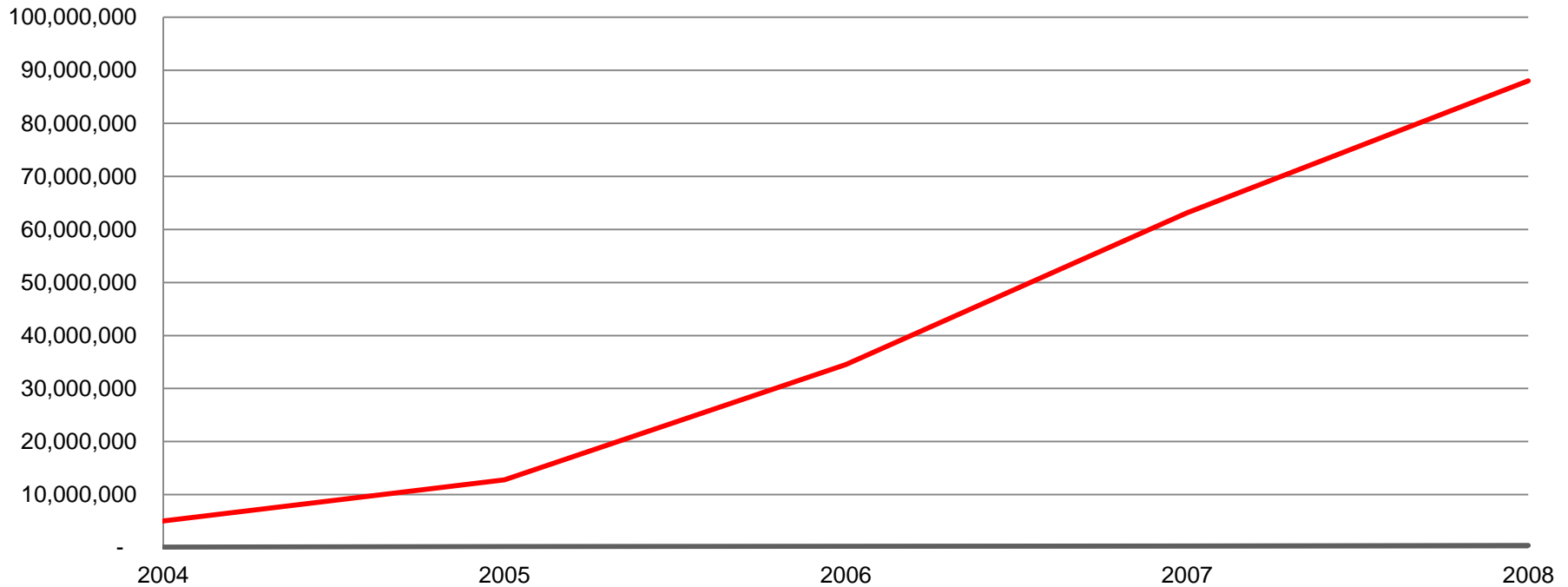
# Objective of module

- Point you to data that you can use for your research
  - My examples are illustrative, using Nepal as exemplar
  - You have to find the data relevant to your country(ies)/problem
- Most importantly, help you develop the ability to critically assess the data

