ICT access and use in Pakistan and the Global South

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LIRNEasia
Pro-poor. Pro-market.

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International Development Research Centre
Centre de recherches pour le développement international
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10 años LIRSI
Diálogo Regional sobre Sociedad de la Información

Who are we? A pro-poor, pro-market ICT policy and regulation think tank, active in the Asia-Pacific for 15 years

"Catalyzing policy change through research to improve people's lives in the emerging Asia Pacific by facilitating their use of hard and soft infrastructures through the use of knowledge, information and technology"

We have been active in Pakistan since 2006

- Research
  - ICT sector and regulatory benchmarking (TRE, SPR)
  - Multiple rounds of user (demand side) research via surveys and qualitative methods
  - Broadband quality of service
  - Freedom of expression in the dissemination of mobile content
- Policy advocacy
  - Broadband pricing
  - Mobile number portability
  - Universal service
  - Broadband quality of service
  - VAS and telecom business models
- Capacity building
  - Training of PTA, and company staff at LIRNEasia training courses

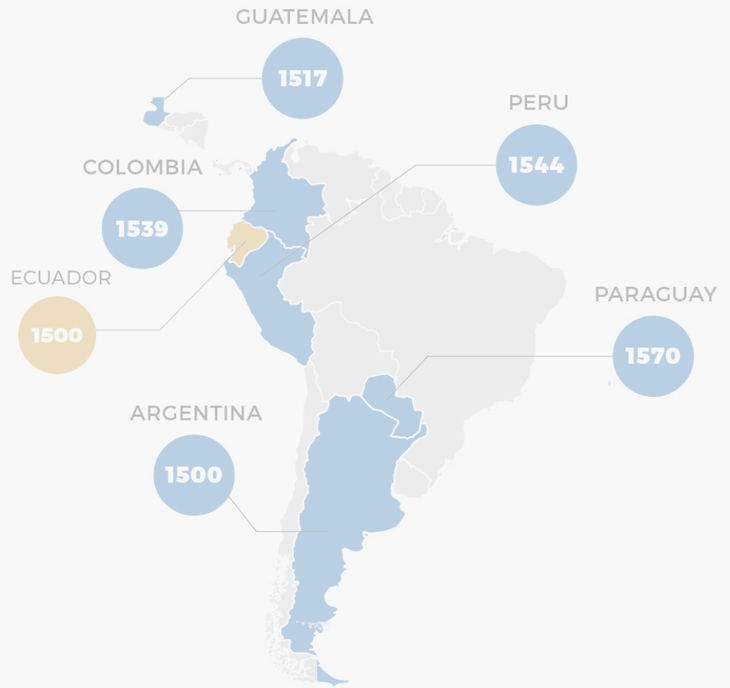
Largest collection of nationally representative data on ICT access and use in the Global South

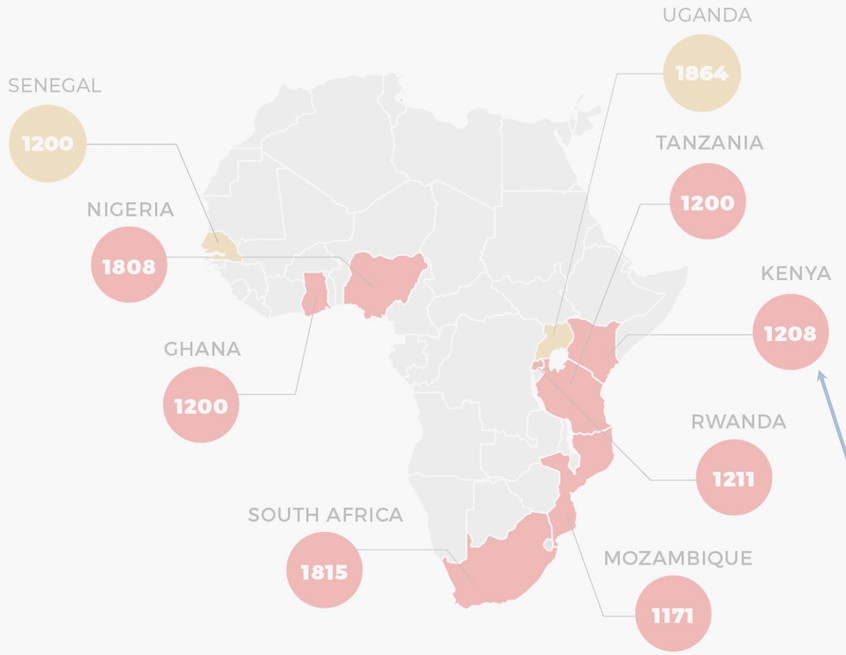
- Nationally representative surveys of 15-65 population in 18 countries in Global South
  - Rigorous methodology
    - Random sampling at every stage of selection
    - Comparability across countries
    - Sample sizes, n=1,200-5,000

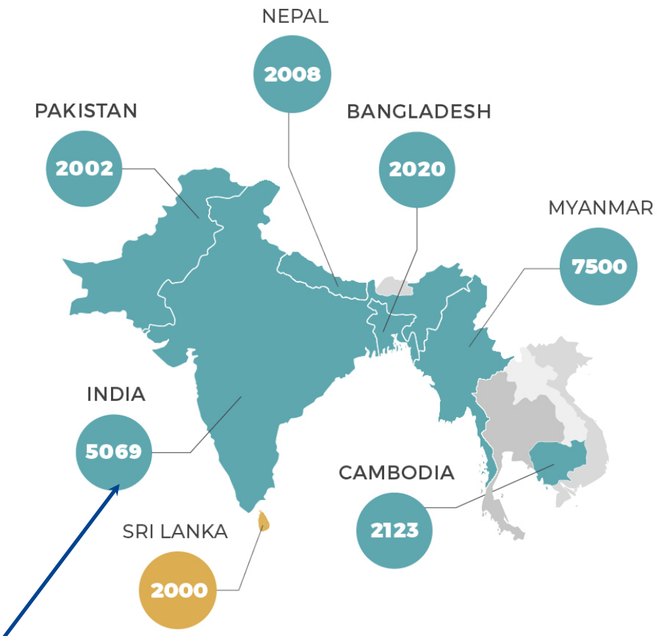
- Structured, closed-ended questionnaire administered face-to-face using mobile devices

- Funded by IDRC (Canada) and SIDA (Sweden)
  - Pakistan partners:
    - Pakistan Bureau of Statistics (sample frame)
    - The Dynamics Research (fieldwork)

To date 18 countries (covering >30% global population); 38,005 face-to-face interviews; 22 countries by Dec 2018







Sample sizes

Notes: Pakistan excludes AJK, FATA, Gilgit-Baltistan (~2% of population)
Not shown in slides today:

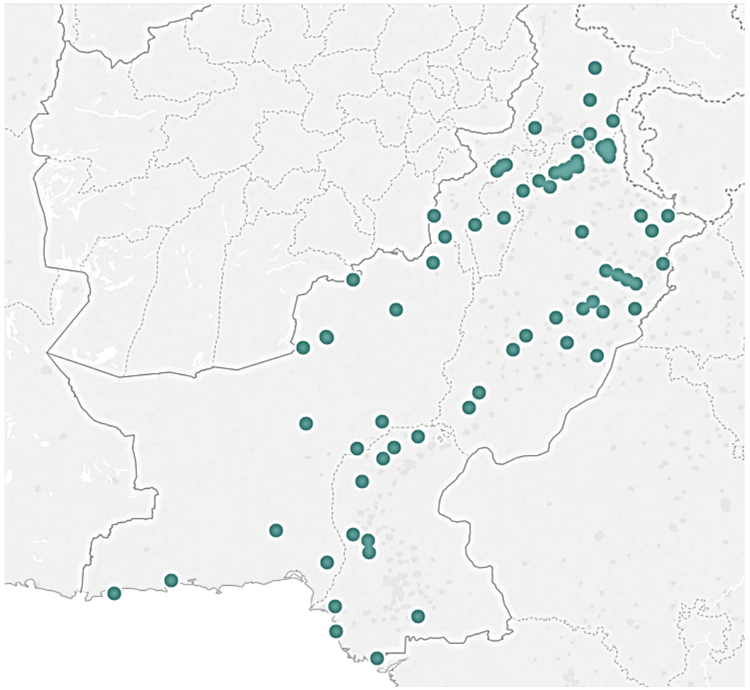
- Sri Lanka, Senegal, Uganda & Ecuador
- Surveys just completed/surveys about to start/data being analyzed

Apples vs oranges: A note on comparison of AfterAccess data with supply-side

Supply side data as reported via operators/PTA	Demand side (household and individual survey we report)	Implication
Counts active SIMs Includes individual AND corporate users Includes SIMs inside devices (e.g. POS)	Counts USERs with one or more SIM cards Does not count corporate connections Does not count SIMs in other devices	Demand side data more accurate reflection of individuals and households who have access (counts multi-SIM owners as ONE user) Avoids inaccuracies with problematic SIM registrations Demand side result WILL be lower
Includes SIMs used by all users, without age restriction	Our survey only targeted those aged 15 -65 (64% of the population in Pakistan)	Below 14 or Over 66 years persons are not counted. Demand side estimate WILL be lower.

METHODOLOGY

Pakistan sample representative of 15-65 population (95% Confidence Interval; +/-3.3 margin of error)



2,000 individuals from 2,000 households in 100 census enumerator areas

Sample GPS locations recorded by CAPI device at time of survey

- Sample designed to be representative of 15-65 population at:
  - National level
  - Urban-rural level
  - Gender
  - SEC (Socio-economic classification: a proxy for income)
- The sample is <u>not</u> designed to represent at:
  - Province level
  - Division level
  - other

Notes: Pakistan excludes AJK, FATA, Gilgit-Baltistan (~2% of population)

Sample size of 2,000 adequate to represent population at desired levels of disaggregation

Sample size calculation

- Desired level of accuracy set to a confidence level of 95% and an absolute precision (relative margin of error) of 5%. The population proportion p was set conservatively to 0.5 which yields the largest sample size (Lwanga & Lemeshow, 1991). The minimum sample size per tabulation group determined by (Rea & Parker, 1997):

$$n = \left(\frac{Z_a \sqrt{p(1-p)}}{C_p} \right)^2 = \left(\frac{1.96\sqrt{0.5(1-0.5)}}{0.05} \right)^2 = 384$$

Z = Z value (e.g. 1.96 for 95% confidence level)
p = percentage picking a choice
C = confidence interval, expressed as decimal (e.g., .05 = ±5)

Weighting

- Two weights constructed: for households and individuals, based on inverse selection probabilities → data can be extrapolated to national level.

$$\text{Household weight: } HH_w = DW \frac{1}{P_{HH} * P_{EA}}$$

$$\text{Household Selection Probability: } P_{HH} = \frac{n}{HH_{EA}}$$

$$\text{Individual weight: } IND_w = DW \frac{1}{P_{HH} * P_{EA} * P_I}$$

Default value of 1.5 was used as the design effect for Pakistan. Actual sample size was increased beyond minimum requirement to compensate for clustering effects allow for urban/rural disaggregation of data, as well as gender-based disaggregation. Therefore, in Pakistan the sample size was increased to 2,000.

Pakistan weights (detailed)

Pakistan

Household weight:

$$\mathrm{HH}{\downarrow}W = DW1/P{\downarrow}EA * P{\downarrow}HH$$

Individual weight:

$$\mathrm{IND}{\downarrow}W = DW1/P{\downarrow}EA * P{\downarrow}HH * P{\downarrow}I$$

EA Selection Probability:

$$\mathrm{P}{\downarrow}EA = m\mathrm{HH}{\downarrow}EA\ /HH{\downarrow}STRATA$$

Household Selection Probability:

$$\mathrm{P}{\downarrow}HH = n/HH{\downarrow}EA$$

Individual selection Probability:

$$\mathrm{P}{\downarrow}I = 1/HH{\downarrow}m15-65$$

DW = design weight compensation for over-sampling of urban EAs and under-sampling of rural EAs;

$\mathbf{HH_{EA}}$= number of households in selected EA based on information of last census or updated listing by field team;

$\mathbf{HH_{STRATA}}$ =number of households in strata (urban, rural);

$\mathbf{HH_{m15+}}$=number of household members or visitors 15 years or older;

m = target number of Wards for each strata, (urban, rural);

n = target number of households in a EA;

Sample designed to represent Pakistan as a whole; random selection at every stage of sampling

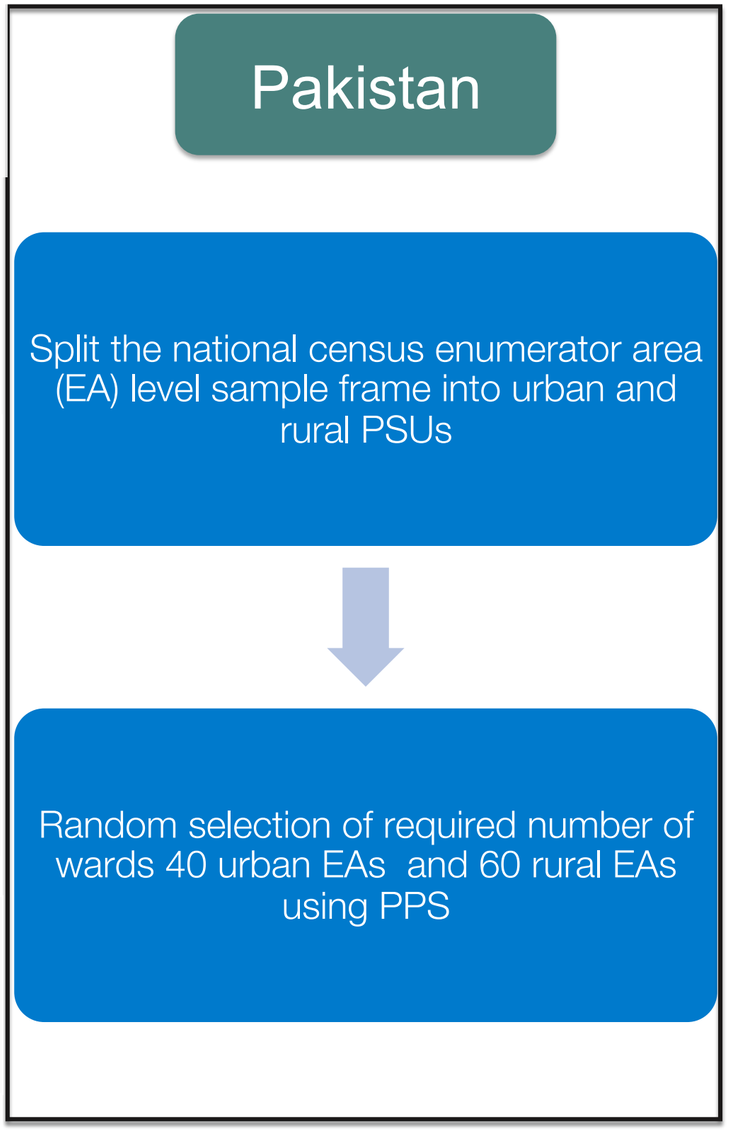
250 Villages and Wards covering
19 States
108 Districts
Fieldwork time period : October 5 – November 30 (2017)

100 Enumerator Areas of the 2017 National census
5 Provinces excluding FATA
28 Divisions
Fieldwork time period : October 21 – December 26 (2017)

100 Villages and Wards
40 Zilas
92 Upazillas
Fieldwork time period : October 8 – December 1 (2017)

100 Villages covering
20 Provinces
70 Districts
Fieldwork time period :September 23 – October 12 (2017)

100 wards covering
All Provinces
48 Districts
Fieldwork time period : April 23 – June 18 (2018)



Stage 1:

Stratified random sampling of the primary sample units (PSUs) with probability proportionate to size (PPS) sampling

Stage 2:

Mapping and listing of selected PSUs

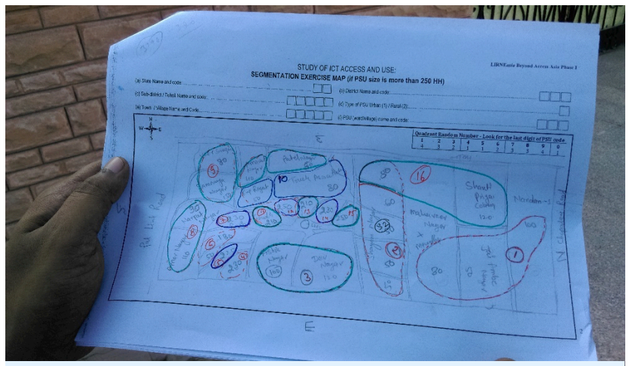
Obtaining PSU information (boundaries, households, etc.) from key informants

KI Interview in India

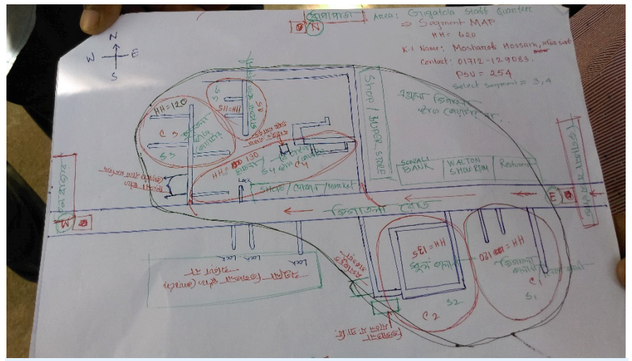
KI Interview in Cambodia

- Mapping of randomly selected village or ward with the help of the key informants

Mapping & segmentation



Segmentation Map - India



Segmentation Map - Bangladesh

- Segmentation of wards and villages where the number of households exceeding 250

- For Pakistan: Using census enumerator area maps identify the PSU boundaries

Listing of households

Listing - Nepal

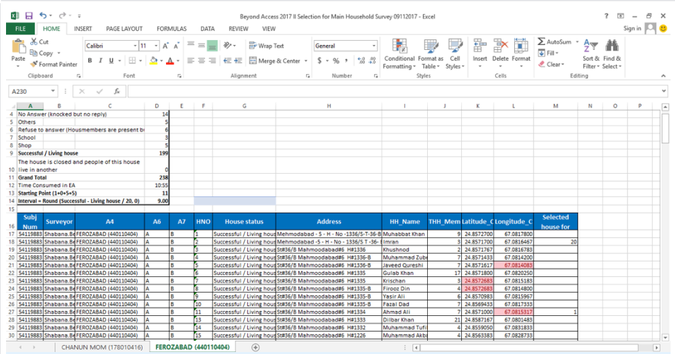
Listing - Pakistan

- List of structures of the entire enumerator area identifying the eligible households

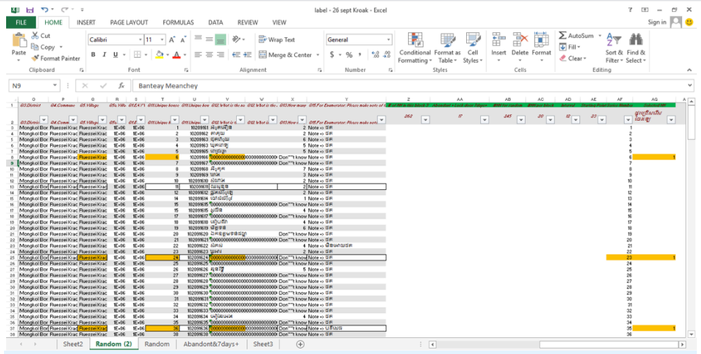
Stage 3:

Random selection of listed households

Random selection of households conducted systematic random sampling using the household lists collected during the listing



Random HH selection in PK



Random HH selection in KH

- Random selection of 20-25 households for the main survey

Stage 4:

Household interview (with household representative) and individual interview (with randomly selected individual after listing eligible members in household roster)

Interviews conducted on mobile devices

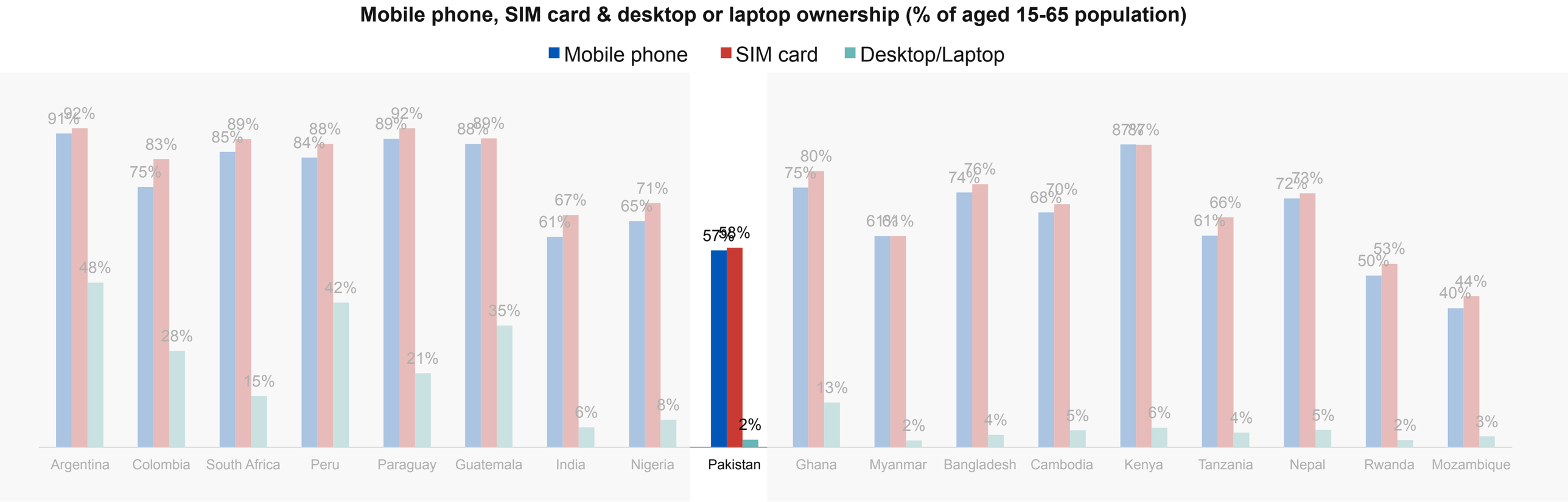
- Listing all the household members in the household roster
- Randomly selecting one member from age 15-65 from the list

CONNECTIVITY and DEVICE OWNERSHIP

CONNECTIVITY AND DEVICE OWNERSHIP

- Pakistan could be doing better; mobile ownership stands at 57%
- Urban-rural gap in mobile closed, but gender gap persists
- Smartphone ownership very low; relevance, a barrier
- More than half still using basic phones (no Internet capability)

57% of Pakistanis aged 15-65 have a mobile phone of some type. Negligible computer ownership

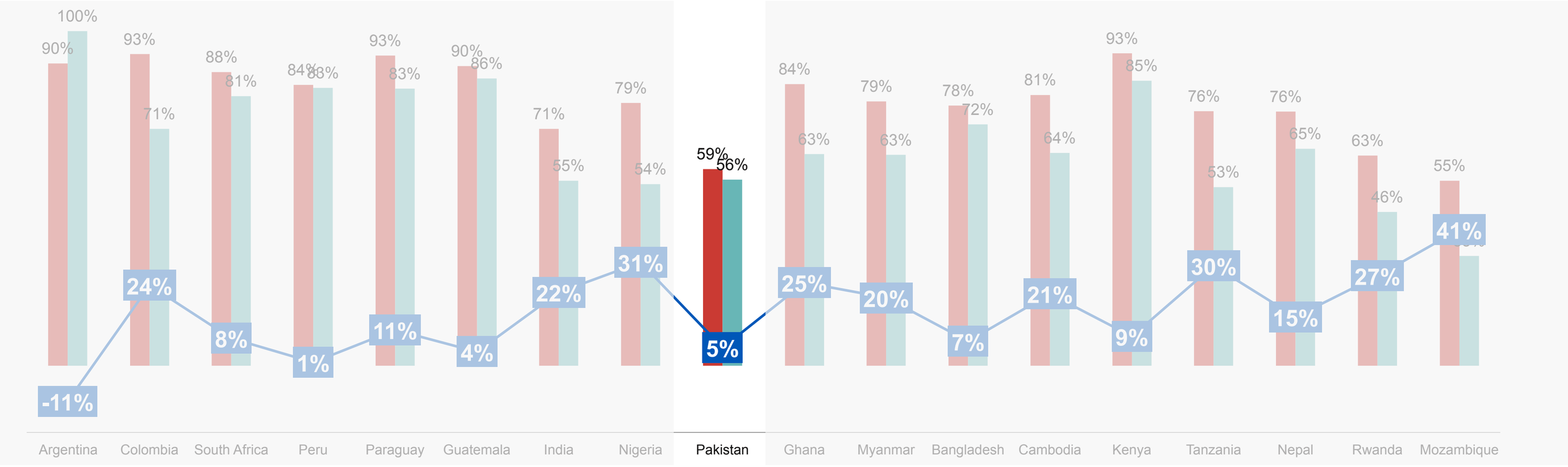


Q1: Do you own a mobile phone?
Q2: How many active SIM cards do you have, (SIM cards that you used in last 30 days)?
Q3: Do you own a personal Desktop computer or Laptop?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
All respondents	1,240	1,425	1,610	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118	1,091

Slightly lower ownership among rural Pakistanis: Rural dwellers 5% less likely to own a mobile compared to urban

Mobile phone ownership (% of aged 15-65 population)



$$\text{Urban rural gap in ownership (\%)} = \frac{\text{Urban mobile phone owners (\% of urban population)} - \text{Rural mobile phone owners (\% of rural population)}}{\text{Urban mobile phone owners (\% of urban population)}}$$

Q: Do you own a mobile phone?