# **VALUE OF COMPARISON**

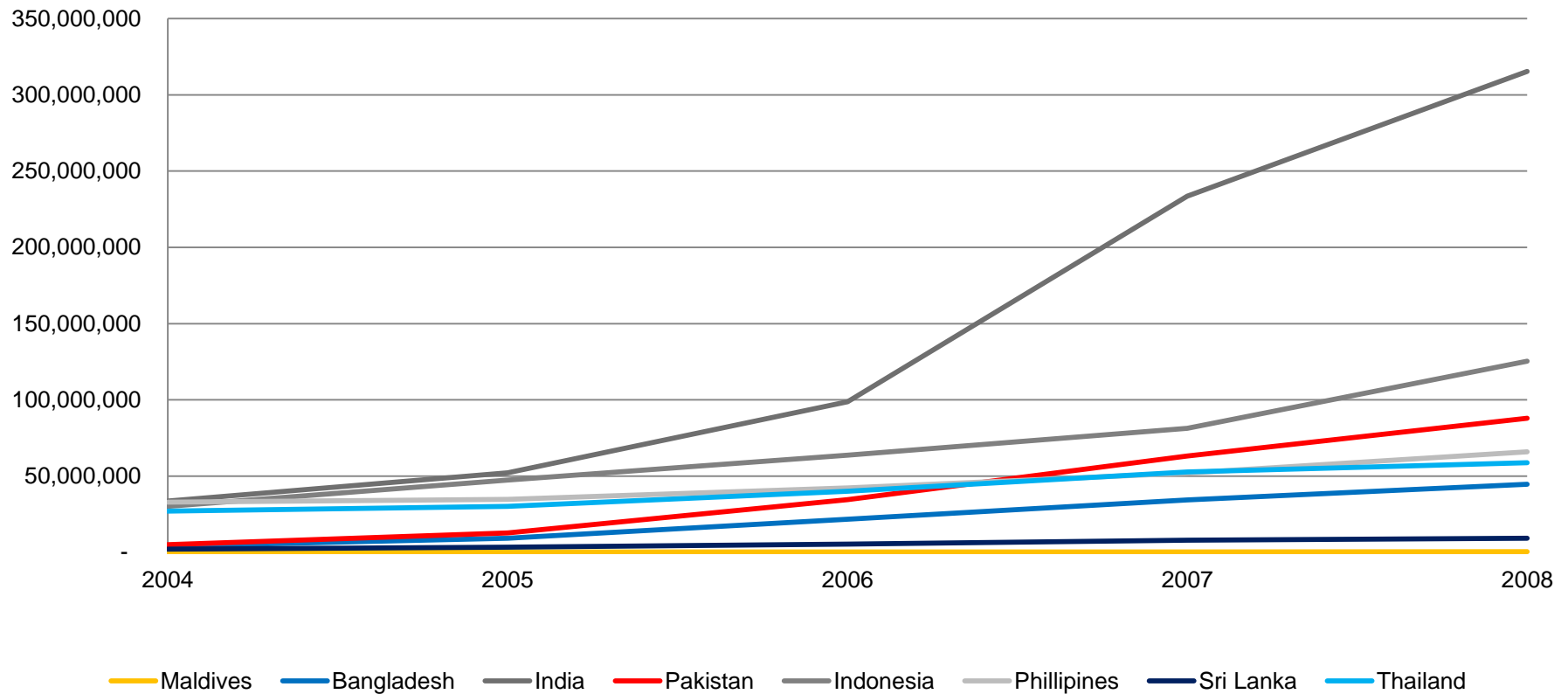
# Is connectivity increasing?

**Pakistan Mobile SIMs: 2004 - 2008**



# But PK is in middle of pack when compared

## Mobile SIMs: 2004 - 2008



# Appropriate comparison set for Nepal

- Same size?
  - Sri Lanka? Cambodia?
- Same GDP levels?
  - Cambodia? Myanmar?
- Regional grouping?
  - SAARC?
- Usually, one selects peers and a few aspirational comparators
  - Can you do better than we have?
  - Is there a more appropriate comparison set for your topic?

# Basic economic-demographic data

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
<b>GDP per capita (current USD) (2015)</b>	1,211.7	1,158.7	1,161.5	743.3	3,926.2
<b>Poverty headcount ratio at USD 1.9 a day 2011 PPP/% of population</b>	19 (2010)	2.2 (2012)	N/A	14.9 (2010)	1.9 (2012)
<b>Population/'000</b>	142,319 (2011)	14,674 (2013)	51,419 (2014)	26,494 (2011)	20,360 (2012)
<b>Urban population as</b>	24.6 (2011)	21.4 (2013)	30 (2014)	17 (2011)	18.2 (2012)

# Special qualities of population

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
<b>Disabled population as % of tot population</b>	1.4 (2011)	2.1 (2013)	4.6 (2014)	4 (2011)	7.1 (2015)
<b>% pop. affected by disasters (natural and technological) in 2016</b>	2.1	17	1.9	0.07	4.6
<b>Net number of migrants as prop of population (2012)</b>	-1.56	-1.1	-0.9	-1.4	-2.3



# Nepal's disability numbers raise many questions

- National census 2011 reported that 1.94 percent of the total population is living with some kind of disability, an extraordinarily low number that does not mesh with comparators
  - For example, Sri Lanka's national census of 2012 reported that persons with disabilities (PWD) amounted to 8.7 percent of the population
  - According to the 2014 census, Myanmar's PWDs amounted to 4.48 percent of the population
- Different numbers are given by other sources
  - The National Living Standard Survey (NLSS) of Nepal 2011 reported PWDs to be 3.6 percent of population
  - The World Report on Disability (2011) claimed a 15 percent disability prevalence rate in Nepal
- LIRNEasia's 2017 survey will seek to shed light on the issue, though we will not be able to do what a census can do

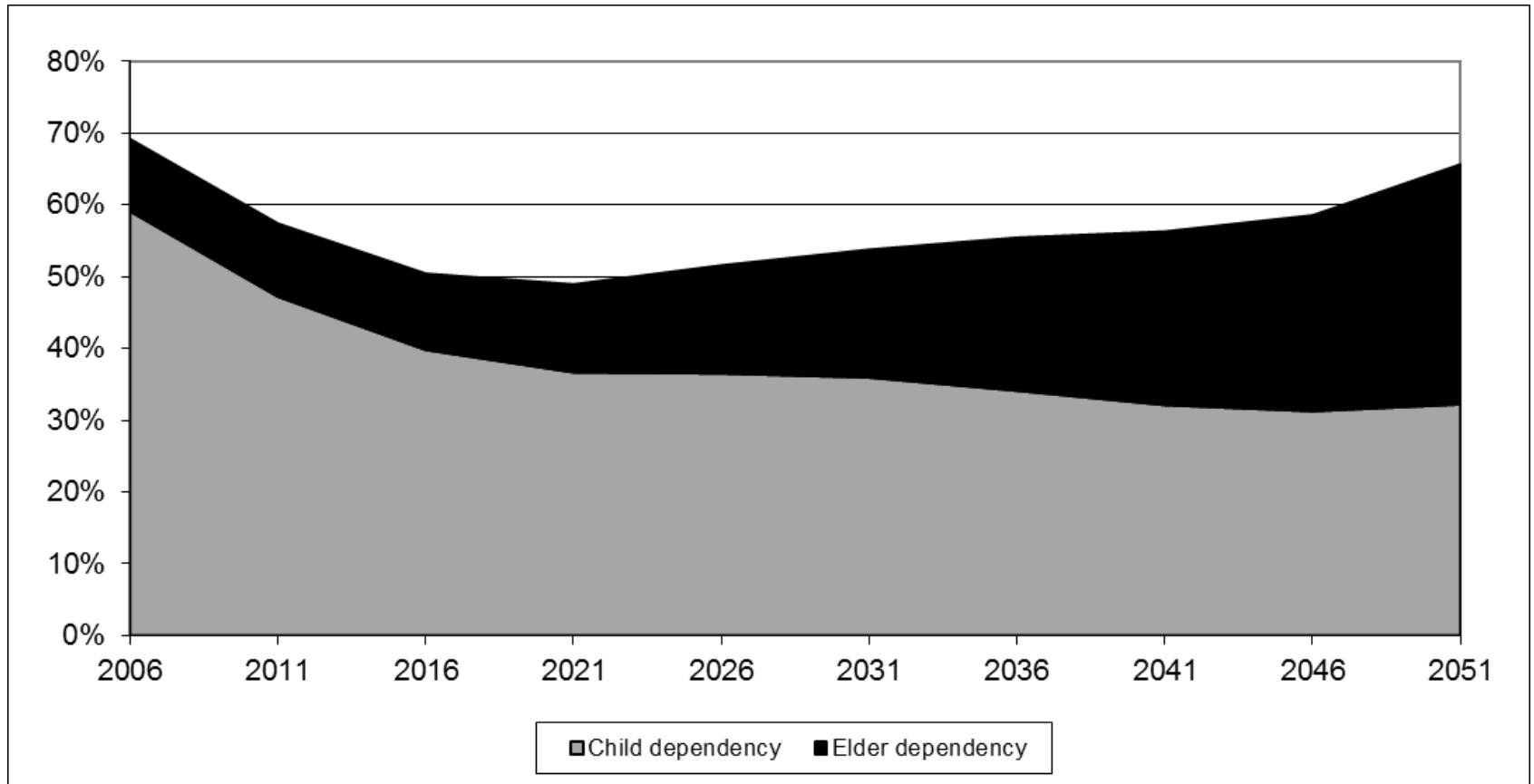
# Half of Nepal's population is under 23.6 yrs of age: What does being youngest country mean for ICT policy?