Base	Argentina		Colombia		South Africa		Peru		Paraguay		Guatemala		India		Nigeria		Pakistan		Ghana		Myanmar		Bangladesh		Cambodia		Kenya		Tanzania		Nepal		Rwanda		Mozambique	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
All respondents	1,208	32*	986	439	1,050	765	1,178	300	824	533	550	857	2,200	2,869	1,147	661	793	1,209	721	479	3,477	3,727	808	1,212	897	1,226	727	481	720	480	940	538	711	500	718	453

How we calculate the gaps

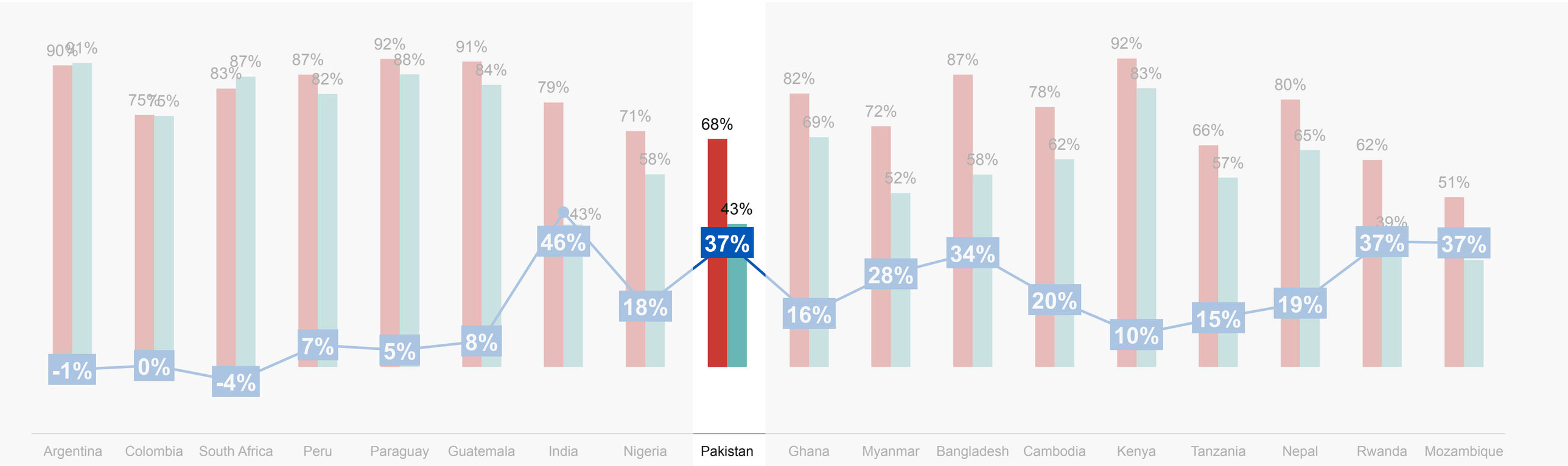
$$\text{Urban-rural gap in ownership (\%)} = \frac{\text{Urban mobile phone owners (\% of urban population)} - \text{Rural mobile phone owners (\% of rural population)}}{\text{Urban mobile phone owners (\% of urban population)}}$$

- How much *less* likely a rural dweller is to own a mobile than an urban one
- Same logic applied to gender gap, income group gap, etc.

Significant gender gap in Pakistan; Women in Pakistan 37% less likely to own a mobile than men

Mobile phone ownership (% of aged 15-65 population)

$$\text{Gender gap in ownership (\%)} = \frac{\text{Male phone owners (\% of male population)} - \text{Female phone owners (\% of female population)}}{\text{Male phone owners (\% of male population)}}$$



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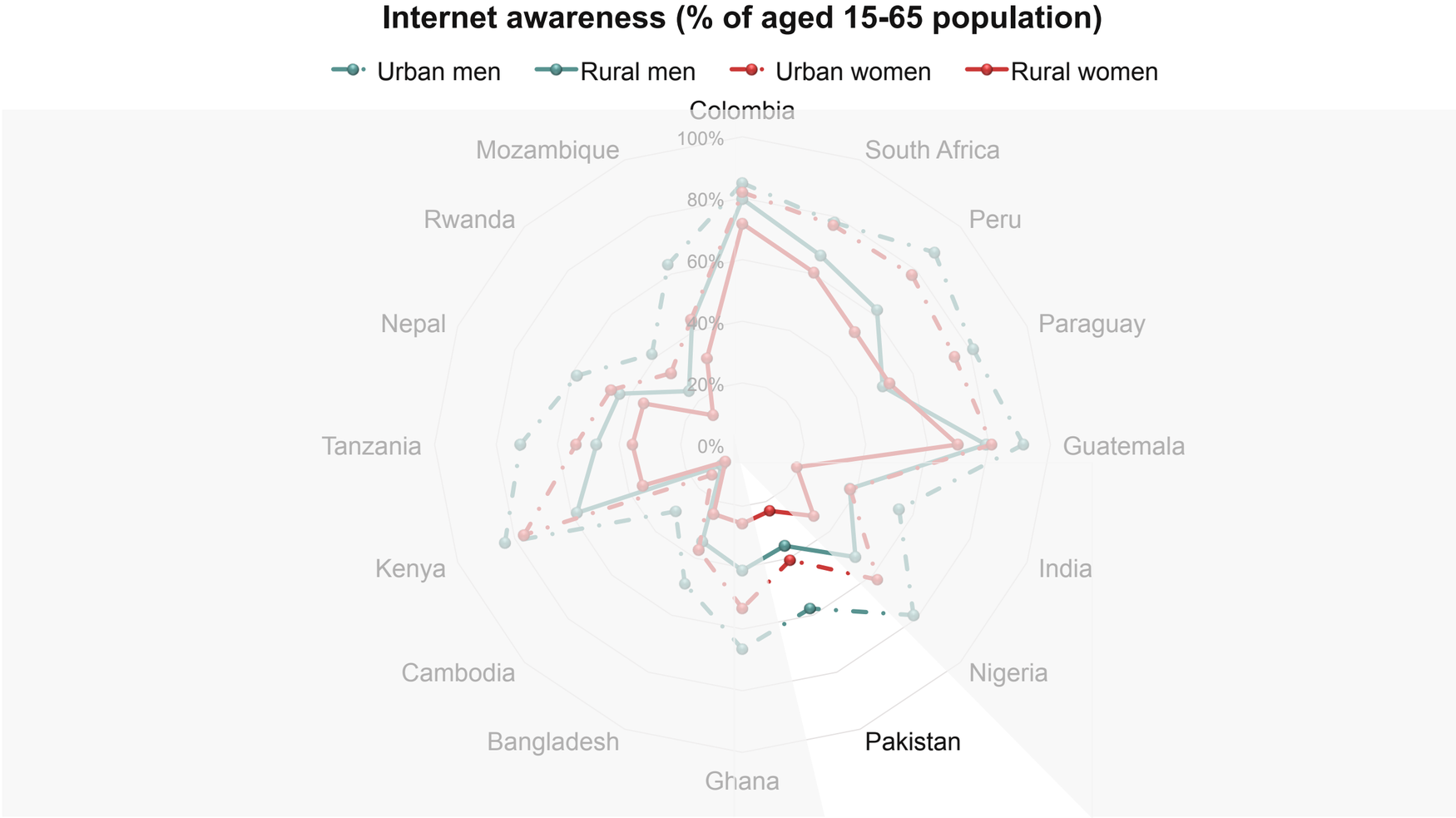
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All respondents	478	762	487	938	795	1,020	508	970	879	478	656	751	2,478	2,591	912	896	1,060	942	547	653	3,818	3,386	1,092	928	735	1,388	544	664	531	669	912	1,096	556	655	527	644

Rural women have lowest level of mobile ownership in Pakistan



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All respondents	1,425	1,610	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118	1,091

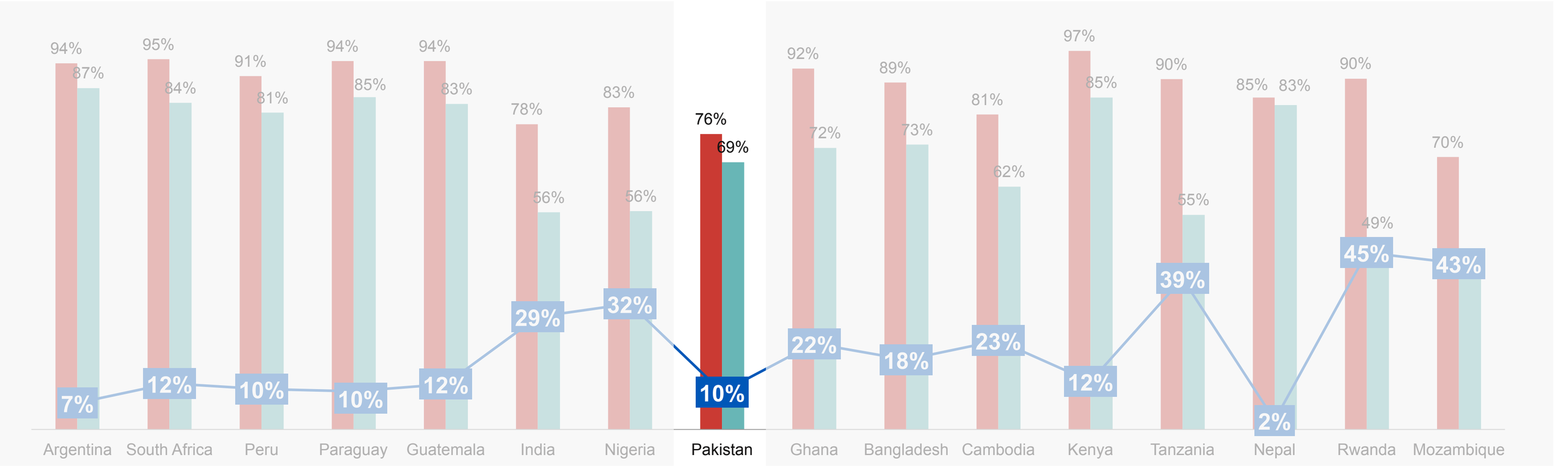
AFTER ACCESS

Low gap in phone ownership between high and low income earners in Pakistan

Mobile phone ownership (% of aged 15-65 population)

Above average income | Below average income | Gap

Income gap in ownership (%) = (Above average income phone owners(%) − Below average income phone owners(%)) / Above average income phone owners (%)



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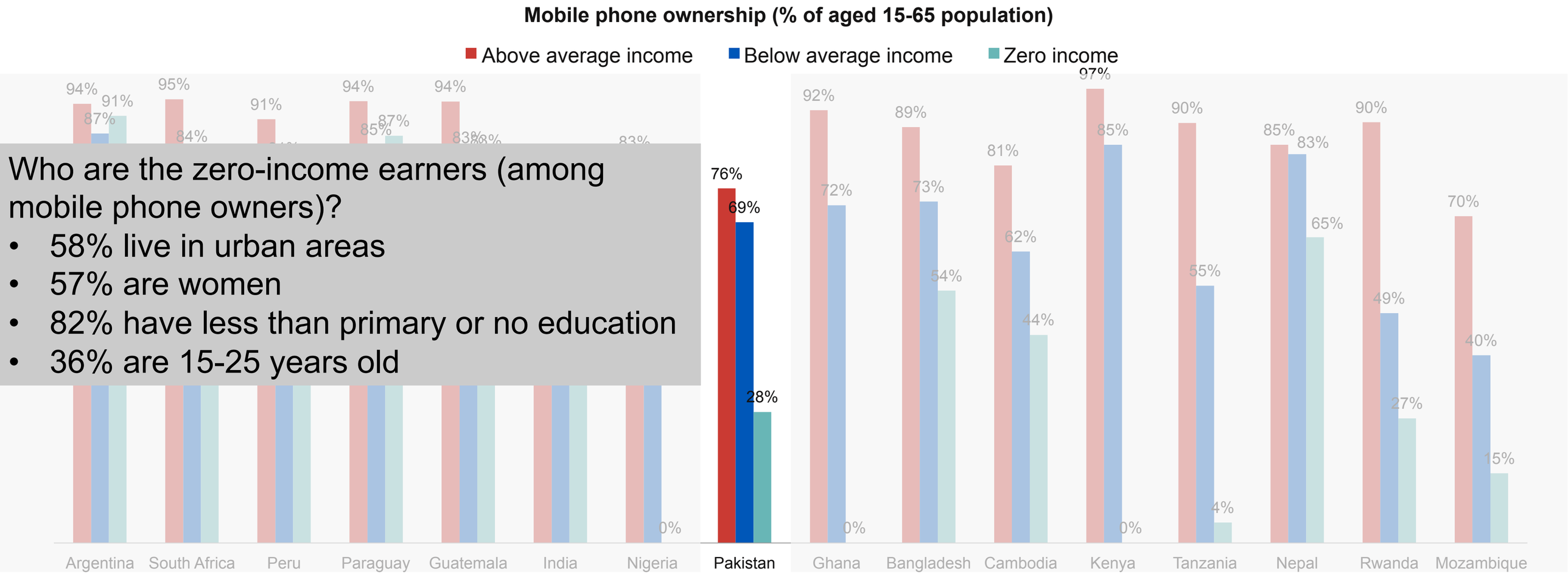
In Pakistan more than 25% of the zero income earners own a mobile phone



Who are the zero-income earners (among mobile phone owners)?

- 58% live in urban areas
- 57% are women
- 82% have less than primary or no education
- 36% are 15-25 years old

Q: Do you own a mobile phone?

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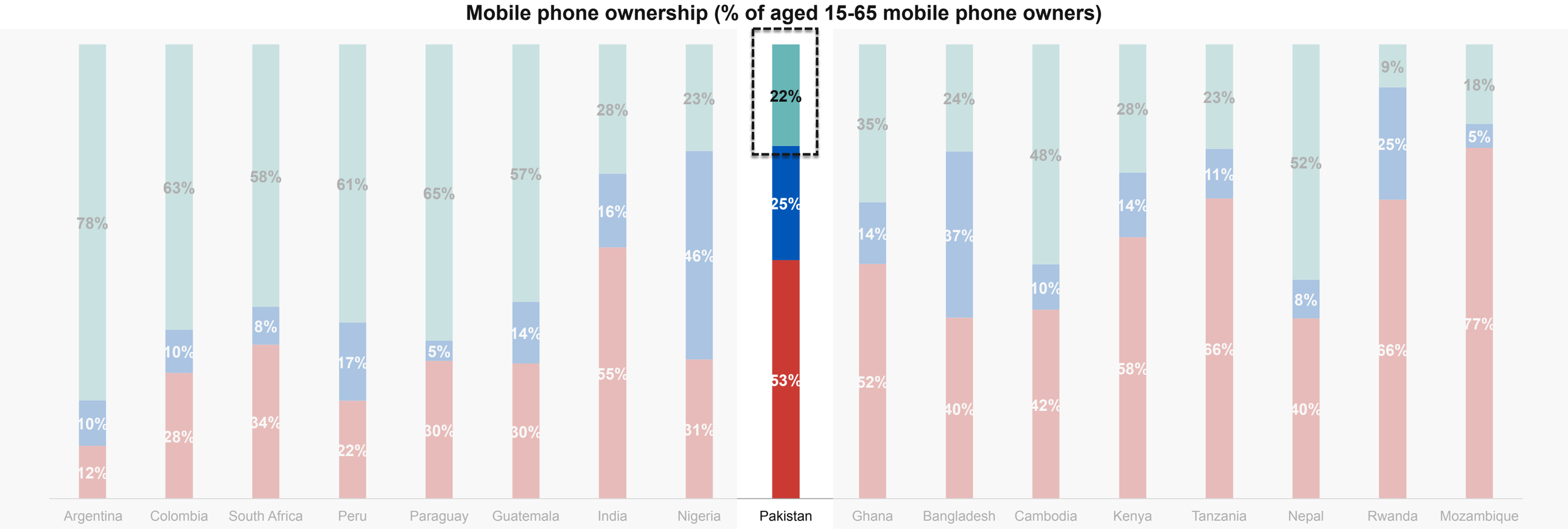
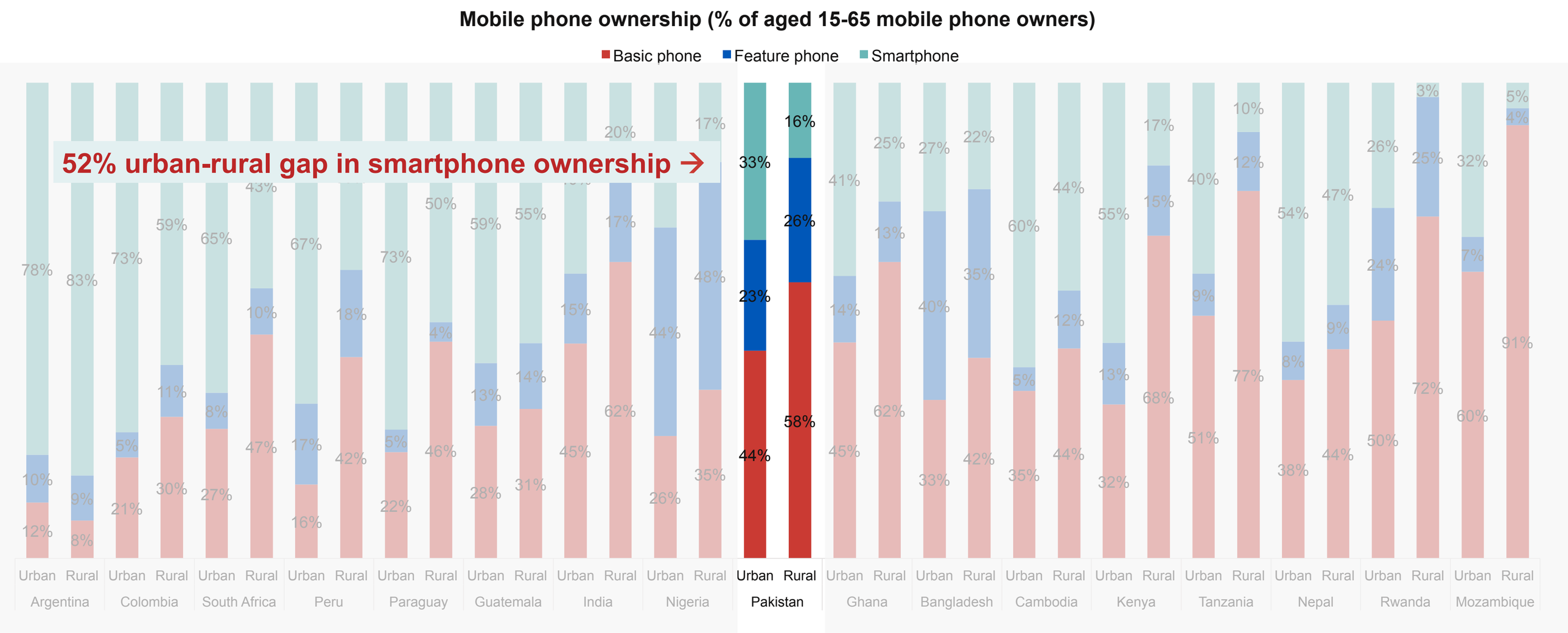
Only 22% of phone owners use a smart phone as the primary device; 53% still have basic phones (that are not internet enabled).



Q: What type of mobile is it?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Mobile phone owners	1,116	1,297	1,398	1,234	1,209	1,214	3,252	1,123	1,208	901	1,531	1,526	1,054	761	1,478	635	632

Smartphones not caught on in rural yet



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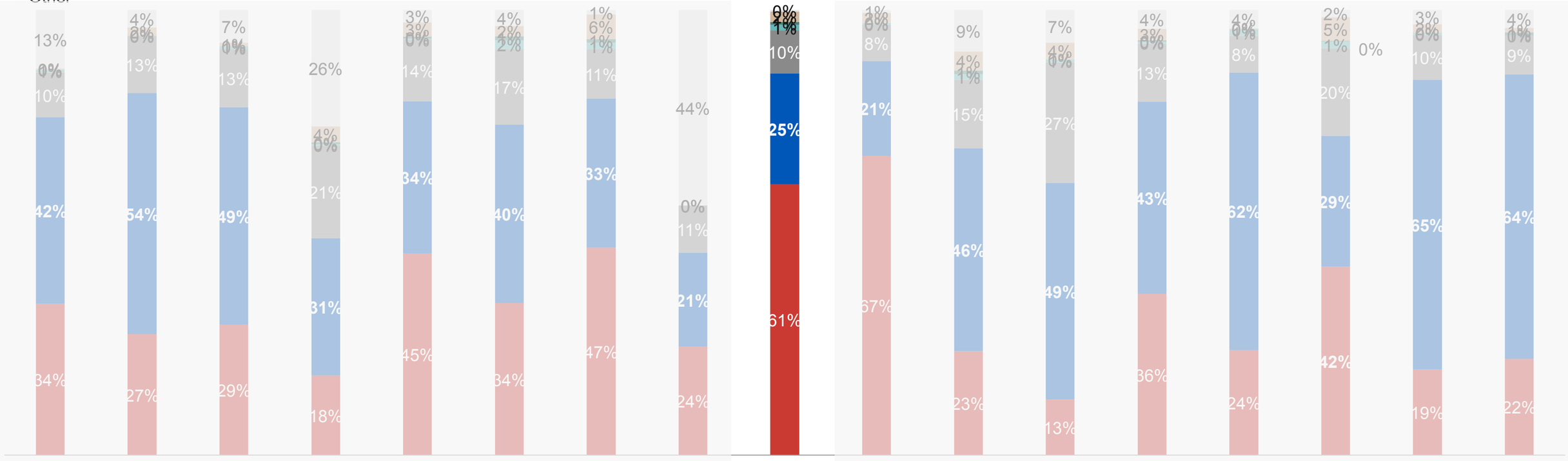
Lack of need is main reason for not owning a smartphone (61%); 26% cite affordability as a barrier; 10% don't know how to use one

Reason for not owning a smartphone (% of aged 15-65 basic or feature phone owners)



Q: Please tell me the primary reason why you have chosen not to obtain a smartphone or touch phone handset?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
basic or feature phone owners	246	433	633	476	456	537	2378	20	872	1186	595	780	646	513	701	506	448

27% of got connected to mobile networks in last 3 years; 51% in the last 5 years

Country	Number of years since first ever mobile connection (% of aged 15-65 mobile phone owners)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15+
Argentina	4%	3%	4%	3%	7%	7%	4%	6%	3%	23%	3%	6%	3%	2%	9%	15%
Colombia	11%	10%	7%	5%	10%	9%	5%	7%	3%	10%	1%	6%	1%	1%	7%	9%
South Africa	6%	6%	5%	5%	4%	4%	7%	4%	4%	4%	4%	5%	4%	4%	3%	30%
Peru	5%	7%	8%	6%	13%	6%	6%	7%	4%	15%	2%	4%	2%	1%	7%	8%
Paraguay	6%	6%	8%	6%	12%	6%	6%	6%	2%	15%	1%	5%	2%	1%	9%	11%
Guatemala	13%	11%	11%	5%	11%	6%	3%	7%	2%	12%	1%	3%	0%	1%	5%	7%
India	15%	14%	10%	6%	12%	6%	9%	3%	4%	6%	2%	4%	1%	1%	2%	4%
Nigeria	7%	5%	7%	5%	9%	4%	7%	5%	8%	11%	6%	8%	6%	3%	4%	6%
Pakistan	9%	10%	8%	3%	6%	6%	10%	4%	8%	3%	3%	7%	3%	2%	3%	13%
Ghana	14%	9%	[illegible]	9%	6%	6%	9%	6%	5%	9%	3%	4%	3%	1%	4%	4%
Bangladesh	8%	1	[illegible]	[illegible]	11%	6%	11%	6%	8%	5%	3%	5%	1%	1%	1%	4%
Cambodia	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4%	8%	3%	3%	12%	3%	5%	2%	3%	4%	8%
Kenya	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4%	10%	9%	5%	6%	3%	4%	3%	2%	3%	7%
Tanzania	11%	7%	7%	7%	6%	7%	12%	10%	7%	6%	4%	6%	3%	2%	1%	5%
Nepal	5%	9%	13%	9%	15%	9%	10%	5%	3%	9%	4%	2%	2%	1%	2%	2%
Rwanda	18%	11%	11%	5%	15%	5%	3%	7%	3%	9%	2%	2%	1%	1%	3%	3%
Mozambique	12%	12%	8%	8%	8%	9%	6%	3%	4%	6%	3%	7%	3%	2%	4%	5%

Mostly rural, women, low income and zero income earners

Q: When did you get your first ever mobile connection (i.e., working handset and SIM card)? [record year] (converted to time since)

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Mobile phone owners	1,116	1,297	1,398	1,234	1,209	1,214	3,252	1,123	1,208	901	1,531	1,526	1,054	761	1,478	635	632

22% of Pakistanis aged 15-65 mobile owners have more than 1 SIM

Number of SIM cards (% of aged 15-65 mobile phone owners)

	1	2	3	4	5	6+
Argentina	93%	6%	1%	0%	0%	0%
Colombia	79%	20%	1%	0%	0%	0%
South Africa	80%	18%	2%	0%	0%	0%
Peru	83%	13%	3%	0%	0%	0%
Paraguay	89%	9%	1%	0%	0%	0%
Guatemala	87%	12%	1%	0%	0%	0%
India	74%	23%	2%	1%	0%	0%
Nigeria	48%	42%	7%	3%	0%	0%
Pakistan	77%	19%	3%	1%	0%	0%
Ghana	57%	38%	3%	1%	0%	1%
Myanmar	73%	25%	1%	1%	0%	0%
Bangladesh	66%	30%	2%	1%	1%	0%
Cambodia	71%	26%				0%
Kenya	80%	18%				0%
Tanzania	59%	36%				0%
Nepal	72%	28%				0%
Rwanda	58%	37%	5%	0%	0%	0%
Mozambique	76%	21%	3%	0%	0%	0%

Slightly skewed towards smartphone owners, urban, men, high income earners and below 25 years

Q: How many active SIM cards do you have (SIM cards that you used in last 30 days)?