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
<b>Median age of population</b>	26.3 (2016 est.)	24.9 (2016 est.)	27.1 (2014)	23.6 (2016 est.)	32.5 (2016 est.)
<b>Child mortality rate per 1,000 (2015)</b>	37.6	28.7	50	35.8	9.8
<b>Maternal mortality ratio per 100,000 (2015)</b>	176	161	178	258	30
<b>Adult mortality rate per 1000 (2015)</b>	129	174	199	165	138
<b>Age dependency ratio</b>	73 (2011)	52.4 (2013)	52.5 (2014)	84 (2011)	61.3 (2013)

# You have to put meaning into data

- Age dependency is actually a combination of two things:
  - Child dependency
  - Elder dependency

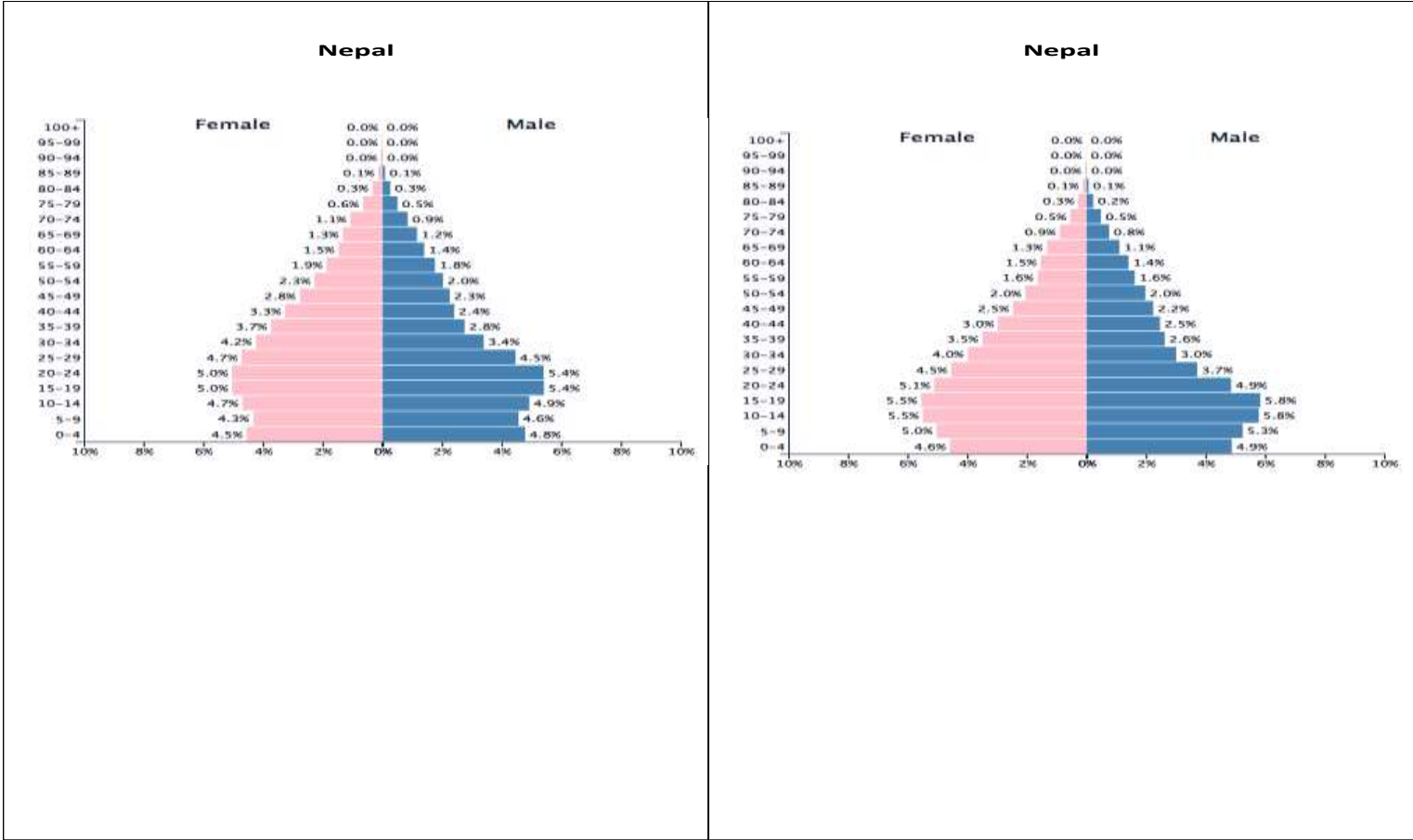
# How child & elder dependency changes over time: Bangladesh, 2006-2051