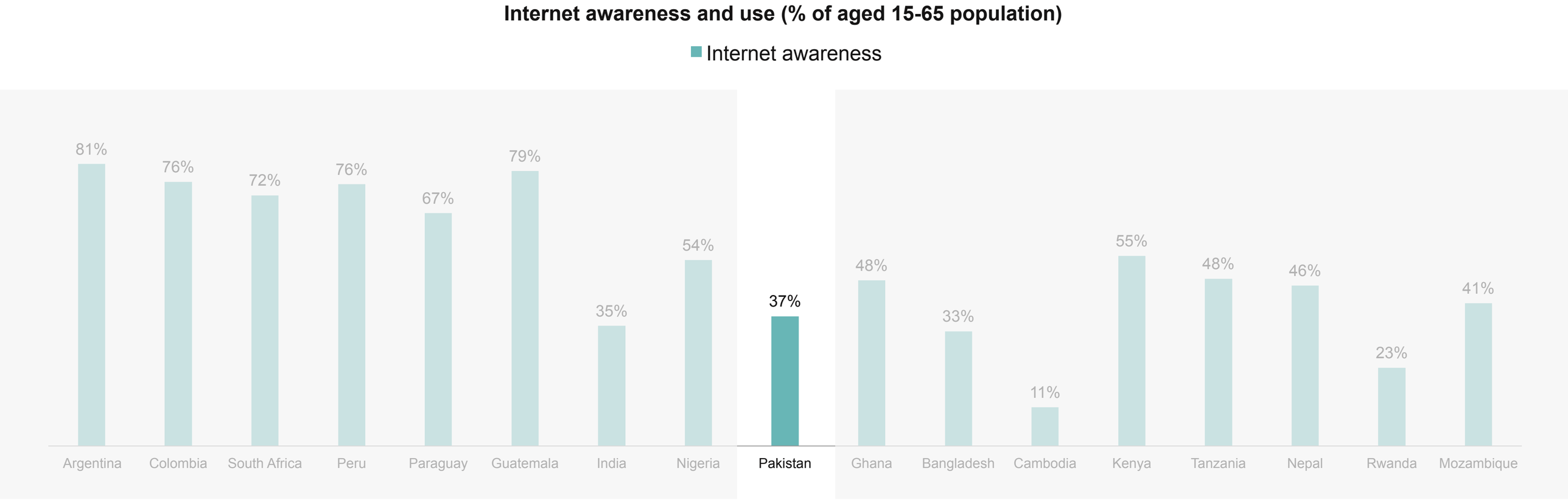
Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Mobile phone owners	1,116	1,297	1,398	1,234	1,209	1,214	3,252	1,123	1,208	901	1,531	1,526	1,054	761	1478	635	632

INTERNET

INTERNET

- Many unaware of what the Internet is
- Pakistan could be doing better on Internet (and social media use)
- The majority of those online came online in the last year
- Women (especially rural women), less educated and the poor are lagging behind

Only 37% of Pakistanis15-65 know of/have heard of the Internet



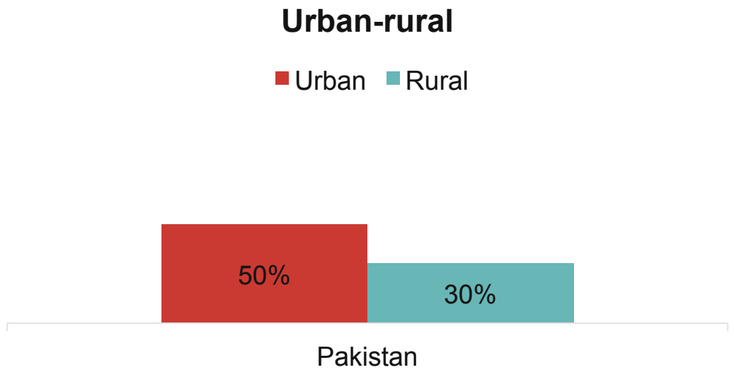
Q1: Do you know what the Internet is?

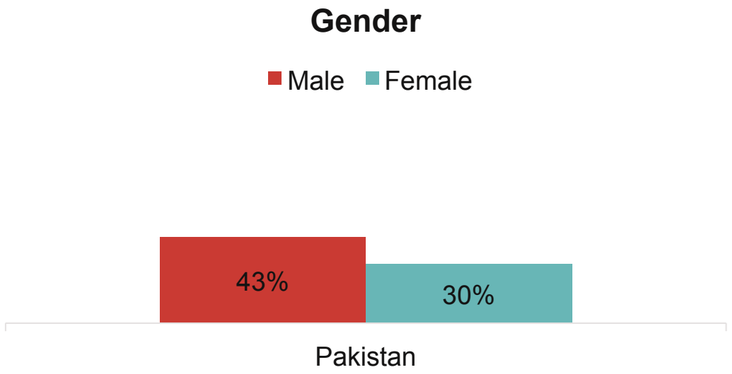
Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
All respondents	1,240	1,425	1,610	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118	1,091

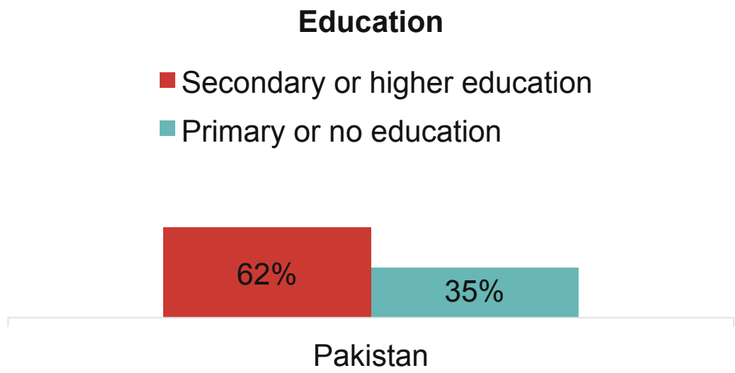
Awareness low among rural, female, less educated, lower income, basic phone owners and among older people

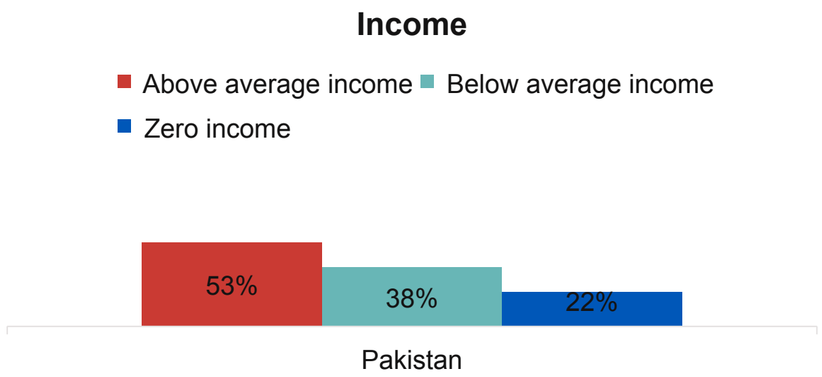
Pakistan

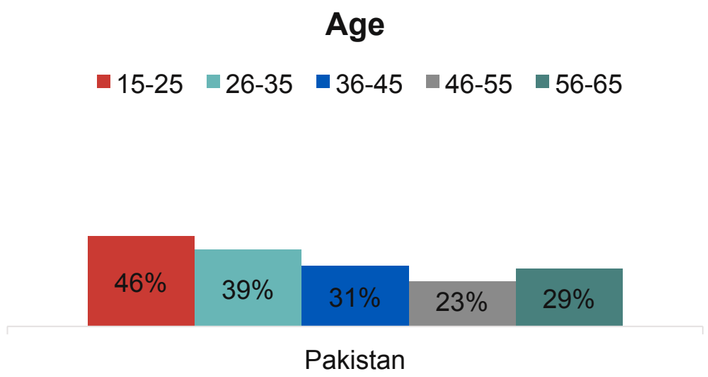
Internet awareness (% of aged 15-65 population)

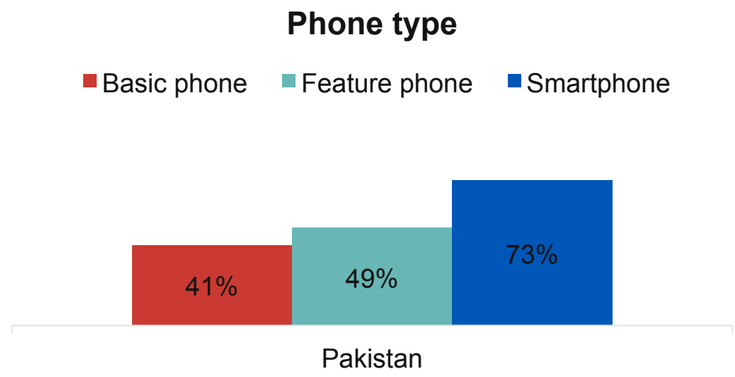








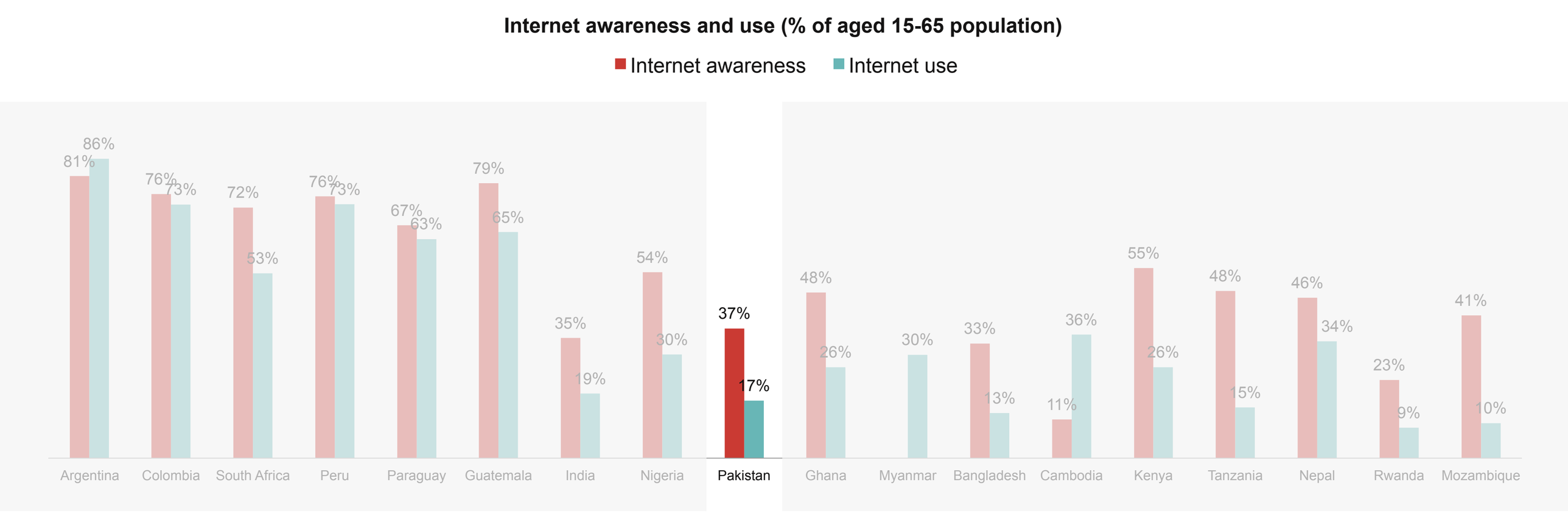




Q: Do you know what the Internet is?

Base	Pakistan
All respondents	2,002

Moderate Internet awareness and use among Pakistanis compared to neighboring Asian countries



Q1: Do you know what the Internet is?
Q2: Have you ever used the Internet (Gmail, Google, Facebook, email)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
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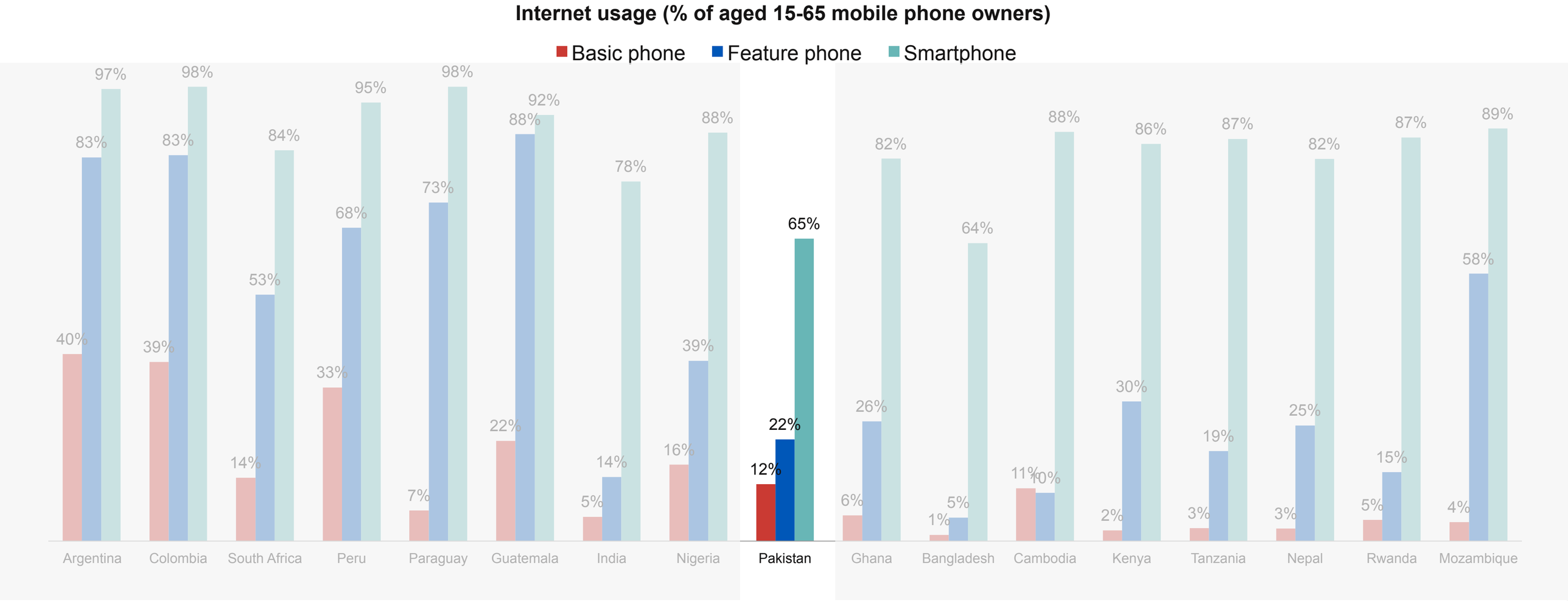
Smartphone owners are the highest users of the Internet



Q: Have you ever used the Internet (Gmail, Google, Facebook, email)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
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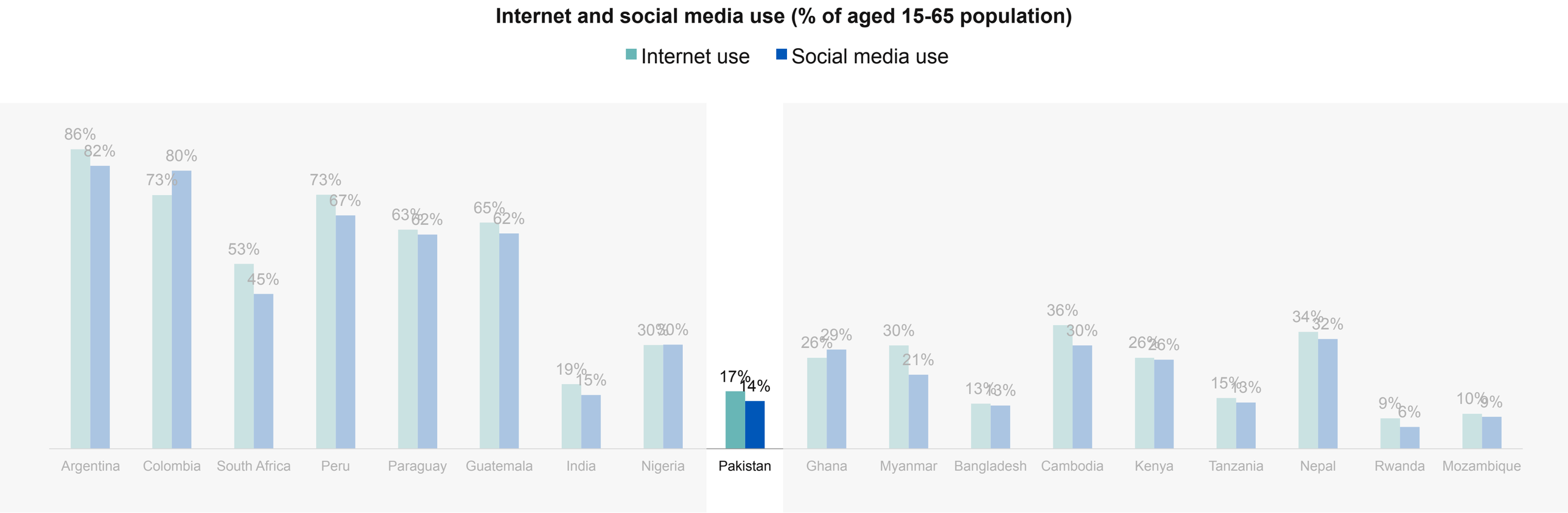
Internet use ≈ social media use

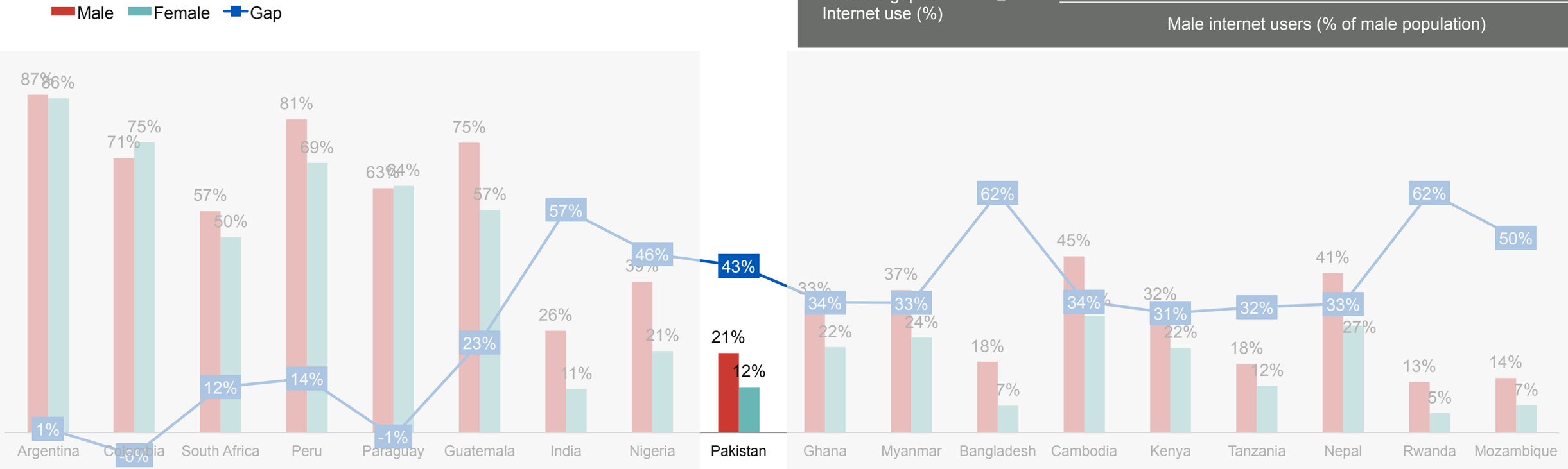


Q1: Have you ever used the Internet (Gmail, Google, Facebook, email)?
Q2: Do you use social media like Facebook, Whatsapp, Twitter etc?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
All respondents	1,240	1,425	1,610	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118	1,091

High gender divide in Internet use in Pakistan

Internet use (% of aged 15-65 population)

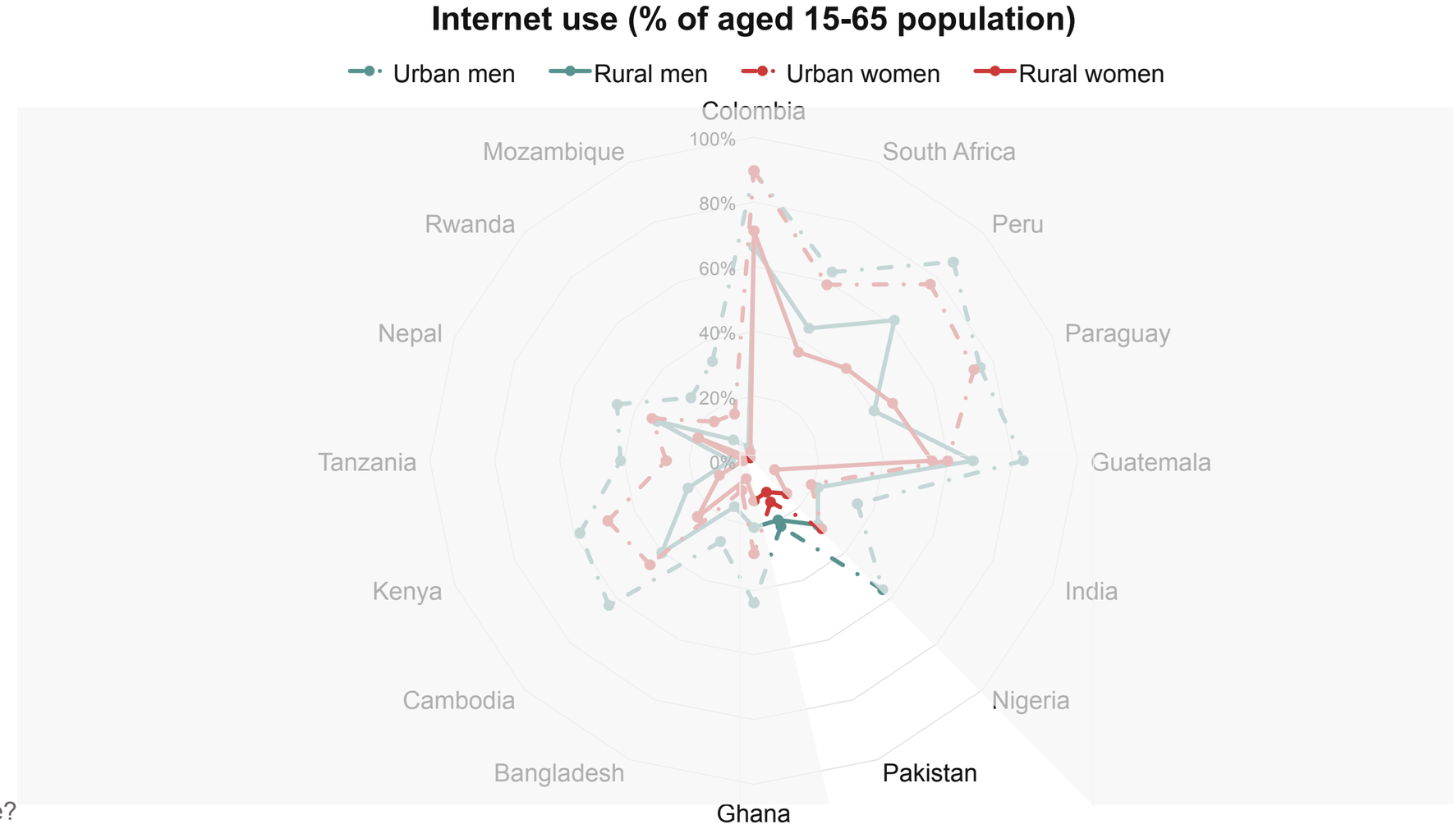


Gender gap in Internet use (%) = (Male internet users (% of male population) − Female internet users (% of female population)) / Male internet users (% of male population)

Q: Have you ever used the Internet (Gmail, Google, Facebook, email)?

Base	Argentina		Colombia		South Africa		Peru		Paraguay		Guatemala		India		Nigeria		Pakistan		Ghana		Myanmar		Bangladesh		Cambodia		Kenya		Tanzania		Nepal		Rwanda		Mozambique	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All respondents	478	762	487	938	795	1,020	508	970	879	478	656	751	2,478	2,591	912	896	1,060	942	547	653	3,818	3,386	1,092	928	735	1,388	544	664	531	669	912	1,096	556	655	527	644

Lowest level of Internet use among the rural women



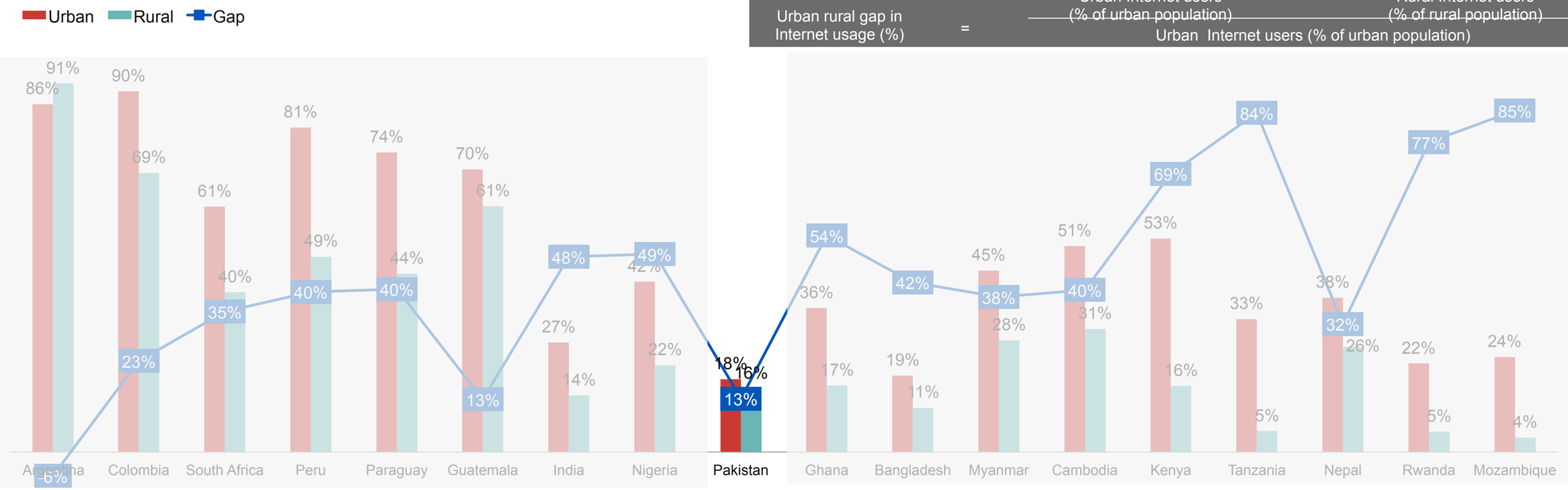
Q: Do you own a mobile phone?

Base	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
All respondents	1,425	1,610	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118	1,091

AFTER ACCESS

Rural dwellers 13% less likely to be online compared to urban

Internet use (% of aged 15-65 population)

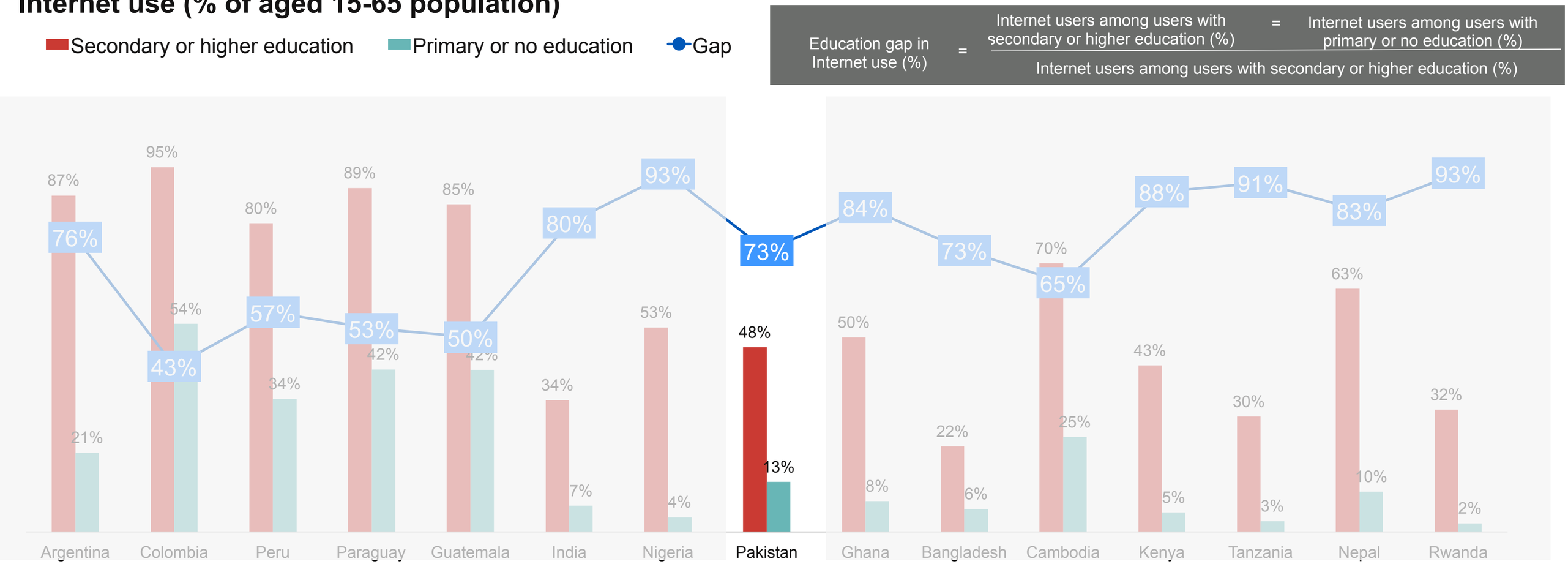


Q: Have you ever used the Internet (Gmail, Google, Facebook, email)?

Base	Argentina		Colombia		South Africa		Peru		Paraguay		Guatemala		India		Nigeria		Pakistan		Ghana		Myanmar		Bangladesh		Cambodia		Kenya		Tanzania		Nepal		Rwanda		Mozambique	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
All respondents	1,208	32*	986	439	1,050	765	1,178	300	824	533	550	857	2,200	2,869	1,147	661	793	1,209	721	479	3,477	3,727	808	1,212	897	1,226	727	481	720	480	940	538	711	500	718	453

Significant difference in Internet use between high educated among less educated in Pakistan

Internet use (% of aged 15-65 population)



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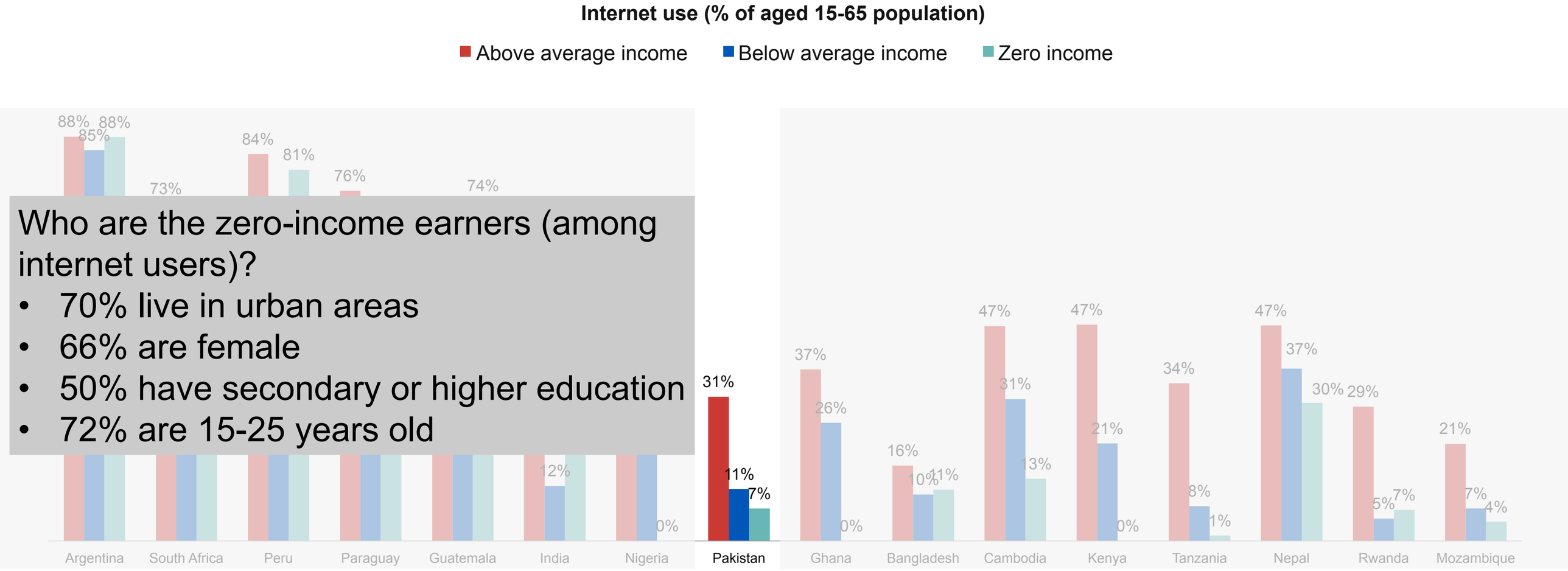
Base	Argentina	Colombia	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda
All respondents	1,240	1,425	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118

In Pakistan, high income earners use the Internet most



Who are the zero-income earners (among internet users)?

- 70% live in urban areas
- 66% are female
- 50% have secondary or higher education
- 72% are 15-25 years old

Q: Have you ever used the Internet (Gmail, Google, Facebook, email)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
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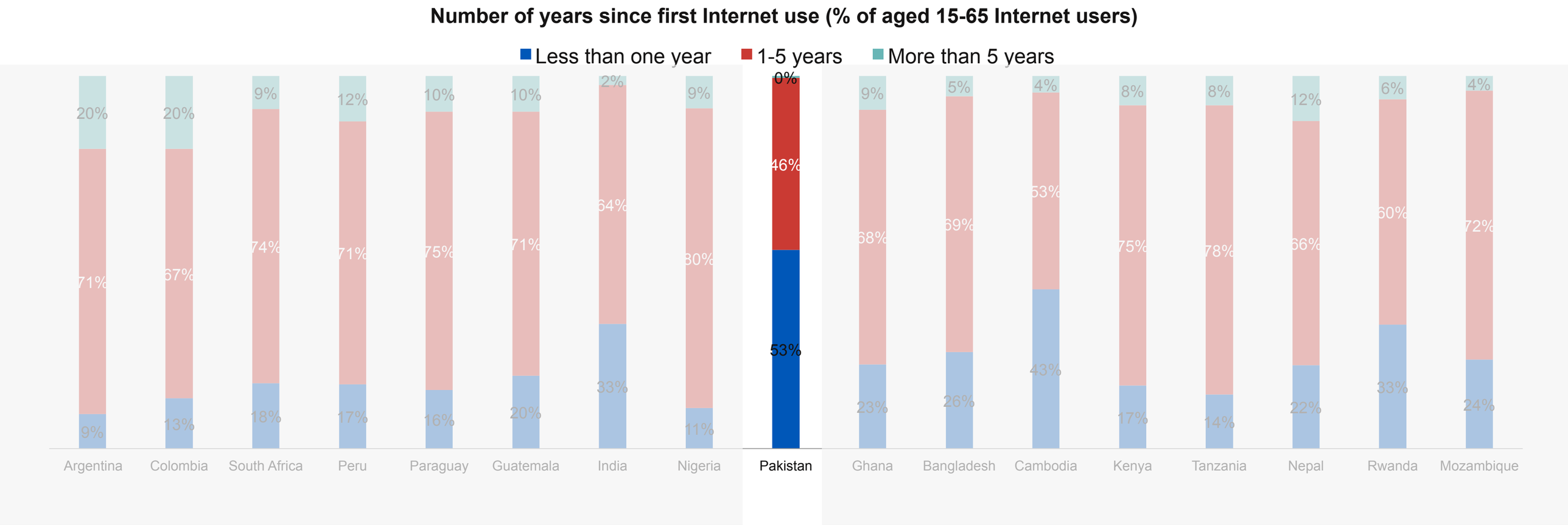
53% of Internet users in Pakistan, came online less than a year before survey

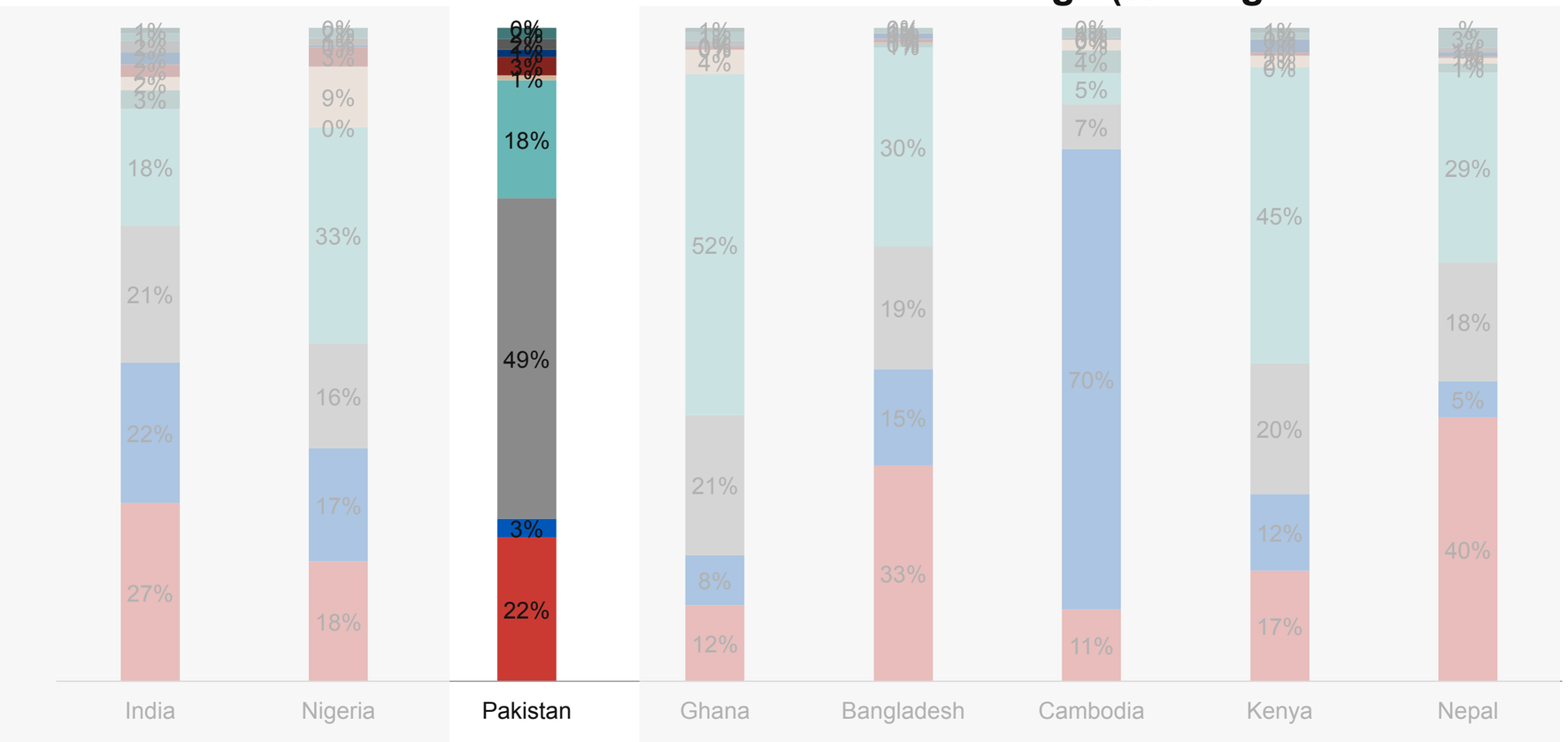


Q: For how many years have you been using the internet? (1 also for less than a year)

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Internet users	1,006	1,192	829	1,120	886	1,104	919	537	427	311	266	804	440	266	692	172	238

What limits more use among current users? Lack of time and data cost

Limitations for Internet usage (% of aged 15-65 Internet users)



Q: What is your main limitation for your use of the internet? (Single response question)

Base	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Nepal
Internet users	919	529	427	311	266	804	440	692

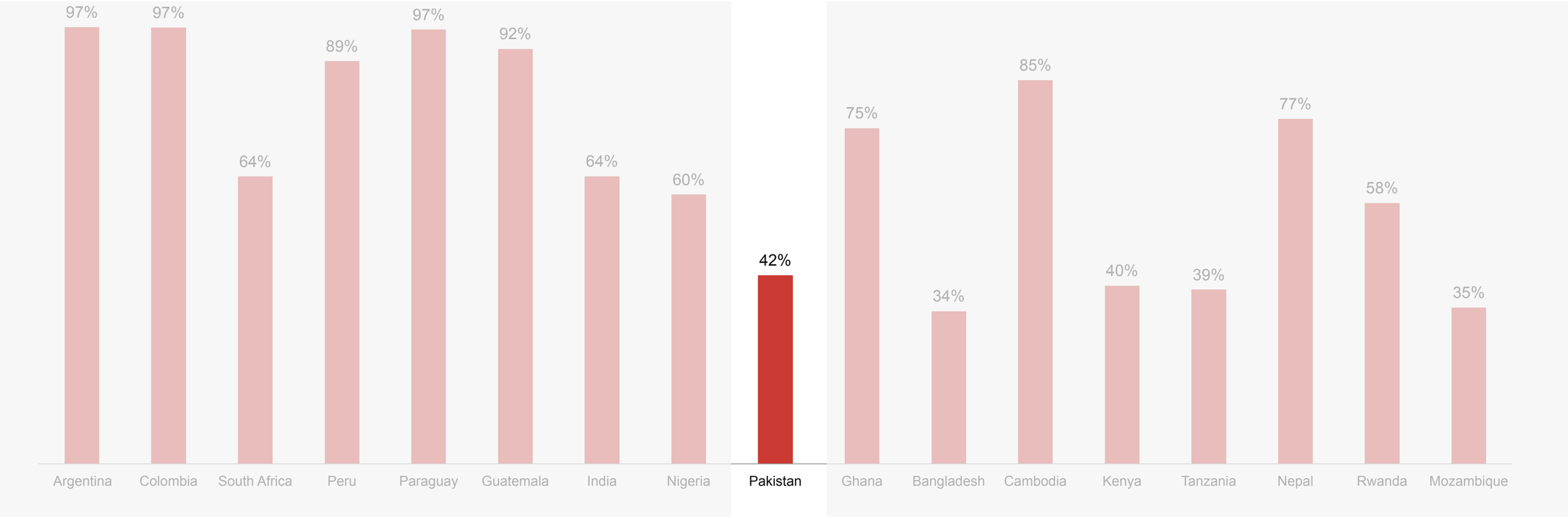
WHAT DO USERS DO WHEN ONLINE?

WHAT DO USERS DO WHEN ONLINE?

- Online use fairly limited by the low smartphone penetration
- App use could be better (level and variety)
- Women, less educated, poor (and rural) lag behind

App use; could be doing better?

App use (% of aged 15-65 feature or smartphone owners)



Q: Are you using these types of mobile apps on your phone?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Rwanda	Nepal	Mozambique
Feature or smartphone owners	982	1,020	1,552	972	809	846	1,397	795	571	458	936	878	1,074	789	660	903	667

Low app use

App use (% of aged 15-65 feature or smartphone owners)

	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	**Pakistan**	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Social networking apps (Such as Facebook, WhatsApp, Instagram, Snapchat, Twitter, Linkedin, line)	95%	94%	52%	82%	88%	87%	48%	52%	**25%**	68%	19%	71%	30%	22%	70%	12%	20%
Messaging or chat (text) apps (Whatsapp, Skype, Viber, Line, Talkray, Telegram, Facebook messenger)	89%	86%	45%	77%	90%	78%	46%	43%	**25%**	64%	22%	50%	26%	17%	67%	16%	28%
Voice apps (Whatsapp, Skype, Viber, Line, Talkray) for voice	89%	86%	45%	77%	90%	78%	42%	43%	**24%**	64%	17%	27%	26%	17%	41%	16%	28%
Transport apps (public transportation info, taxis, Uber)	31%	15%	10%	35%	10%	22%	17%	6%	**17%**	13%	2%	1%	9%	4%	3%	5%	6%
Search tool apps (Maps, directions, phone numbers, recipes, etc.)	51%	49%	30%	56%	32%	47%	29%	28%	**16%**	43%	7%	23%	19%	19%	24%	18%	12%
Game apps (puzzles, charades, etc.)	19%	32%	32%	31%	18%	34%	34%	31%	**15%**	46%	13%	37%	16%	9%	34%	9%	17%
Business apps (calculate, convert, translate, etc.)	28%	22%	13%	45%	21%	26%	26%	25%	**14%**	30%	15%	51%	13%	26%	11%	24%	8%
Entertainment apps (movie trailers, celebrity gossip, radio station guides,)	27%	43%	24%	44%	28%	37%	43%	28%	**13%**	40%	13%	51%	17%	28%	38%	30%	16%
News apps (local news, national headlines, technology announcements, sport)	49%	41%	25%	60%	38%	51%	33%	37%	**12%**	44%	8%	36%	16%	16%	37%	17%	15%
Trading or E-commerce apps (selling and buying online e.g. ebay)	43%	23%	8%	36%	16%	18%	19%	8%	**12%**	18%	3%	6%	9%	6%	3%	4%	5%
Weather apps (local forecasts, natural disaster updates)	57%	42%	26%	51%	46%	37%	22%	18%	**11%**	32%	3%	24%	10%	4%	15%	2%	12%
Educational applications (dictionary, learning tools)	34%	39%	27%	55%	25%	50%	30%	36%	**10%**	53%	8%	32%	16%	12%	29%	7%	14%
Payment gateway apps (e.g. PayPal)							15%		**7%**		1%	2%			4%		

Q: Are you using these types of mobile apps on your phone?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Rwanda	Nepal	Mozambique
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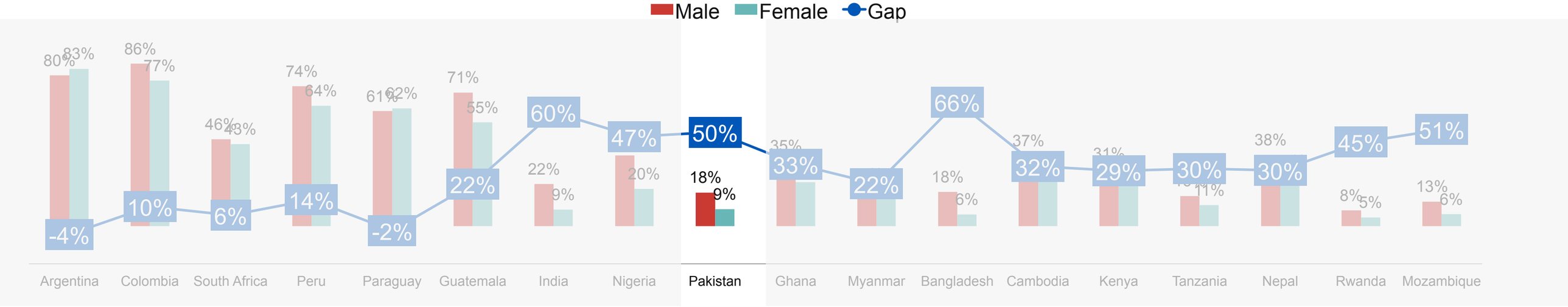
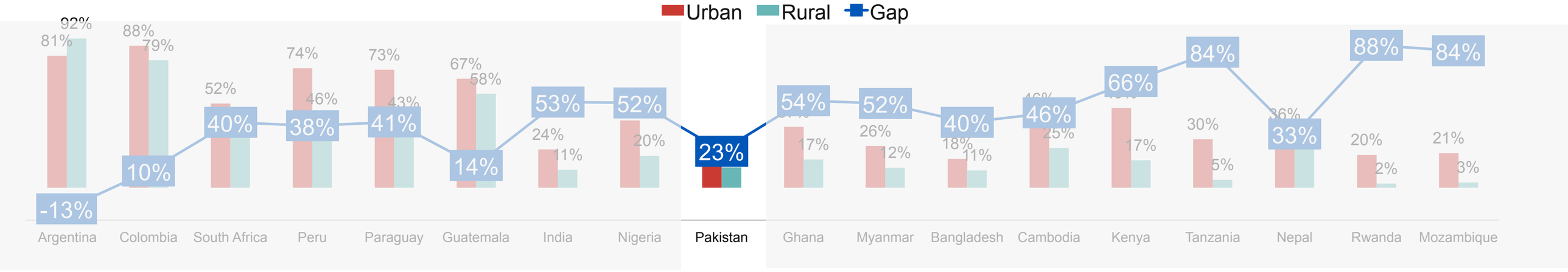
High gender gap in social media use in Pakitan

Social media use (% of aged 15-65 population)



Social media use (% of aged 15-65 population)



Q: Do you use social media like Facebook, Whatsapp, Twitter etc?

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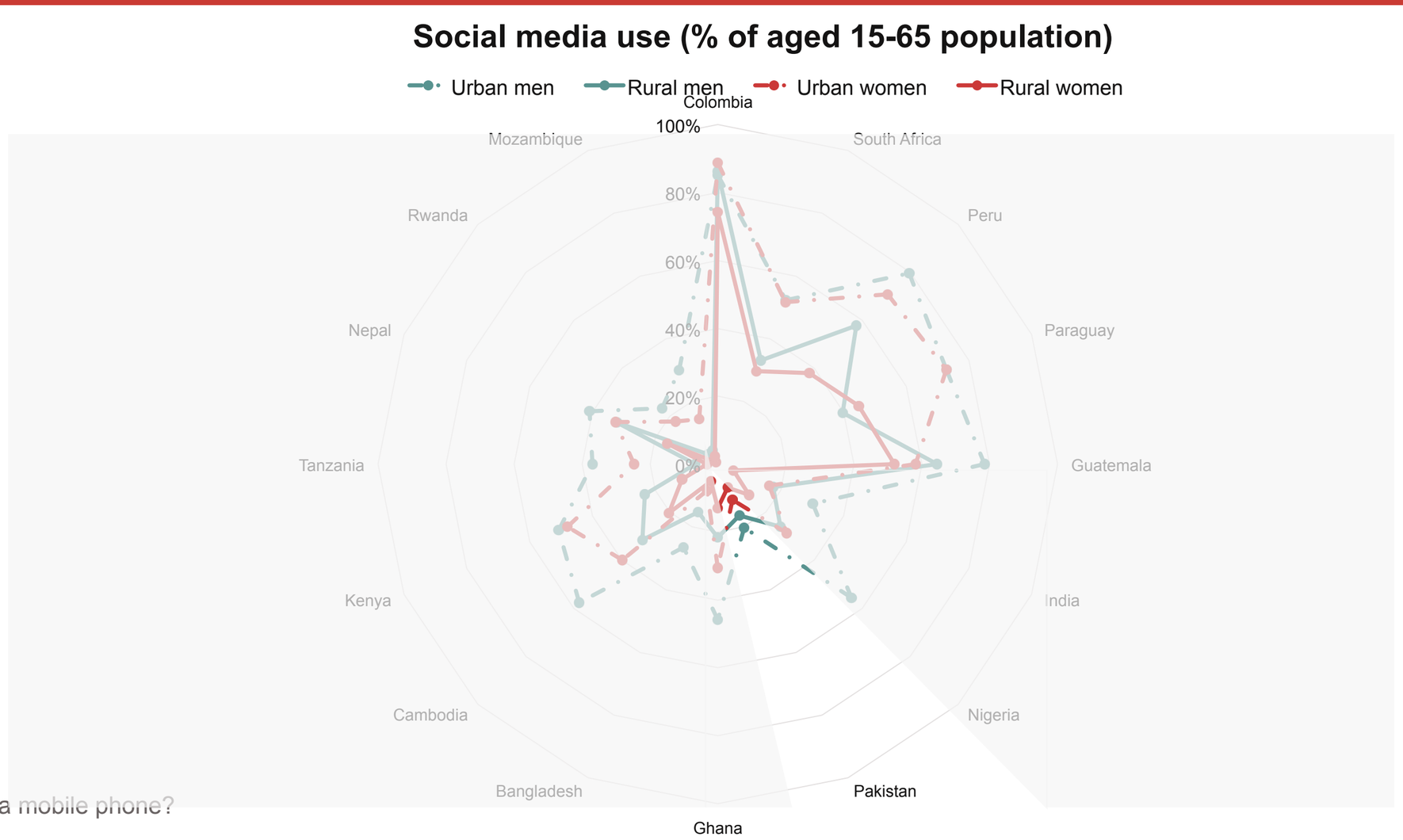
Lowest level of Internet awareness among the rural women



Q: Do you own a mobile phone?