# Does ICT policy have to be designed for aggregate dependency or child/elder dependency

- What is more significant for Nepal? For Sri Lanka?
- ICT policy has to be made for future, not past or present
  - What dependency numbers are relevant?

# Nepal population pyramid, 2017 & 2022



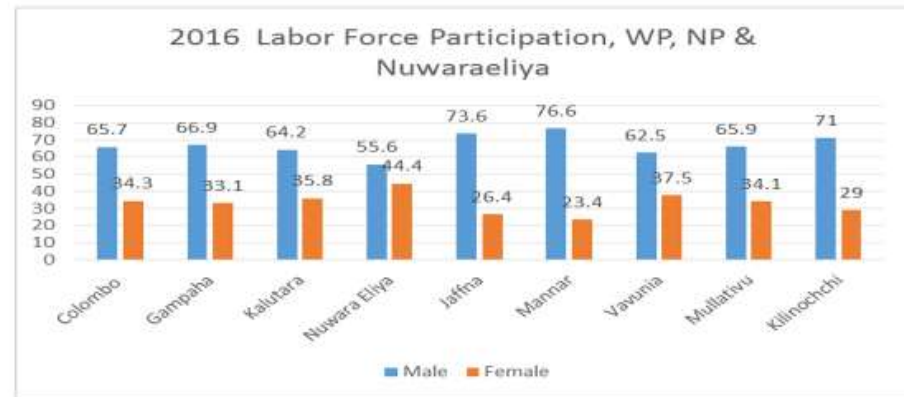
# Is it true that Nepal had full employment in 2011? Now?

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
Literacy rate adult (15 and above)/%	64.6 (2015)	80.7 (2013)	89.5 (2014)	57.4 (2011)	93.2 (2015)
Primary school enrolment/% net	52 (2015)	38 (2008)	48 (2014)	60 (2015)	85 (2011)
Secondary school enrolment/% gross	64 (2015)	45 (2008)	51 (2014)	67 (2015)	99.7 (2013)
Tertiary school enrolment/%	13 (2014)	13 (2015)	14 (2012)	15 (2015)	20 (2015)
Unemployment rate/%	2.3 (2013)	0.3 (2013)	4 (2014)	2 (2011)	4.7 (2015)

# Always interrogate the numbers

- Look at the definition used in each country
- Unemployment rate is calculated using those working and looking for work as the base

Labor Force Participation in Sri Lanka is low, especially among women (36.2%)



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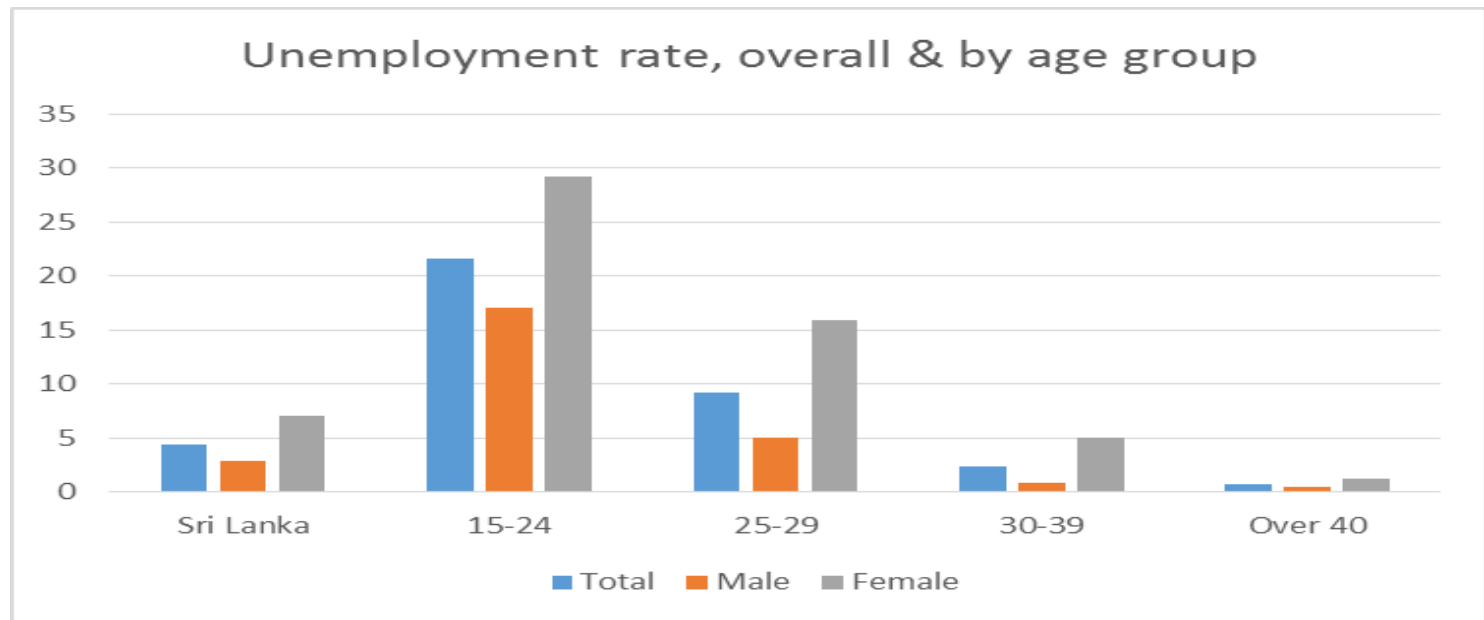
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# Unpack the numbers