Base	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
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AFTER ACCESS

PAKISTAN BBQoSE

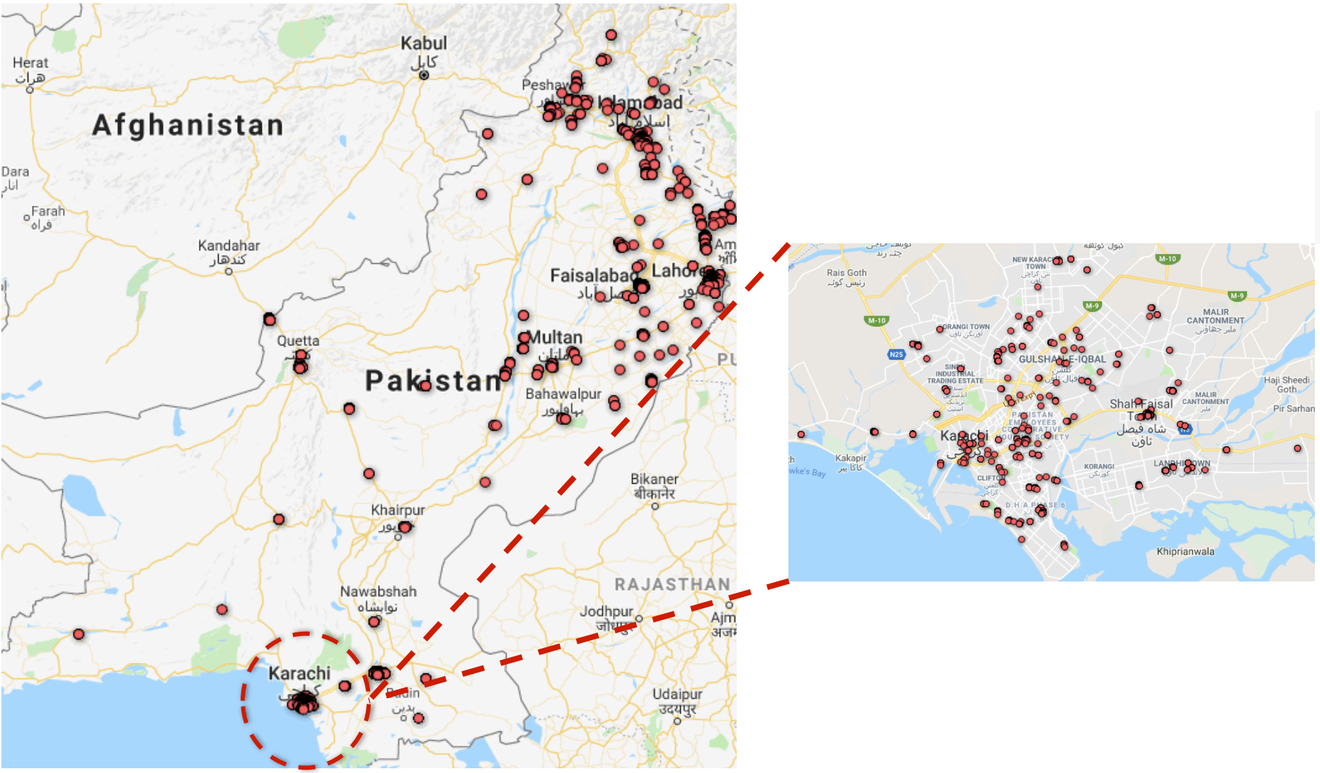
PAKISTAN BBQoSE

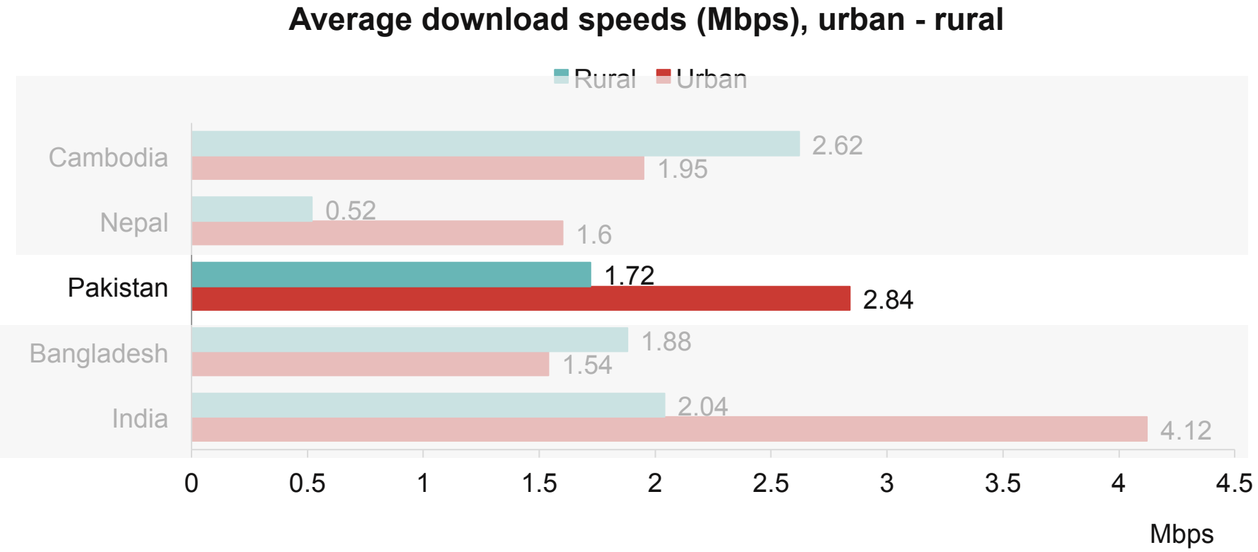
- Pakistan performs poorly on quality of service experience
- Lower speeds, higher latency

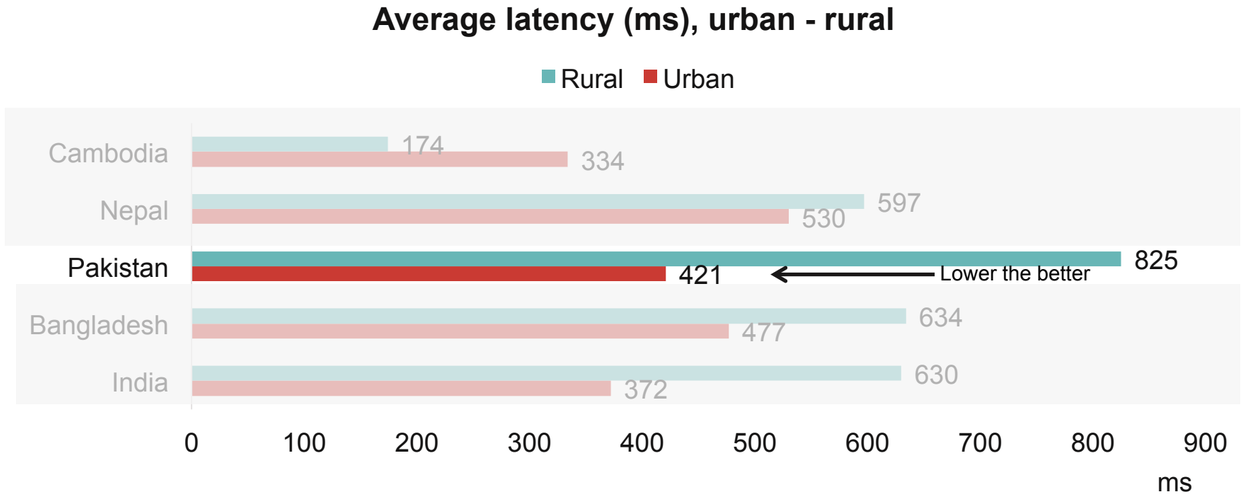
Over 100k diagnostics across Pakistan show that broadband quality of service is poor; performance on broadband measures significantly worse in rural locations

Pakistan test locations

106,441 instances of Internet activity recorded from Pakistan; 15,000 unique geographical locations; across all Mobile Network Operators

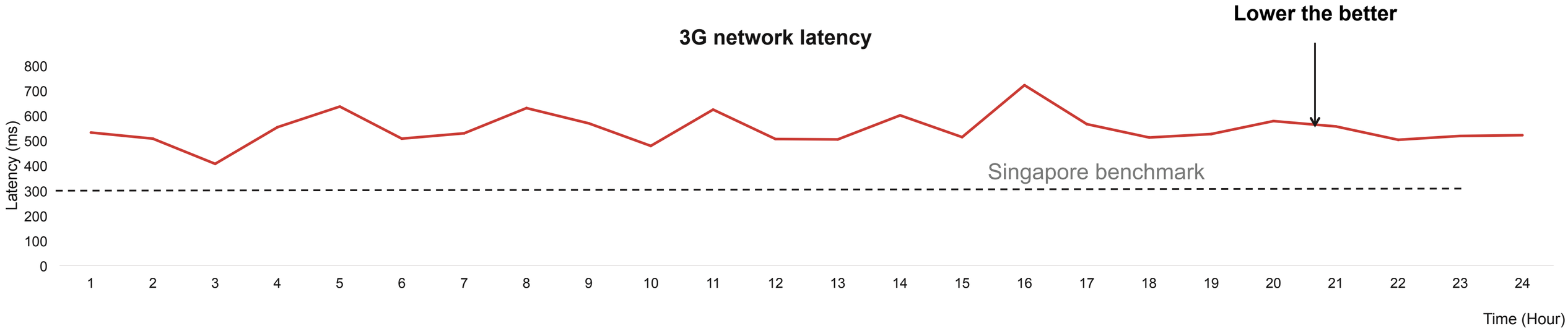




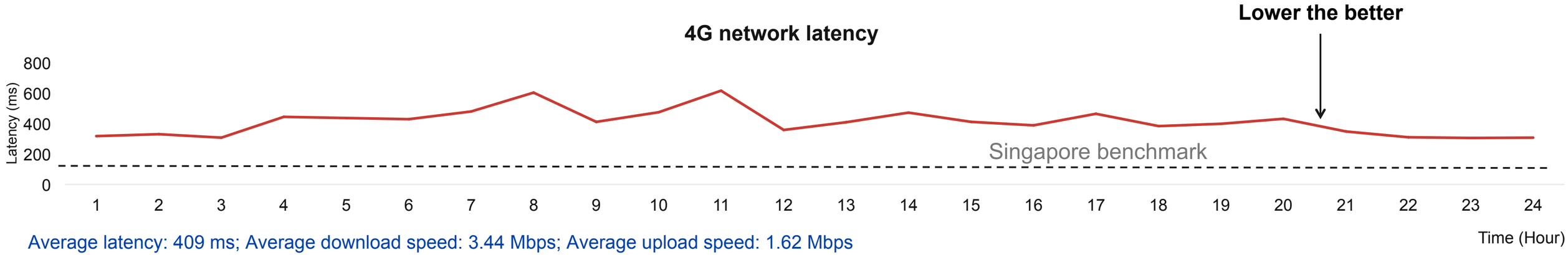


Source: LIRNEasia with NetRadar (2018)

Performance improvements visible on newer technologies, but even on 4G / LTE latency is still high



Average latency: 546 ms; Average download speed: 1.43 Mbps; Average upload speed: 0.87 Mbps



Average latency: 409 ms; Average download speed: 3.44 Mbps; Average upload speed: 1.62 Mbps

AFTER ACCESS

Benchmarks from IMDA Singapore 300 ms for an International server, 100 ms on 4G / LTE

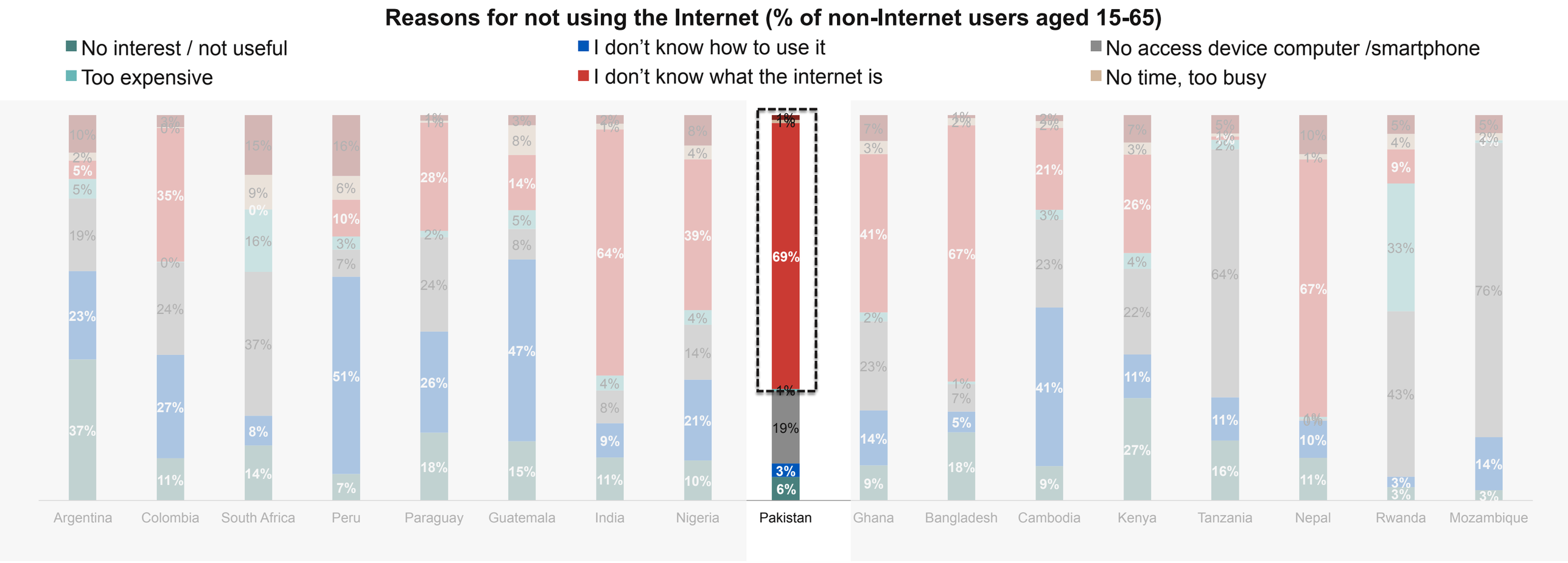
Source: LIRNEasia with NetRadar (2018)

NON-INTERNET USERS

NON-INTERNET USERS

- Awareness of what the Internet is, is the most pertinent barrier; device ownership next
- Rural, women, less educated, the aged are among those lagging behind

Why are people not using the Internet? 69% of non-users in Pakistan don't know what the Internet is; 19% due to lack of internet accessible devices



Q: What is the main reason why you do not use the Internet?

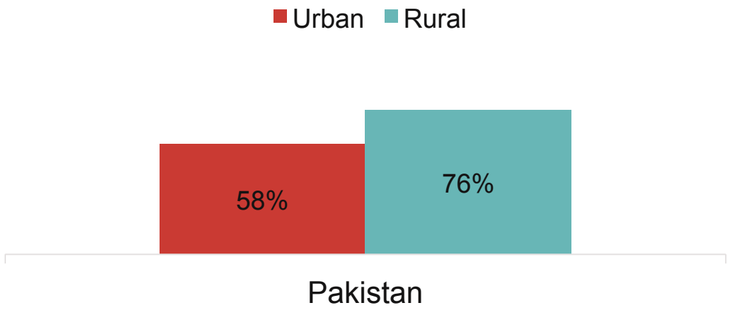
Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Non-Internet users	192	248	317	391	536	484	4,150	1,177	1,575	837	1,754	1,320	741	319	1,316	151	319

More rural, women, the less educated and the old people don't know what the internet is

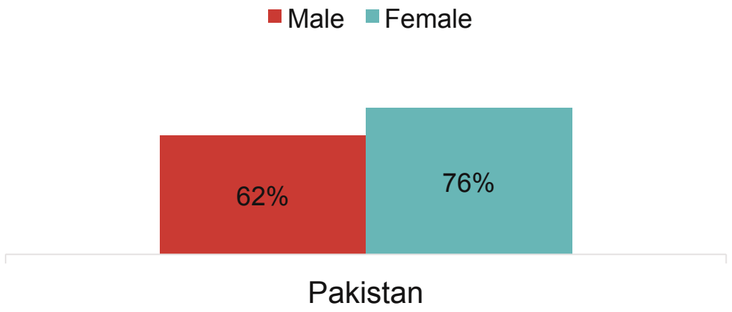
Pakistan

Main reasons for not using the Internet (% of non-Internet users aged 15-65) - I don't know what internet is

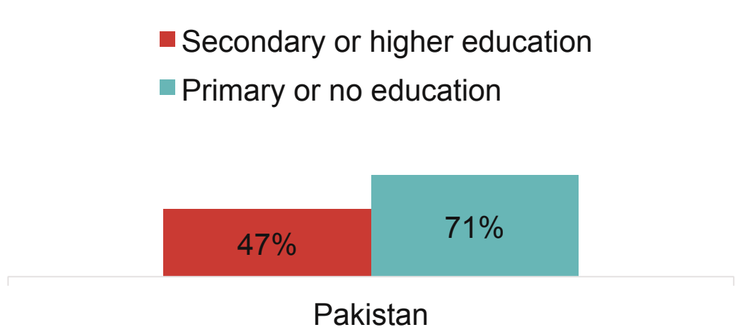
Urban-rural



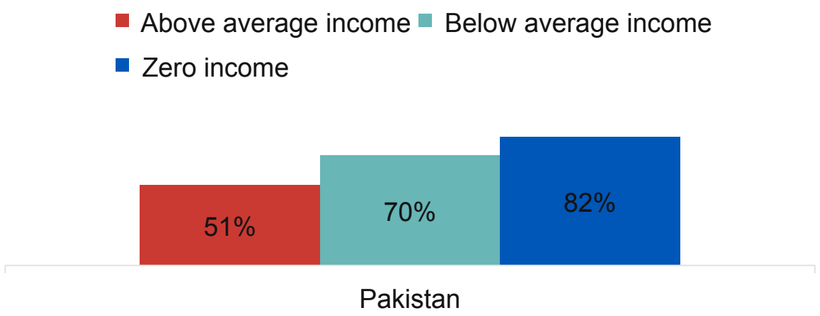
Gender



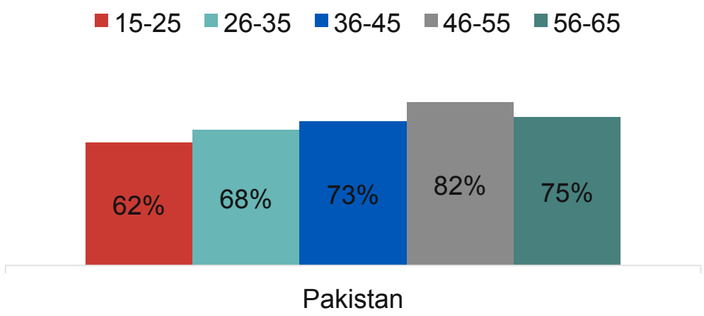
Education



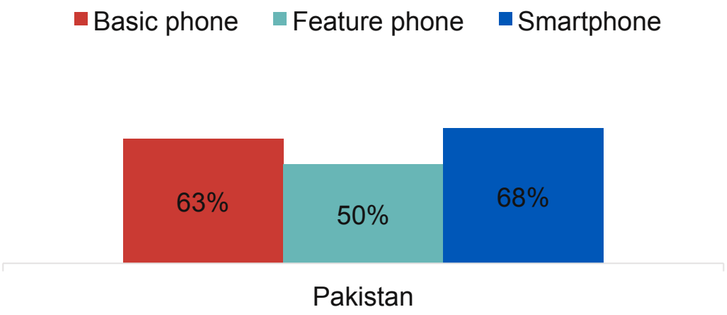
Income



Age



Phone type



Q: What is the main reason why you do not use the Internet?

Base	Pakistan
Non-Internet users	1,575

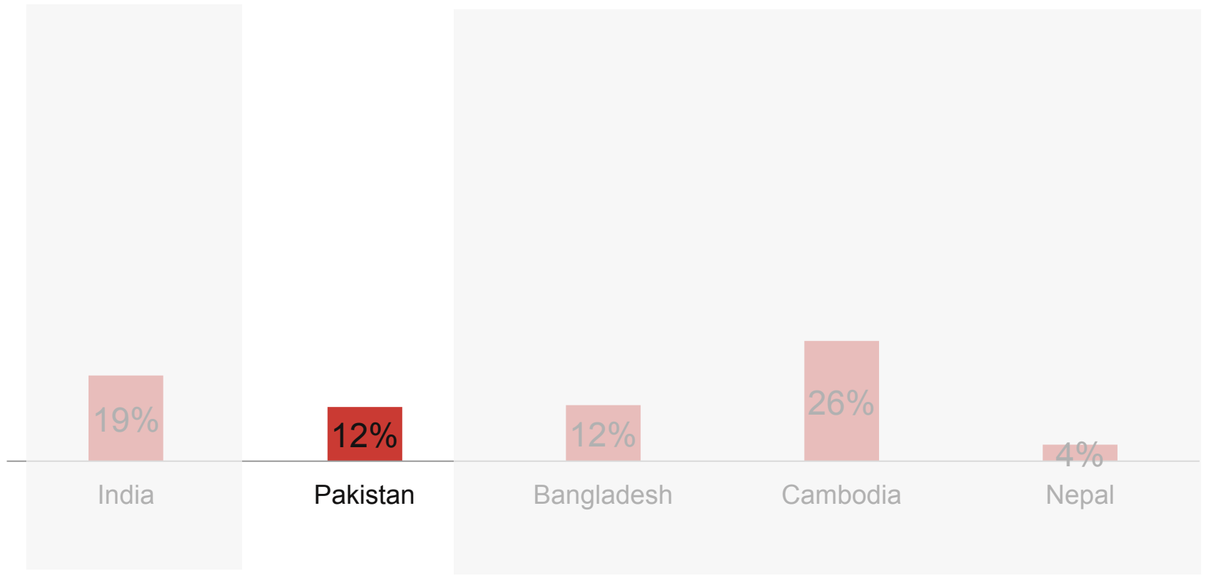
ONLINE EXPERIENCE and RIGHTS

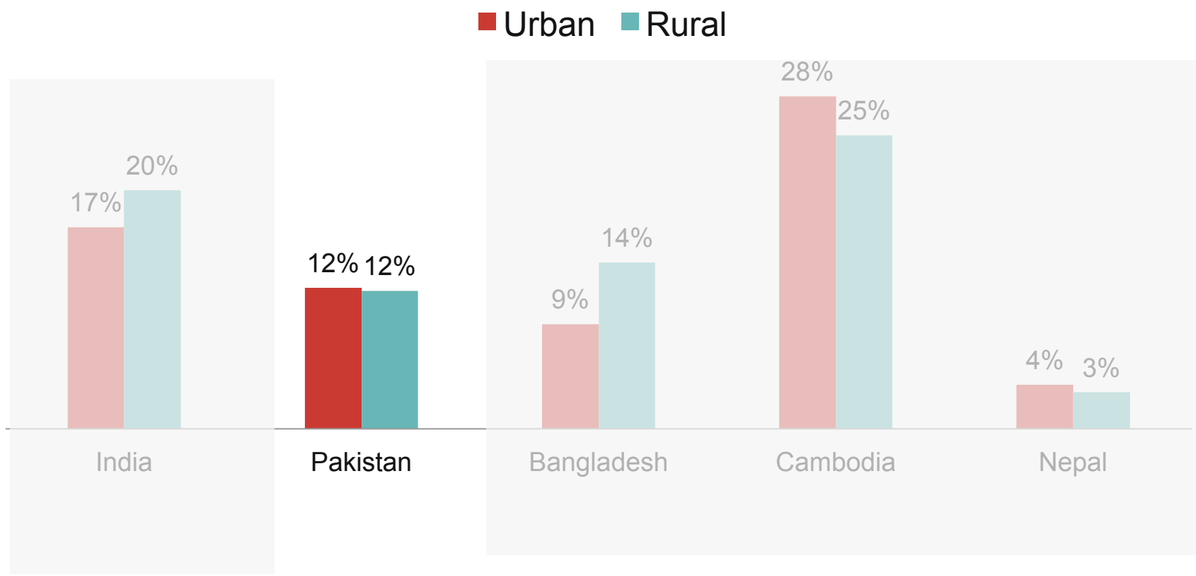
ONLINE EXPERIENCE and RIGHTS

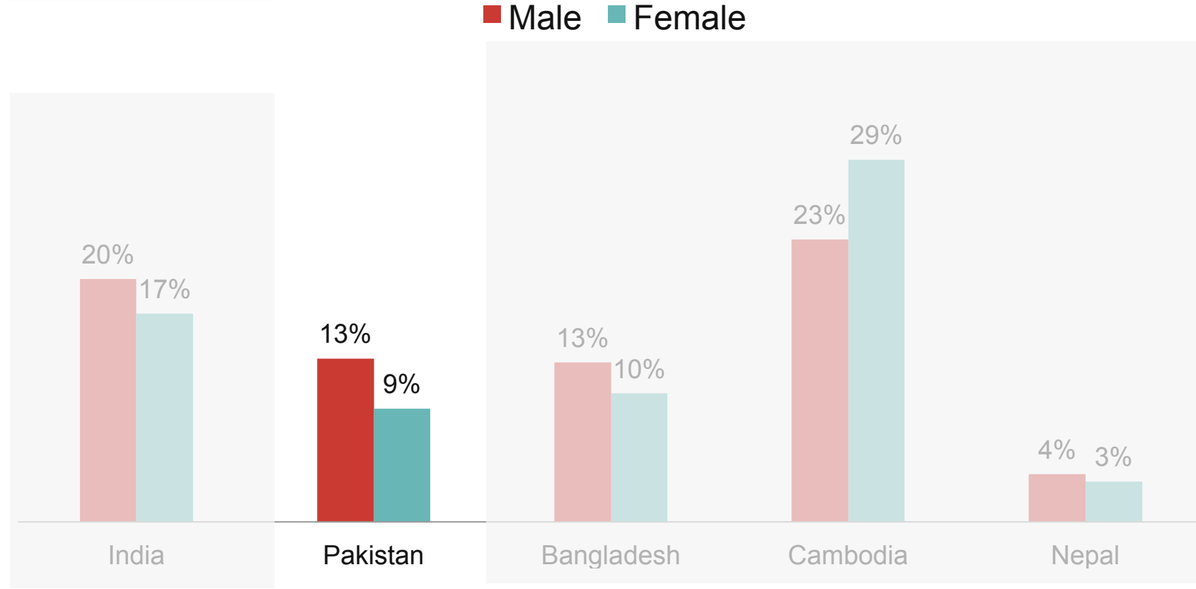
- Online harassment experienced by 12% of social media users
- Mainly being confronted with ‘unwanted or offensive’ material or being bullied on social media