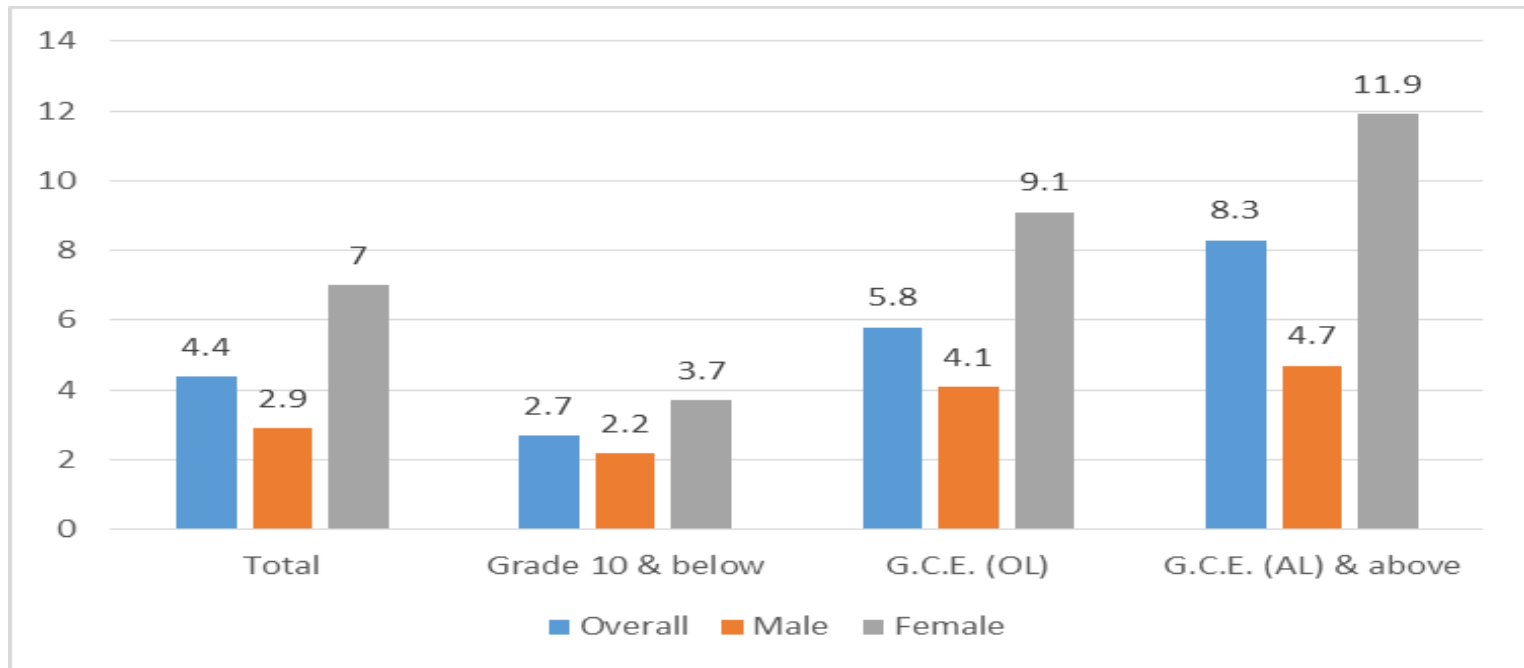
- National unemployment figures are averages; they mask significant differences
  - By gender
  - By age cohorts
  - Among regions within country
  - By educational achievement

Unemployment rate for 15-24 yrs group is 4x Sri Lanka rate; for 25-29 group, it is 2x



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# In Sri Lanka, more education → higher unemployment



# Bring it back to ICT policy

- What is connection between unemployment and ICT?
- Youth unemployment and ICT?

# What does more than 100 SIMs/100 people mean? Is it something to be proud about?

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
<b>Number of mobile network operators</b>	6	6	4	3	5
<b>Largest mobile network operator</b>	Grameen Phone	Metfone	MPT	Ncell	Dialog
<b>Mobile SIMs per 100 (2016)</b>	77.9	124.9	75.7	96.8	118.5

# Do these numbers pass smell test? Can Internet subscriptions > Facebook users > Internet users?

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
Households with Internet access at home (%) (2016)	13.8	26	23.5	15	21.1
Internet subscriptions/'000 (2017)	67,245	6,795 (2015)		15,389 (2017)	4,920 (2016)
Internet subscriptions per 100	47.25	45.7		58.1	24.1
Internet users per 100- ITU method (2015)	14.4	19.0	21.8	17.6	30.0
International Internet bandwidth bit/s per Internet user (2015)	6,184	17,792	5,196	2,700	13,886
Facebook users per 100 (2017)	16.2	35.4	27.2	27.1	24.1

# How reliable are the indicators?

- Facebook users?
- Internet users?
- Internet subscriptions?
  