Only 12% of Internet or social media users in Pakistan have experienced some form of online harassment;

Experiencing online harassment (% of aged 15-65 internet users)





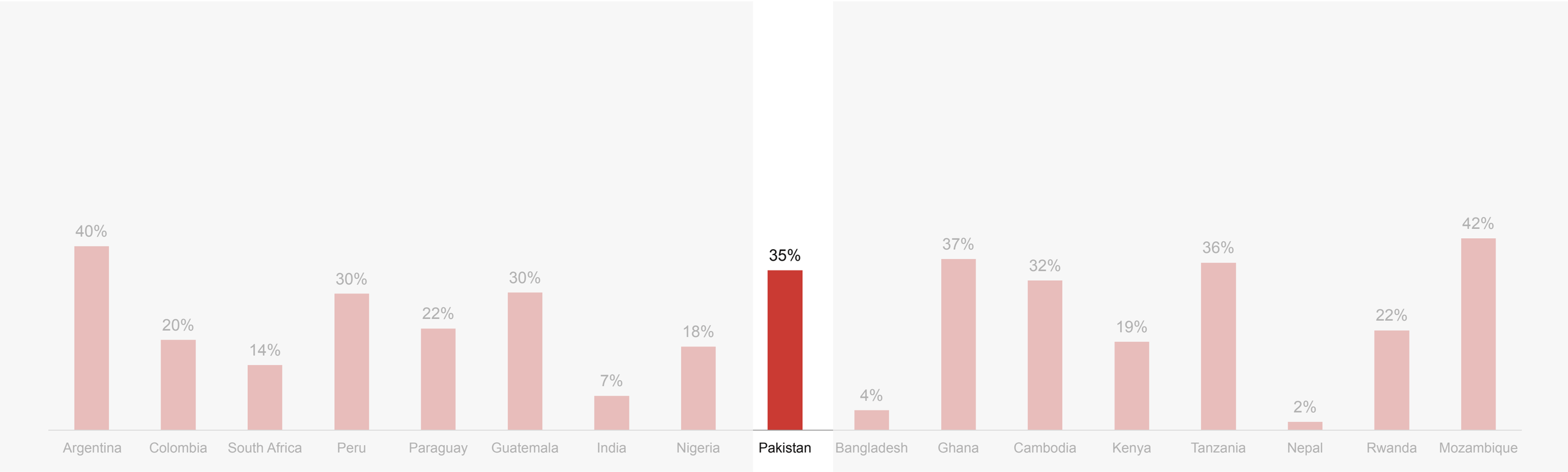


Q1: Being called offensive names
Q2: Being purposefully embarrassed or criticized in another way (besides being called offensive names)
Q3: Being physically threatened
Q4: Being sexually harassed
Q5: Being approached repeatedly by unwanted contacts (cyber-stalked)

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Internet users	919	427	266	804	713

Users confronted by “unwanted” material (not necessarily all illegal) in all countries.

Confronted with unwanted offensive or inappropriate material (% of age 15-65 social media users)

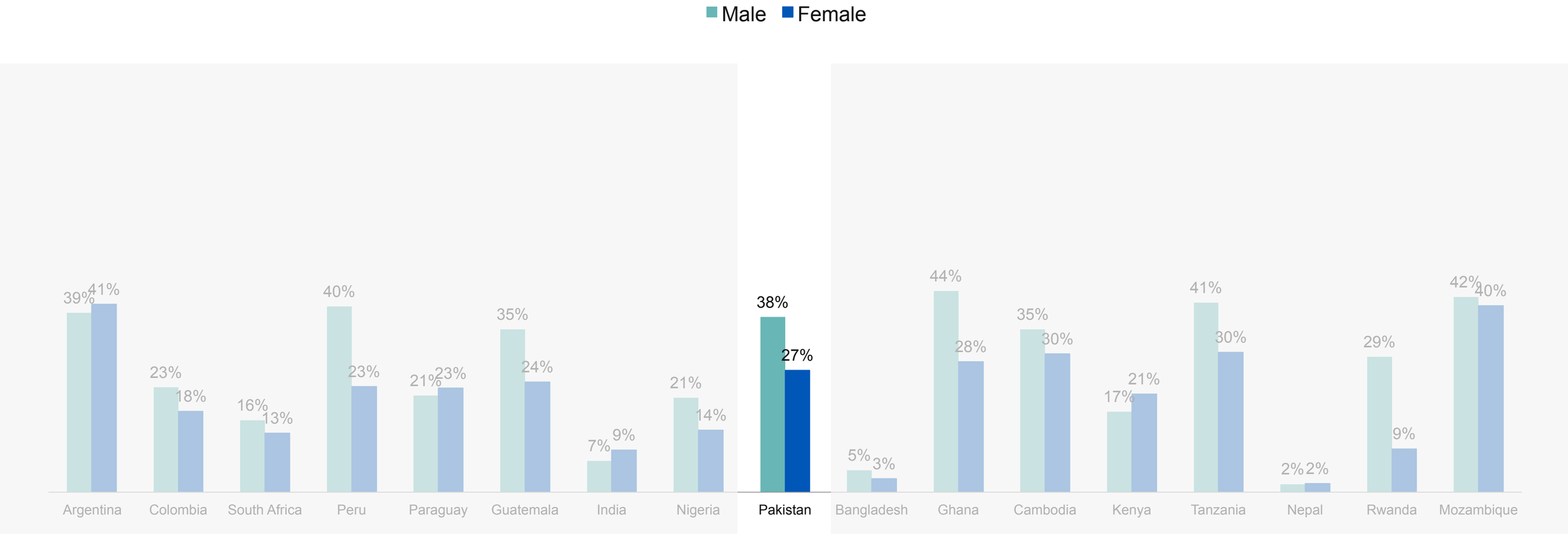


Q: While using social media were you ever confronted with unwanted offensive or inappropriate material (e.g. sexual content)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Social media users	993	1,246	669	999	802	878	754	496	369	323	251	680	423	241	648	156	230

Men have confronted with unwanted offensive or inappropriate material

Confronted with unwanted offensive or inappropriate material (% of age 15-65 Social media users)

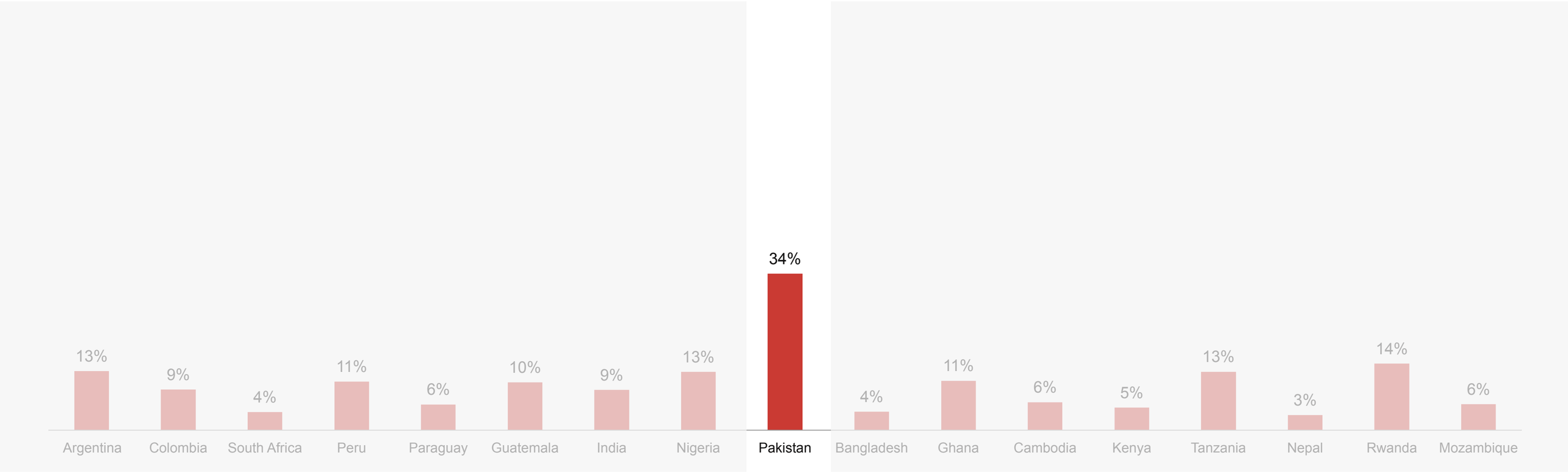


Q: While using social media were you ever confronted with unwanted offensive or inappropriate material (e.g. sexual content)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Social media users	993	1,246	669	999	802	878	754	496	369	323	251	680	423	241	648	156	230

Incidence of online bullying is highest in Pakistan

Victim of online bullying (% of age 15-65 Social media users)

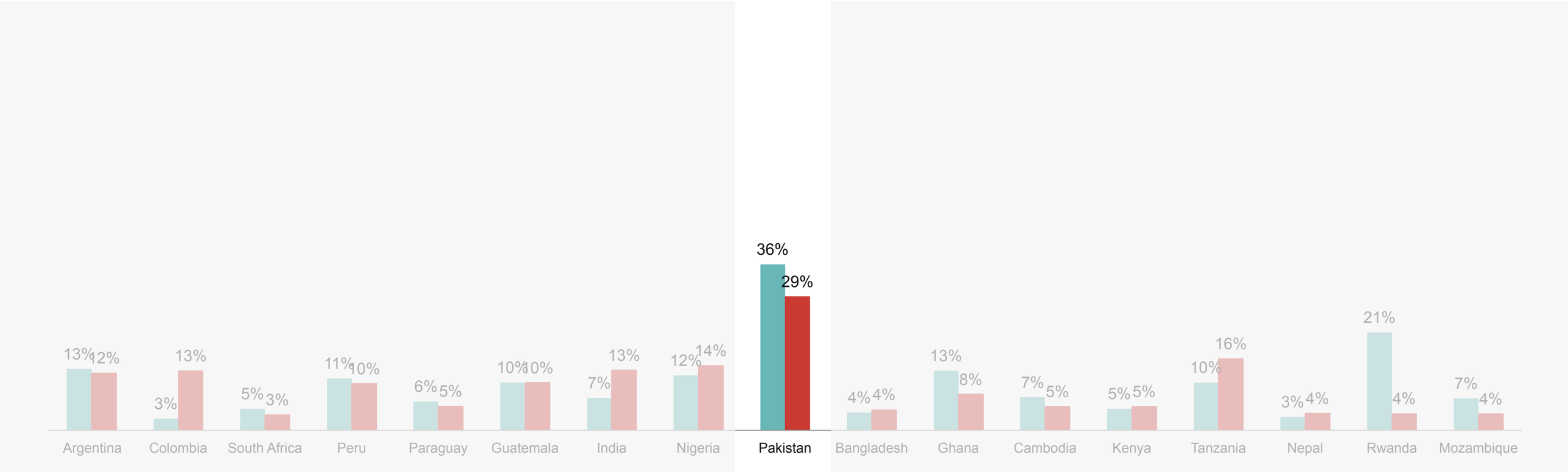


Q: Have You Ever Been A Victim Of On-Line Bullying (repeated offensive comments or emails)?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Social media users	993	1,246	669	999	802	878	754	496	369	323	251	680	423	241	648	156	230

Online bullying: more men

Victim of online bullying (% of age 15-65 Social media users)



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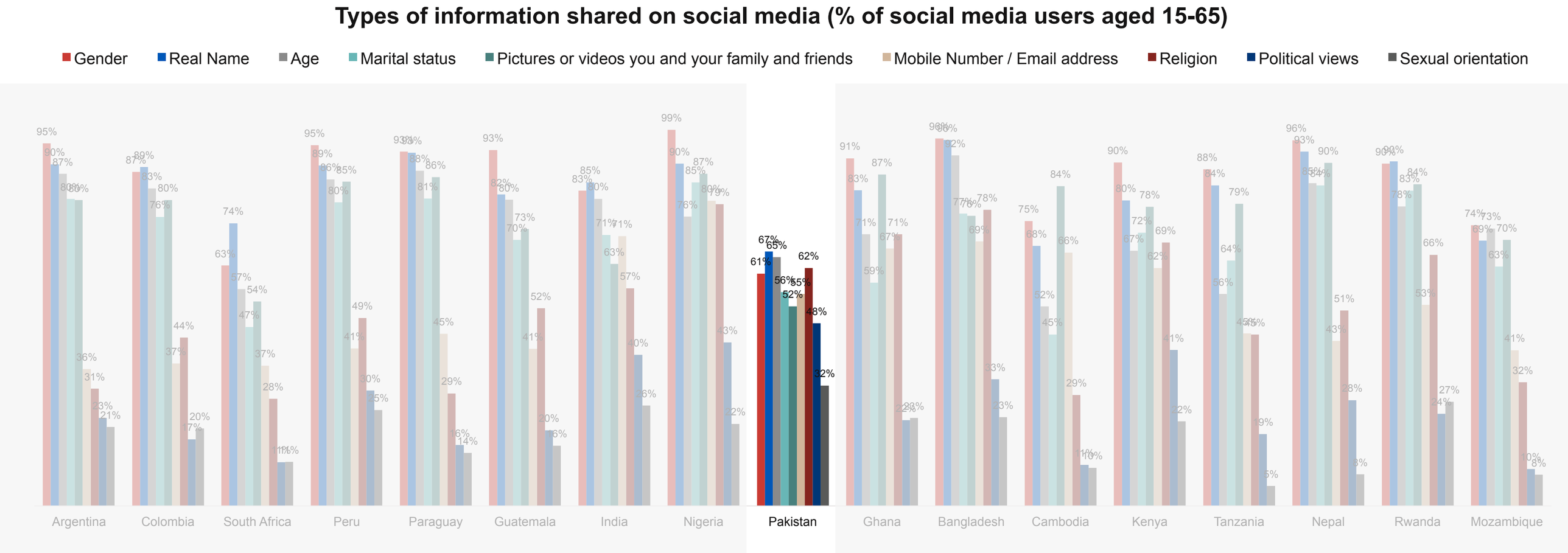
Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Social media users	993	1,246	669	999	802	878	754	496	369	323	251	680	423	241	648	156	230

SOCIAL MEDIA BEHAVIOR

SOCIAL MEDIA BEHAVIOR

- Pakistani social media use still in its nascent stage
- Uses a little more cautious in their online/SM behavior, sharing less information on their profile pages and also more weary about trusting news and sharing content on social media

Pakistani social media users less will (all the countries studied) to share their personal information on social media



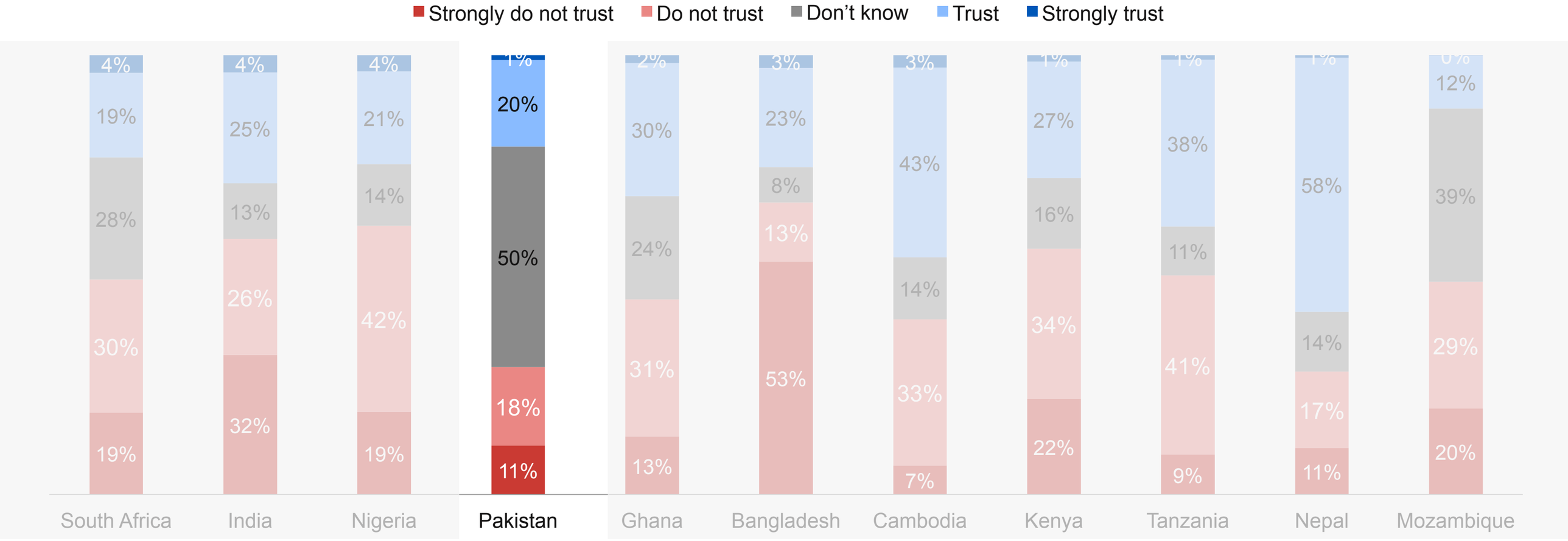
Q: What information do you share on social media ?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Social media users	993	1,246	669	999	802	878	754	496	369	323	251	680	423	241	648	156	230

AFTER ACCESS

Low level of trust among countries studied

Degree of trust in news read on social media (% of social media users aged 15-65)



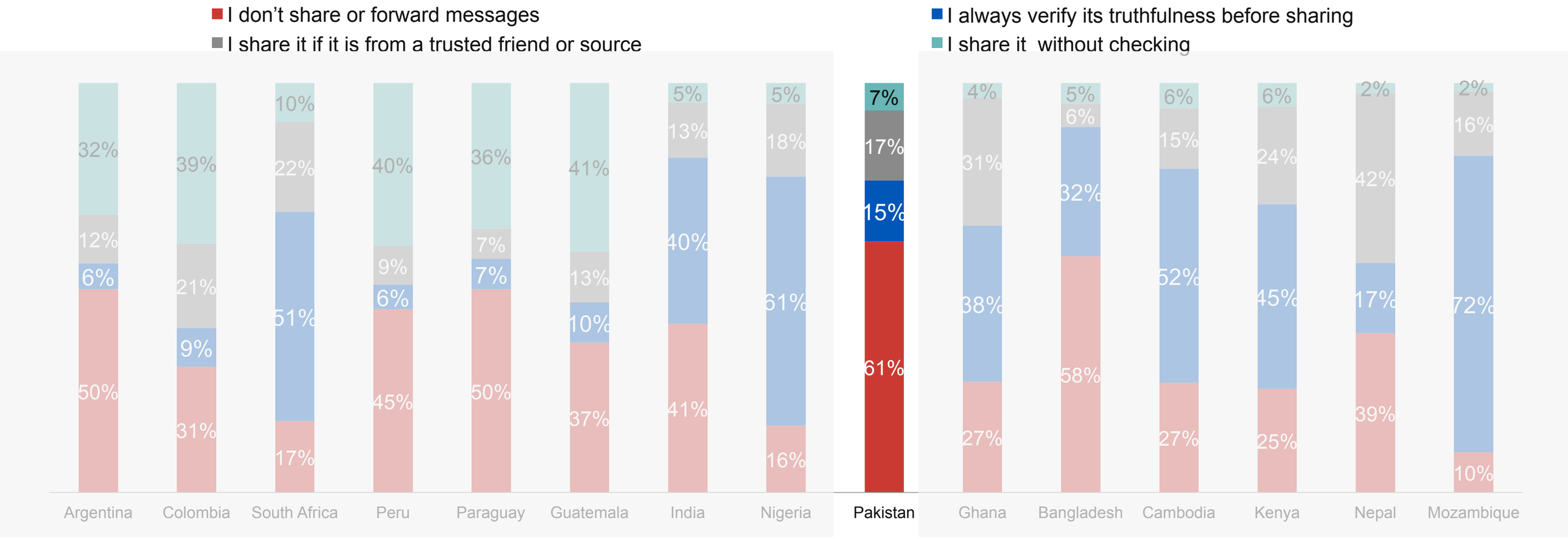
Q: Can you/do you trust the news you read on Social Media (Facebook etc)?

Base	South Africa	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Mozambique
Social media users	669	754	496	369	323	251	680	423	241	648	230

AFTER ACCESS

17% of Pakistani social media users share content if it from a trusted friend/ source; only 15% check for it's truthfulness; 61% doesn't share anything

Sharing content on social media (% of social media users aged 15-65)



Q: When you share news that is on your newsfeed or forward messages that you receive, do you:

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Mozambique
Social media users	993	1,246	669	999	802	878	754	496	369	323	251	680	423	241	648	230

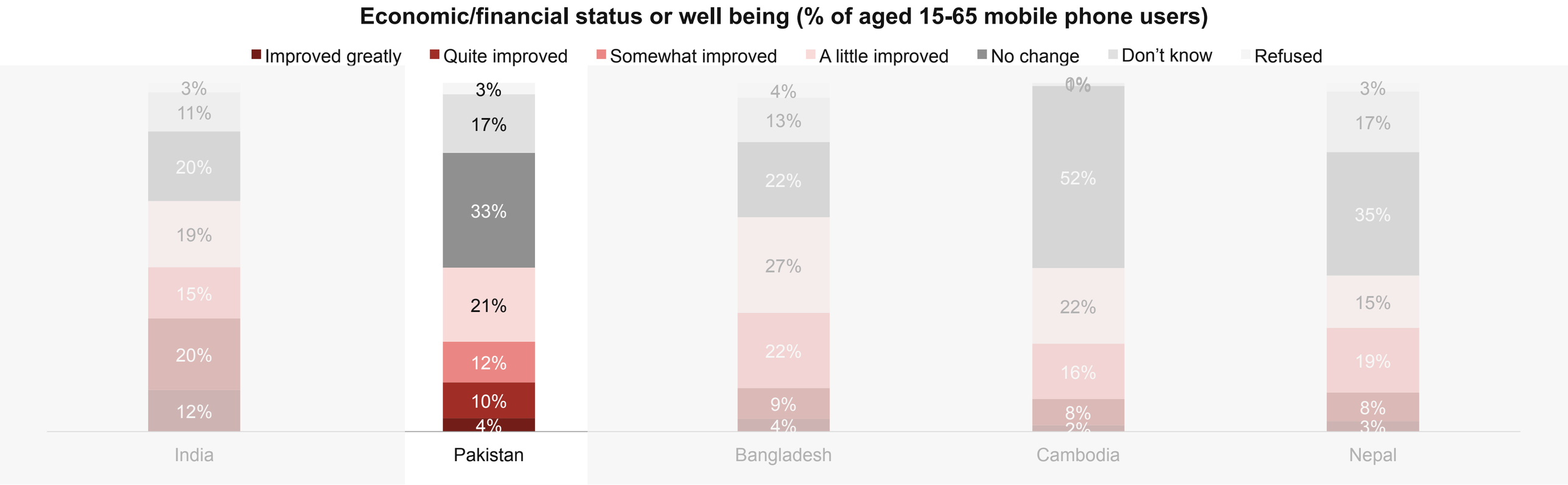
AFTER ACCESS

PERCIEVED IMPACTS OF THIS ACCESS and USE?

PERCIEVED IMPACTS OF THIS ACCESS and USE?

- Some perceive benefits in terms of financial, social and emergency benefits
- Some negative perceptions/concerns also held: addiction, exposure (of children) to inappropriate content and privacy

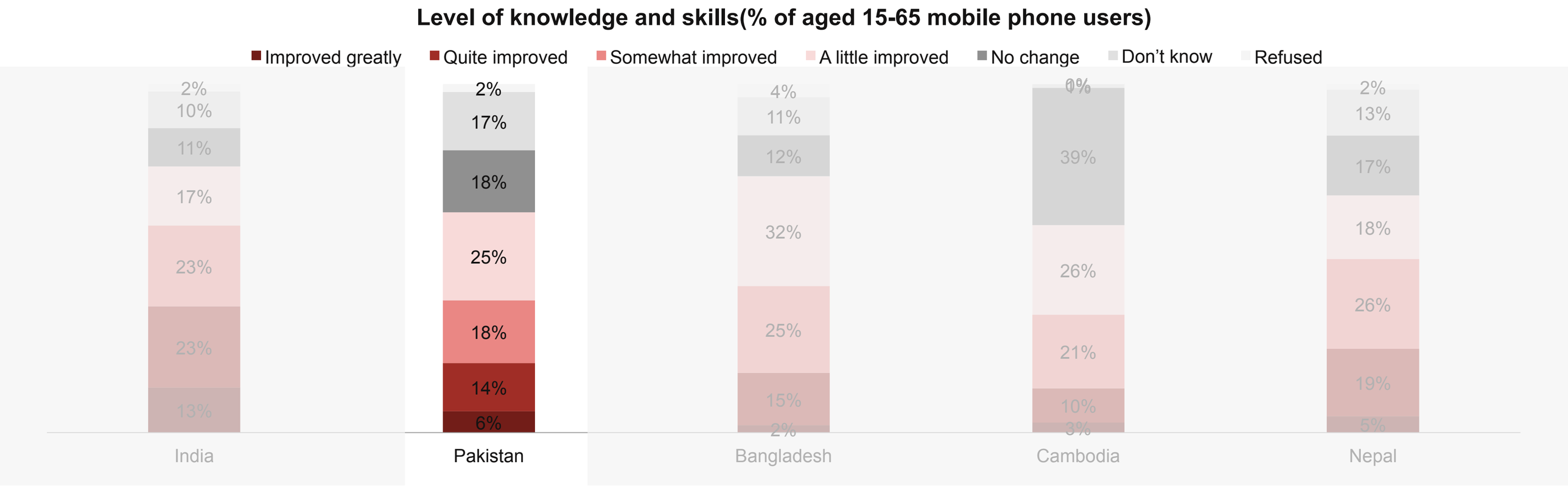
Many see their economic/financial status/well being has improved at least a little due to use of mobile phones; but few see it greatly improved



Q: Please tell me to what extent your usage and access of a mobile improved the following, if at all? This can include mobile use through voice or data, and need not have been your own mobile. Please give answer with the help of this scale: Your economic/financial status or well being

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

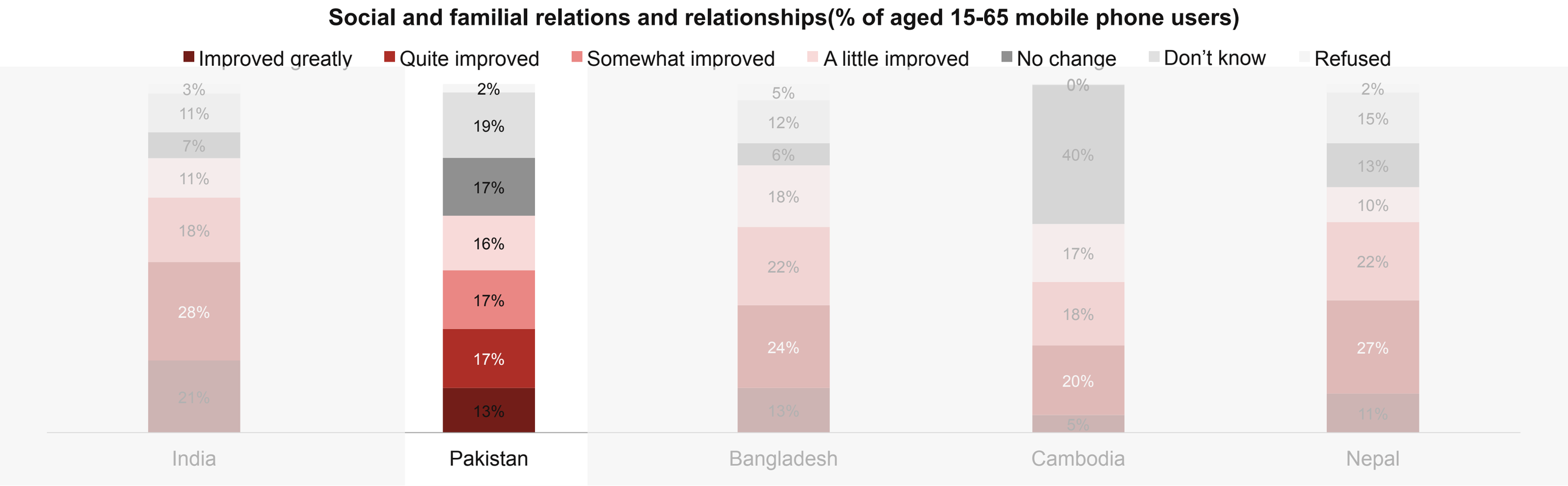
Many see at least small improvements in their level of knowledge and skill due to the use of mobiles phones. But few feel very strongly +ve



Q: Please tell me to what extent your usage and access of a mobile improved the following, if at all? This can include mobile use through voice or data, and need not have been your own mobile. Please give answer with the help of this scale: Your level of knowledge and skills?

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

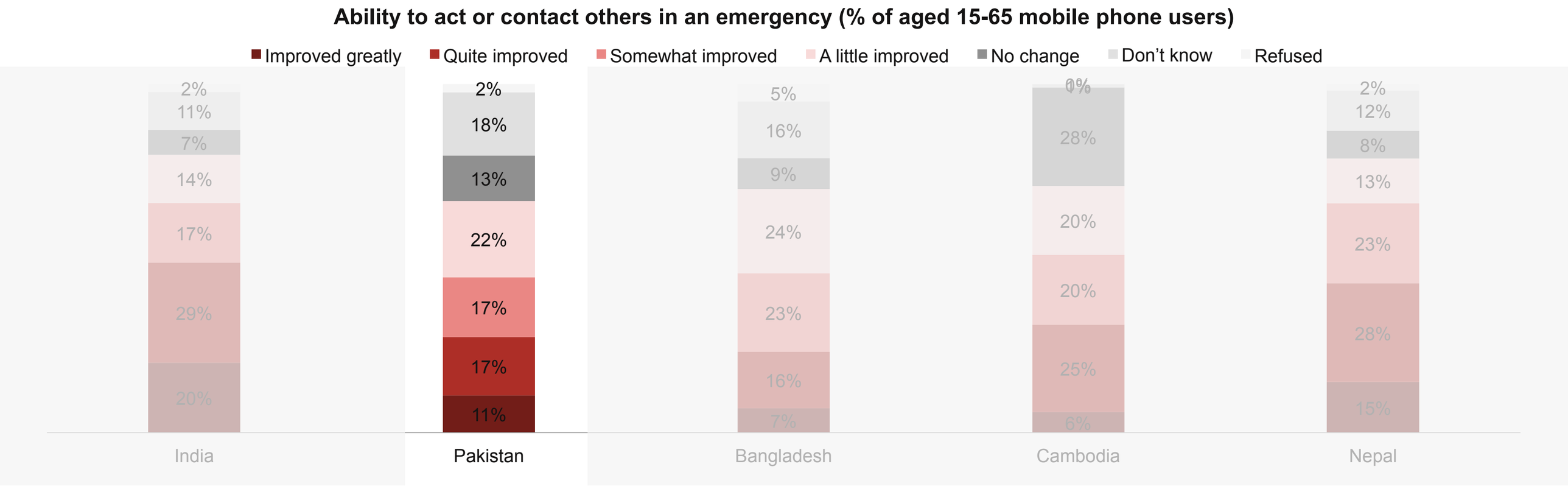
Social and family relations improved for 47% of mobile phone owners



Q: Please tell me to what extent your usage and access of a mobile improved the following, if at all? This can include mobile use through voice or data, and need not have been your own mobile. Please give answer with the help of this scale: Your social and familial relations and relationships?

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

The highest and most consistent +ve impact is the ability of mobile users to act in an emergency

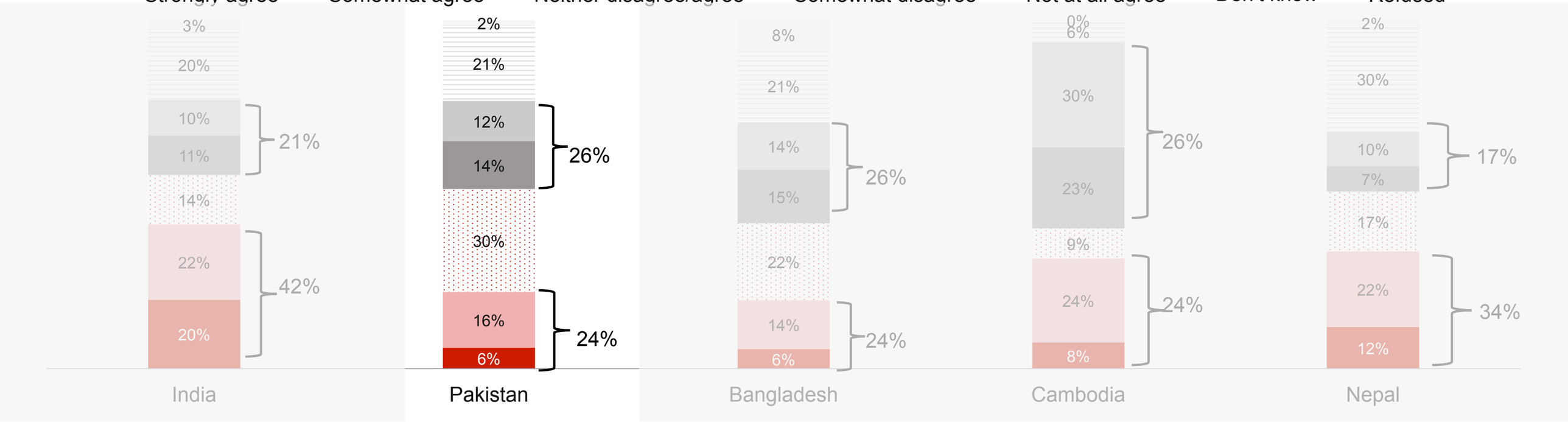


Q: Please tell me to what extent your usage and access of a mobile improved the following, if at all? This can include mobile use through voice or data, and need not have been your own mobile. Please give answer with the help of this scale: Your ability to act or contact others in an emergency?

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

Opinion is split on the negatives, in all countries, many without a strong opinion.

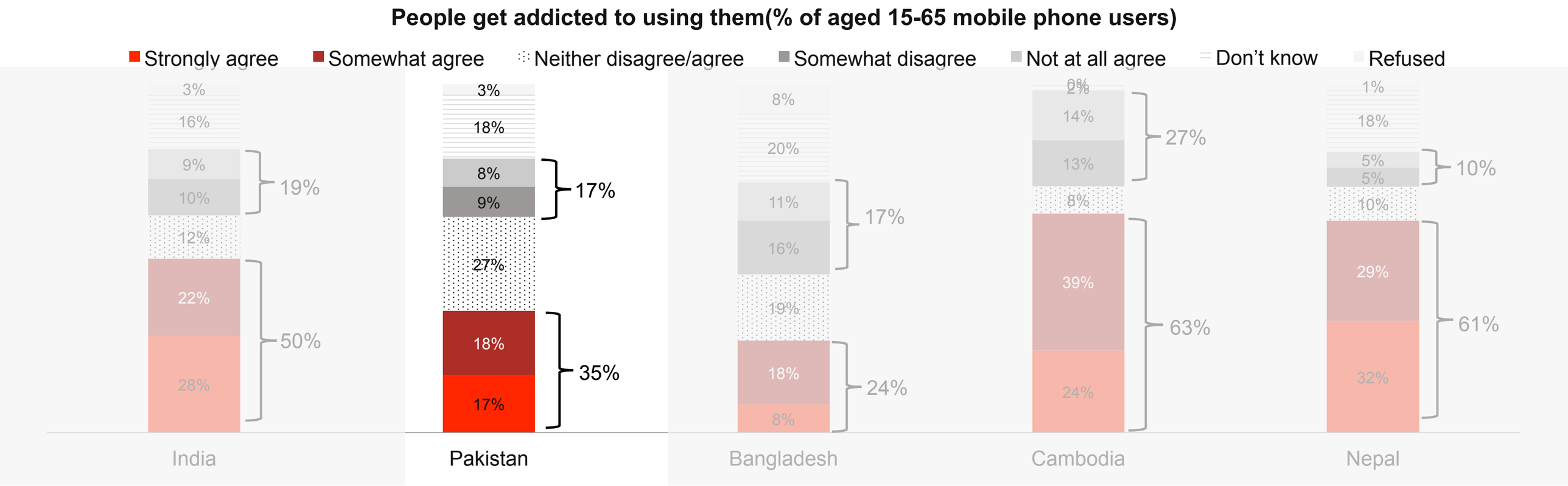
They cause people to become divided, socially politically, etc..(% of aged 15-65 mobile phone users)



Q: Here are some of the concerns that people sometimes have about access to and use of mobiles and online/Internet services. Please tell me to what extent you think these are problems, with the help of this scale: They cause people to become divided, socially politically, etc..

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

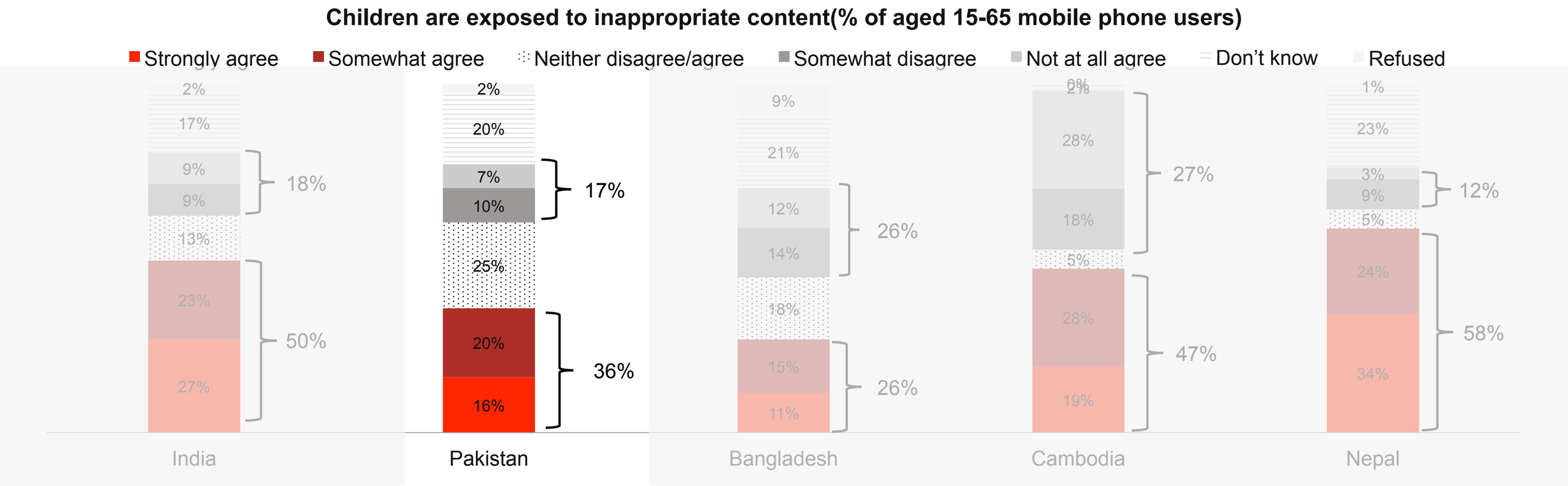
Addiction to mobiles + Internet is a concern for many



Q: Here are some of the concerns that people sometimes have about access to and use of mobiles and online/Internet services. Please tell me to what extent you think these are problems, with the help of this scale: People get addicted to using them

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

Many also worry about children's exposure to inappropriate content

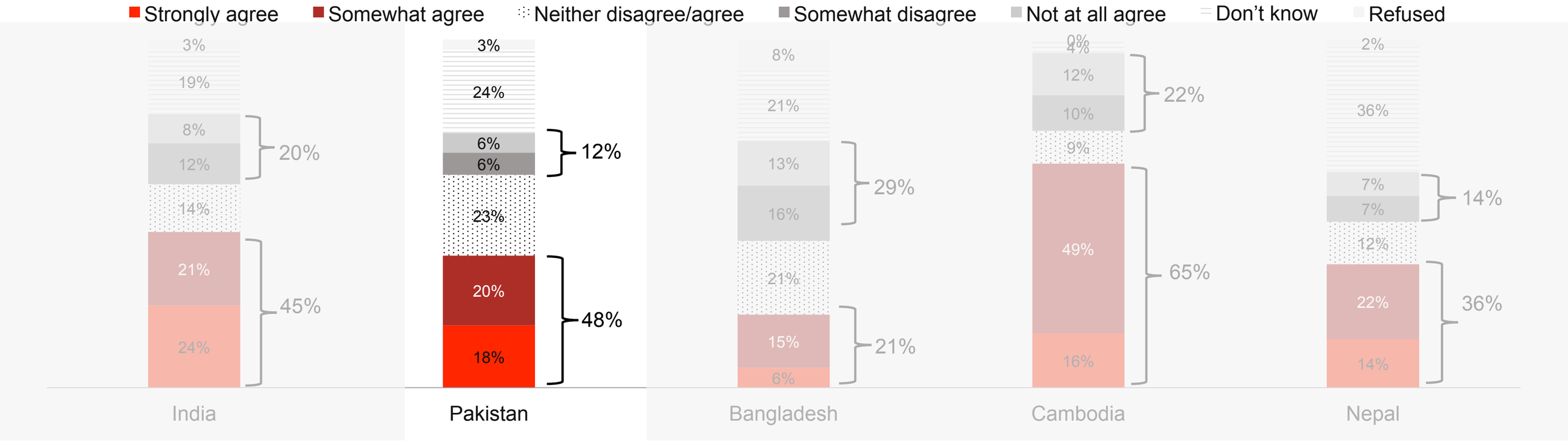


Q: Here are some of the concerns that people sometimes have about access to and use of mobiles and online/Internet services. Please tell me to what extent you think these are problems, with the help of this scale: Children are exposed to inappropriate content

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

Majority worry about their private information being seen by others

Private information can be seen by others through the mobile and Internet (% of aged 15-65 mobile phone users)



Q: Here are some of the concerns that people sometimes have about access to and use of mobiles and online/Internet services. Please tell me to what extent you think these are problems, with the help of this scale: Private information can be seen by others through the mobile and Internet

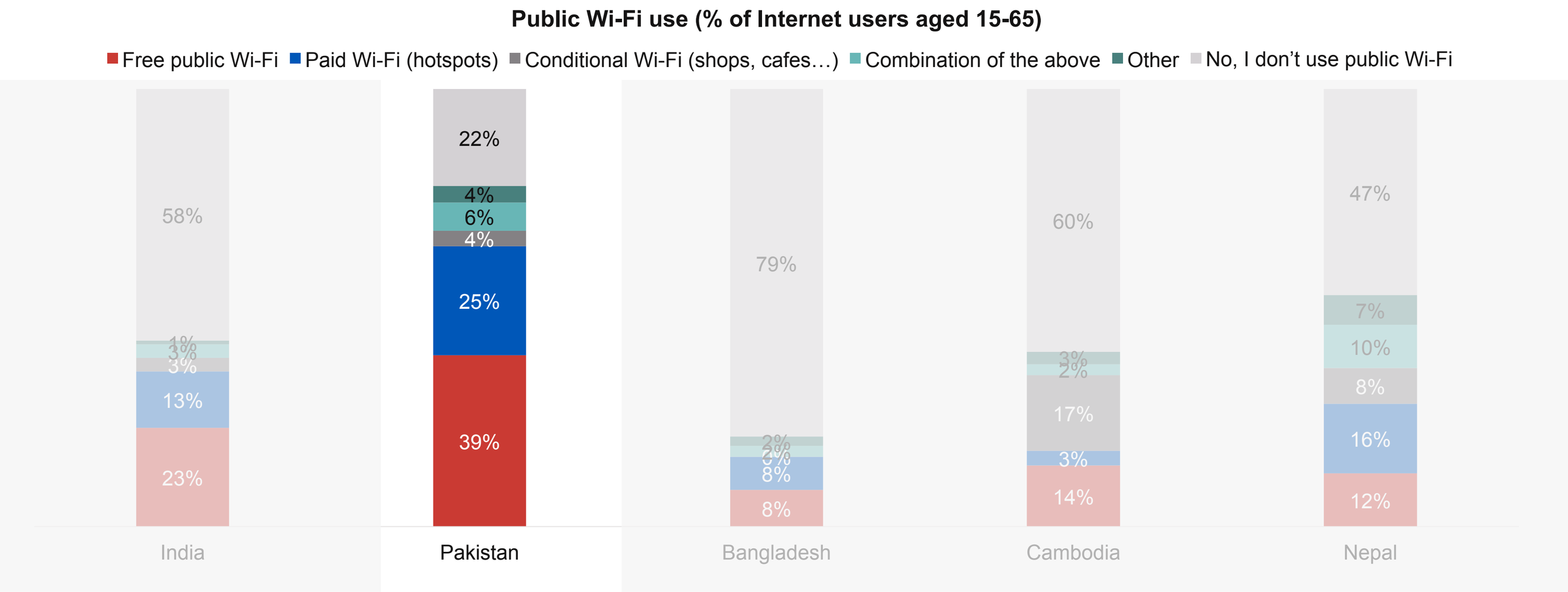
Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Those who used a mobile phone in last three months	4,002	1,404	1,209	1,611	1,619

PUBLIC Wi-Fi USE

PUBLIC Wi-Fi USE

- Highest user of public Wi-Fi in Asian survey countries seen in Pakistan

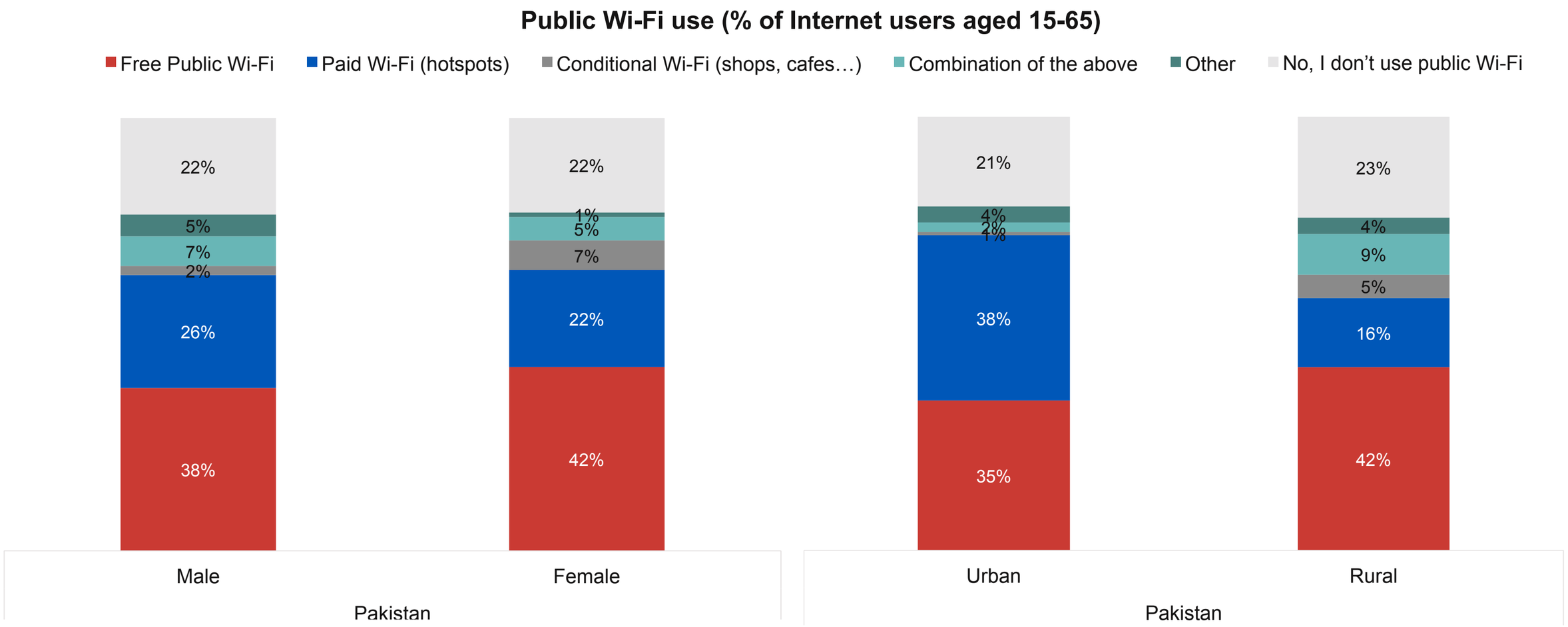
39% of 15-65 Internet users in Pakistan use free public Wi-Fi; 25% use paid WiFi



Q: Do you access the Internet through Public WIFI through the following means?

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Internet users	919	427	266	804	692

Free Wi-Fi has higher use among men and in urban; paid Wi-Fi used more by males and urban dwellers



Q: Do you access the Internet through Public WIFI through the following means?