- How does one ensure comparability?
  - Definitions
  - Time periods

# How ITU estimates number of Internet users in absence of demand-side surveys

- **Internet Users = multiplier x Internet Subs (supply side)**

Where

- The multiplier = a number used to reflect that each subscription is used by more than one individual (e.g. at kiosks)
- Internet subscriptions = Internet subscription of all types (speeds, technologies etc. )
  - Wired, wireless etc.
- Above is then cross checked with other evidence (e.g. if HH access data available, Users > HH access number must be true, etc. )



# Building on foundations of sand...

- Multipliers chosen at discretion of Country administrations
  - Perverse incentive to use higher multiplier to show high Internet penetration in country
- Difficulties in counting Internet subscriptions include...
  - Over-counting (counting all “Internet-capable” SIMs, irrespective of use)
  - Under-counting (being able to only count SIMs that have subscribed to a data package; SIMs with only voice packages may use Internet, but operators cannot count; impossible for pre-paid)
  - General difficulty with multiple ownership (one user with fixed and many SIM connections) leading to questionable multipliers

# Difficult to find rationale for multipliers

Country	Fixed Internet Subscriptions (000s), 2009	Internet Users (000s), 2009, ITU method	ITU multiplier
Russia	88,068	59,700	0.68
Mauritius	224	290	1.29
Liberia	15	...	...
Liechtenstein	...	...	...
Afghanistan -	2,000	2,000	Multiplier=500
Burundi -	5,000	5,000	Multiplier=13
Iraq	16	968	53.78
Uganda	44	4,200	95.24
Afghanistan	3	325	104.84
Uganda	30	3,200	106.67
Afghanistan	2	1,000	500

**Huge variance in Multipliers: 0.68 (Russia) to 500 (Afghanistan) in 2009**

**“Similar” countries with very different multipliers**

- Afghanistan -
- Burundi -

# Nepal has highest priced mobile data packages, though income levels lowest among comparators

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
Fixed broadband operator and price sub-basket, USD (2016)	BTCL, 4.2	Metfone, 12	MPT, 16	NTC, 6.4	SLT, 4.2
Mob broadband operator & price sub-basket (500 MB data cap, access via handset, prepaid), USD (2016)	Grameenphone, 2.2	Metfone, 1	MPT, 2.1	Ncell, 5.9	Dialog, 1.6
Mob broadband operator & price sub-basket (1 GB data cap, access via USB dongle, postpaid), USD (2016)	Grameenphone, 5	Metfone, 2	MPT, 4.9	Ncell, 5.9	Dialog, 1.7
Mobile cellular operator and price sub-basket, USD (2016)	Grameenphone, 1.7	Metfone, 6.85	MPT, 1.6	Ncell, 2.4	Dialog, 0.9

# Based on LIRNEasia research on proposed ITU ICT Price Basket Method

Fixed BB	Mobile BB (prepaid, handset based 500 MB)	Mobile BB (postpaid, USB dongle based 1 GB)	Mobile Cellular
<ul style="list-style-type: none"> <li>- Operator with the largest market share</li> <li>- Intended for residential use, regular / non-promotional offers (e.g. no F&amp;F plans)</li> <li>- In advertised currency, including local taxes</li> <li>- Validity period = 30 days (or closest)</li> </ul>			
Regular residential single user monthly plan	Prepaid plan intended for use via a mobile phone	Postpaid plan intended for use via a USB dongle	Prepaid plan (postpaid if < 2% on prepaid. E.g. Japan)
Cheapest on the basis of 1 GB data cap and min 256 Kbps	Cheapest on the basis of 500 MB data cap / month min.	Cheapest on the basis of 1 GB data cap / month min	Cheapest on the basis of 30 calls + 100 SMS
If there are different commitment periods, the 12-month locked-in plans are selected	Excludes set up / recurrent fees	Excludes set up / recurrent fees	If price varies between number of minutes, average of a 3 min call
Excludes cost of fixed telephone line			Peak, off-peak; on-net, off-net prices are collected

# Is electricity in homes relevant to ICT access?

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
<b>Households with electricity (%)</b>	56.6 (2011)	48 (2013)	32.4 (2014)	67 (2011)	90.2 (2013)

# Internet readiness best understood through composite indices

	Bangladesh	Cambodia	Myanmar	Nepal	Sri Lanka
Global competitiveness index (2016)- out of a possible 140	107	90	131	100	68
Doing business index (2016)- out of a possible 190	176	131	170	107	110
Network Readiness Index (2016)- out of a possible 139	112	109	133	118	63
ICT Development Index (2016)- out of a possible 175	145	125	140	142	116
Global innovation index (2017)- out of a possible 127	114	101		109	90