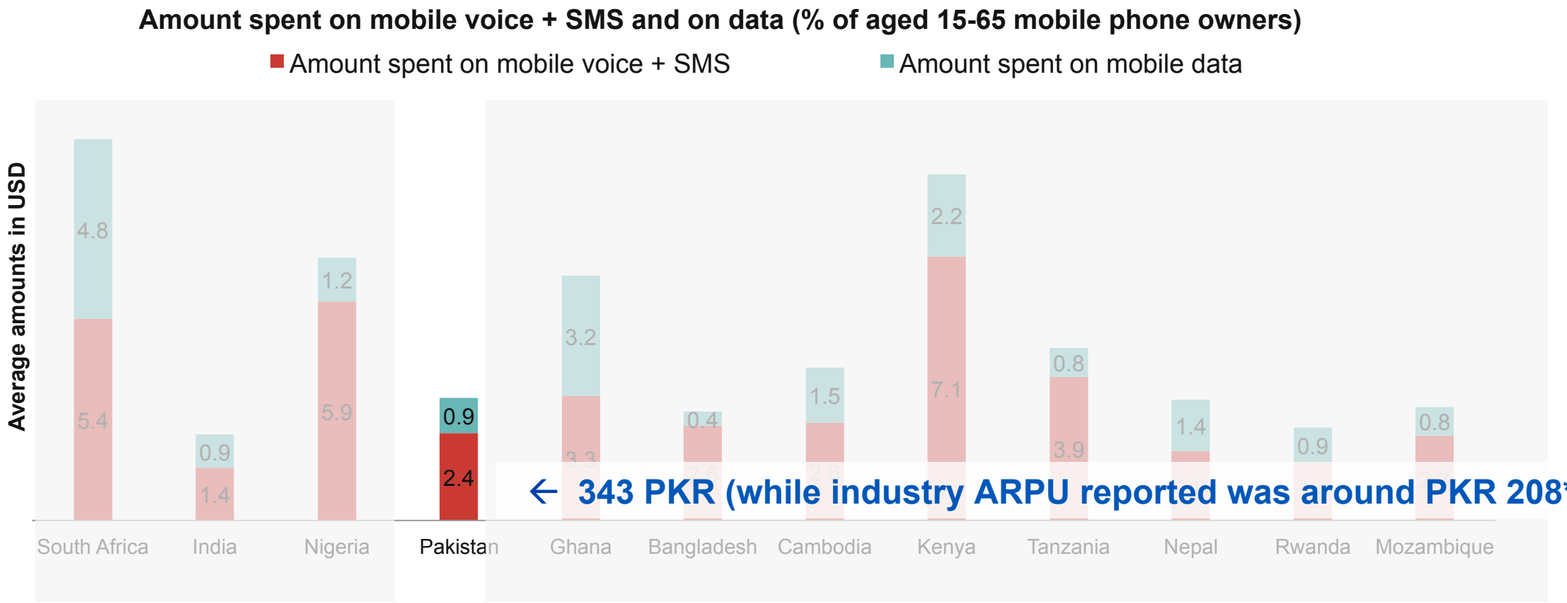
Base	Pakistan
Internet users	692

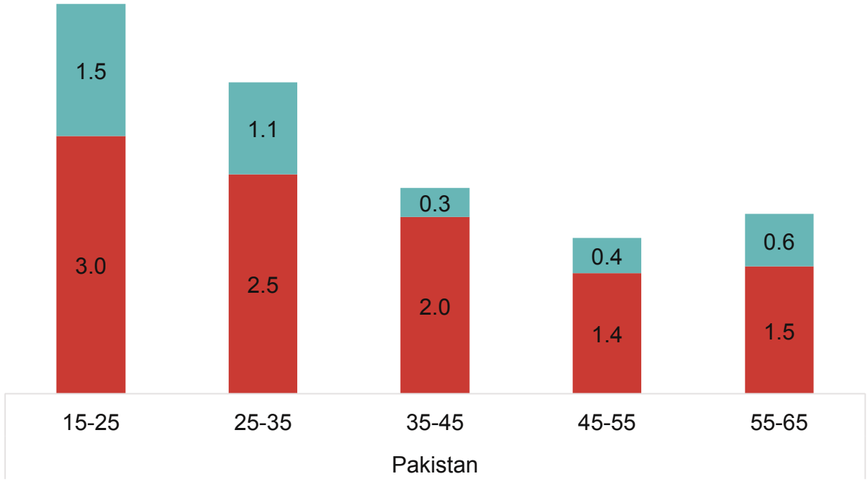
MOBILE EXPENDITURE

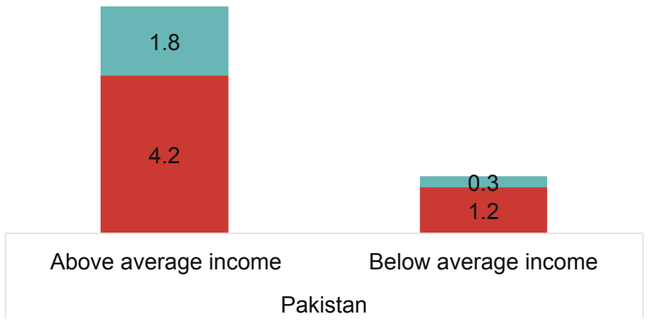
- On average Pakistani mobile owners spend PKR343 per month on voice and data services

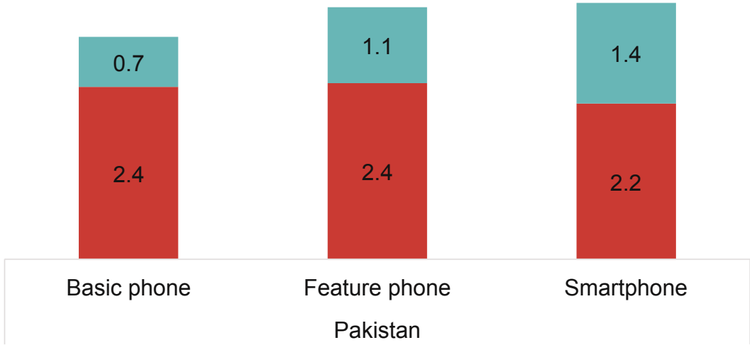
Average spend on voice+data is PKR343 per month; higher for the rural, women, young, high income earning, smartphone owning

Pakistan









Q: In terms of mobile phone expenditure: Could you tell me how much you spent last MONTH for VOICE, SMS and Data in total (airtime, subscription)?
Q: In terms of mobile phone expenditure, Could you tell me how much you spent last MONTH on Data only (dedicated top-up or data bundles e.g.) (=0 if does not use mobile phones)

Base	South Africa	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Mobile phone owners	1,398	3,252	1,123	1,208	901	1,531	1,526	1,054	761	1478	635	632

*https://profit.pakistantoday.com.pk/2018/03/05/why-no-profit-still-makes-zong-happy/

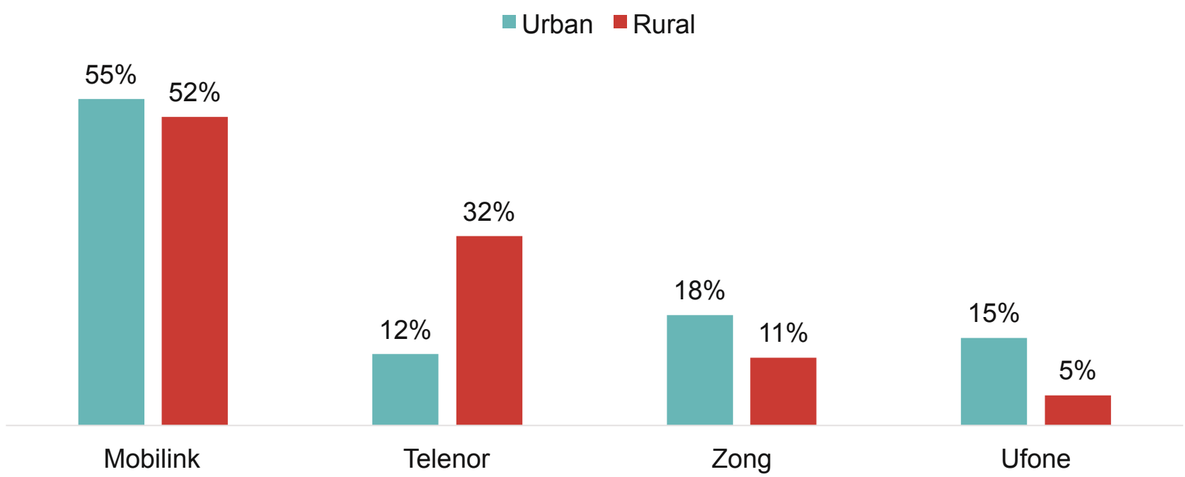
Demand side data shows somewhat similar composition among the big three, compared to PTA published data

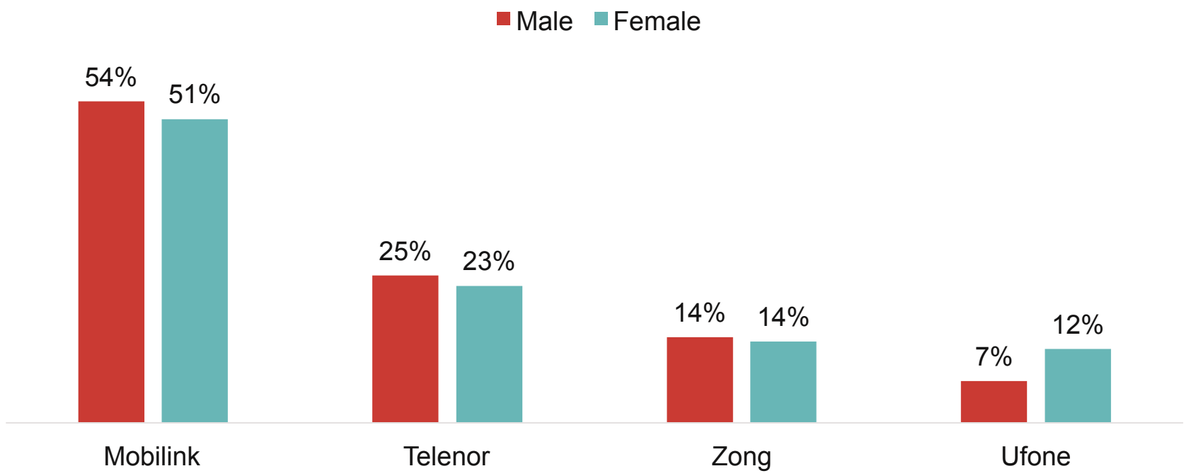
Pakistan

	AfterAccess survey: **Primary SIM card of mobile owners aged 15-65 (December 2017)**	***PTA:*** **Subscribers as at end of end of 2017**
Mobilink	53%	37%
Telenor	24%	29%
Zong	14%	21%
Ufone	9%	14%

Source:
https://www.pta.gov.pk/en/telecom-indicators/1

% of users of each network operator (% of aged 15-65 mobile phone owners)





Q: What is the name of your main operator (SIM card you use most often)

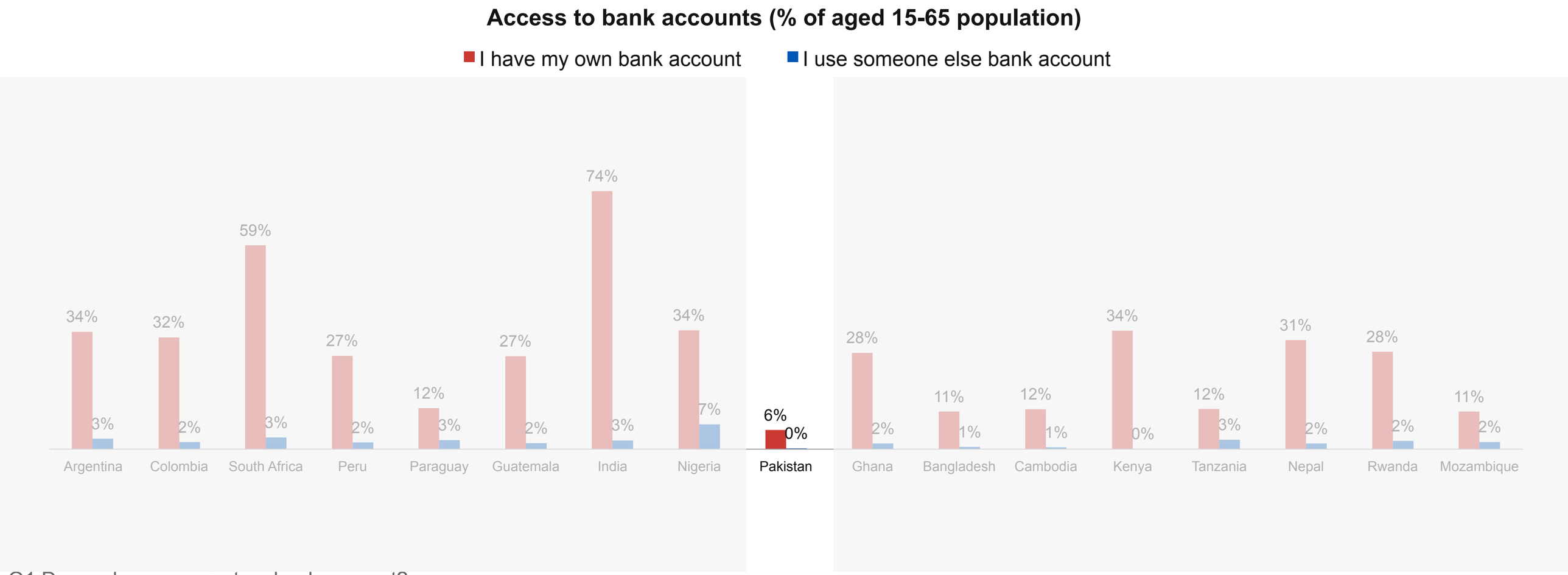
Base: Mobile phone users (1,208)

MOBILE BANKING and MONEY

MOBILE BANKING and MONEY

- Just 6% are banked; mobile money used by just 13%

Only 6% of the aged 15-65 population have their own bank account

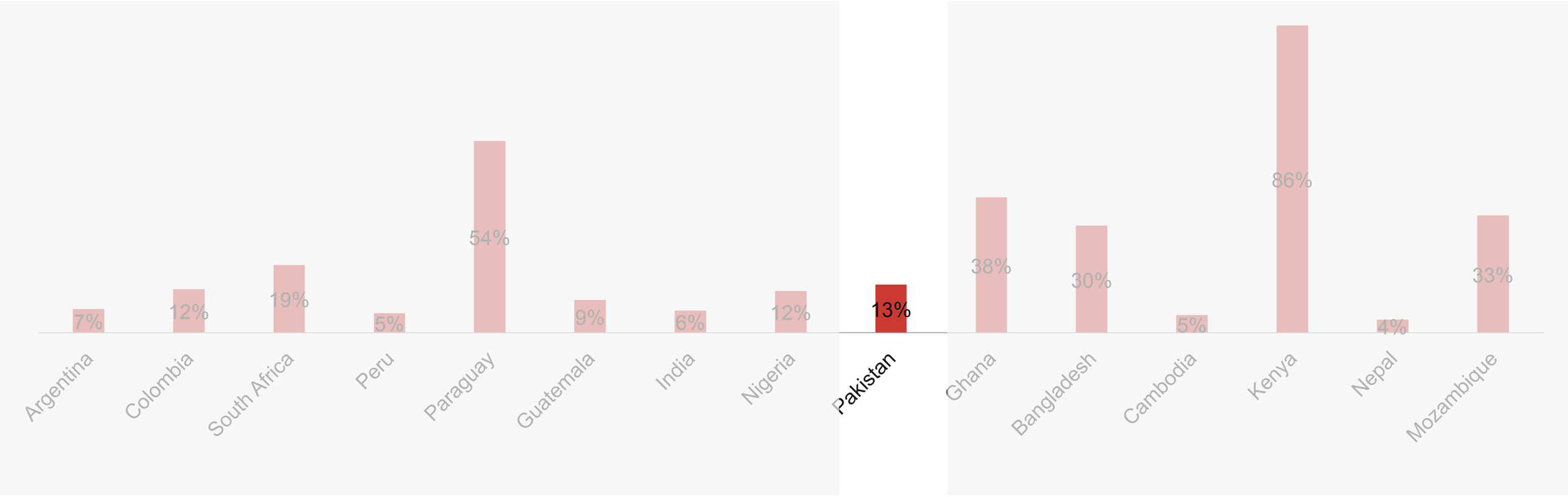


Q1:Do you have access to a bank account?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Myanmar	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
All respondents	1,240	1,425	1,610	1,478	1,357	1,407	5,069	1,706	2,002	1,145	7,204	2,020	2,123	1,179	1,102	2,008	1,118	1,091

Low use of mobile financial services among Pakistani mobile phone owners

Mobile money usage (% of aged 15-65 mobile phone owners)



Q: Do you ever use mobile phone for financial transactions: to send or receive money?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Nepal	Rwanda	Mozambique
Mobile phone owners	1,116	1,297	1,398	1,234	1,209	1,214	3,252	1,123	1,208	901	1,531	1,526	1,054	761	1,478	635	632

E-COMMERCE: ARE PEOPLE **BUYING**?

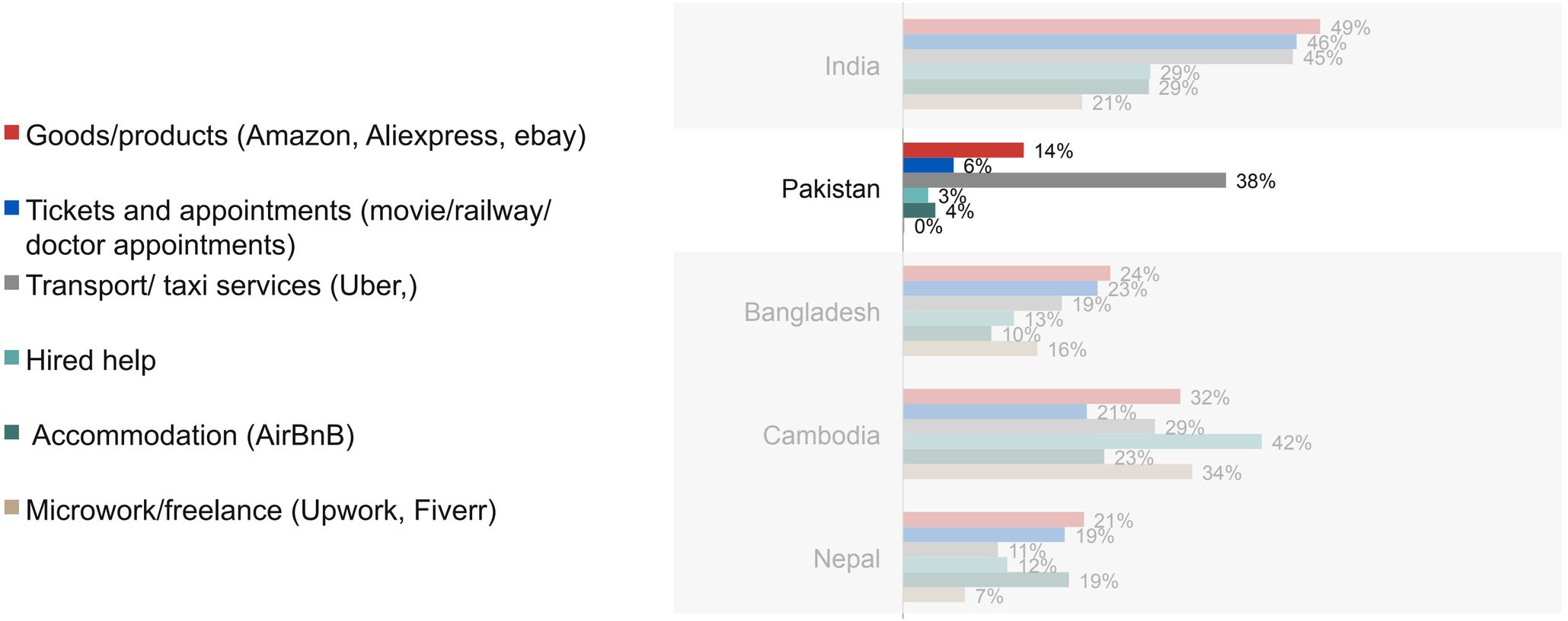
E-COMMERCE: ARE PEOPLE **BUYING**?

- There is some awareness and use of transportation/taxi (e.g., Uber,Careem, etc), as well as e-commerce platforms/websites/apps
- Main barriers are is awareness, then skills

Very low awareness of platforms in Pakistan

"platforms" = via internet or apps

Awareness of platforms for buying/selling (% of aged 15-65 Internet users)

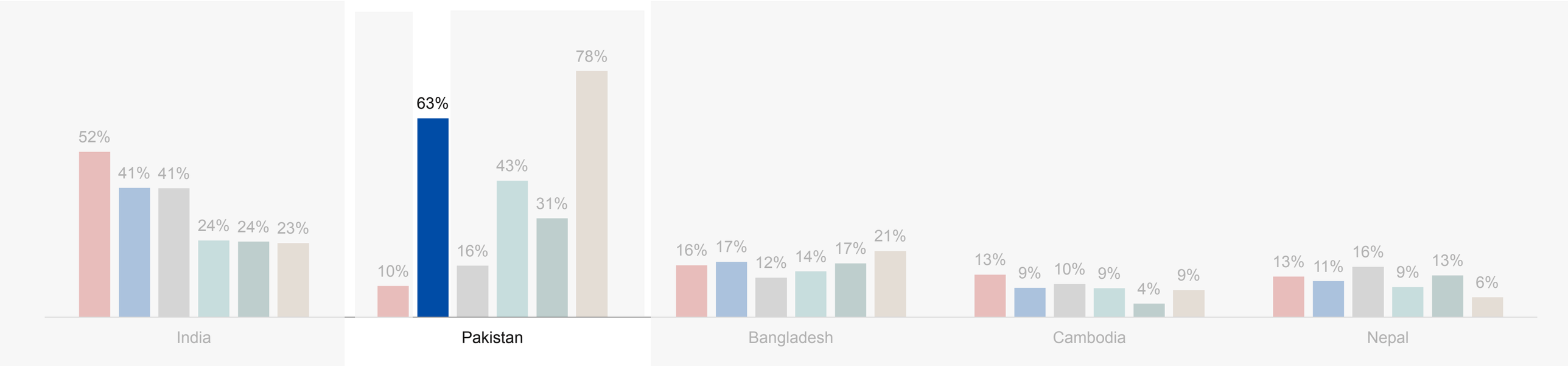


Q1: Have you heard of these opportunities to buy/sell goods or services over the internet or apps as just defined?

Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Internet users	919	427	266	804	692

Among those aware of the platforms for buying, transportation/taxi services is the only significant use

Usage of platforms: buying (% of aged 15-65 internet users aware of platforms)

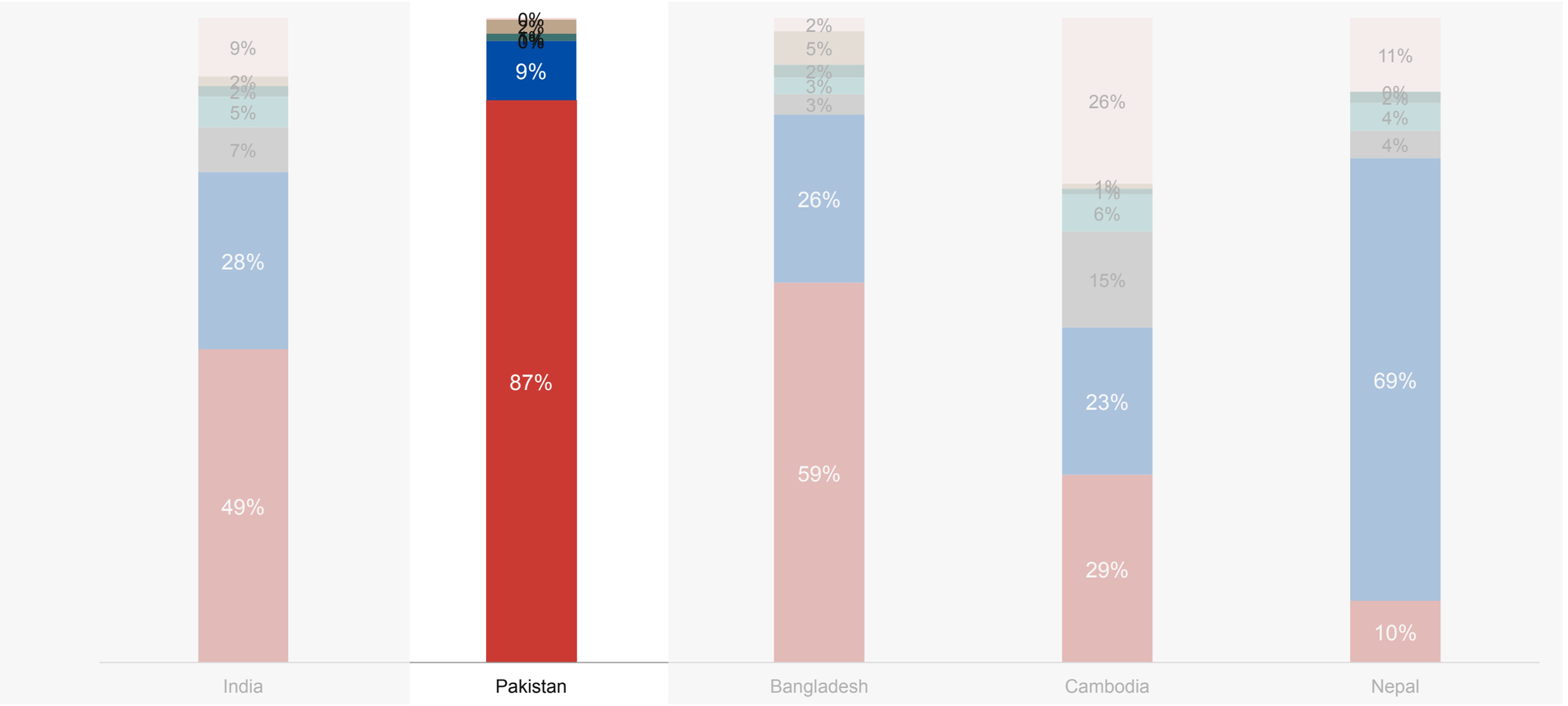


Base : Internet users who are aware of the Platforms	India	Pakistan	Bangladesh	Cambodia	Nepal
Goods/products (Amazon, Aliexpress, ebay)	430	56	70	276	152
Transport/ taxi services (Uber,)	396	146	59	259	81
Tickets and appointments (movie/railway/ doctor appointments)	409	20	70	185	135
Accommodation (AirBnB)	265	16	32	209	136
Microwork/freelance (Upwork, Fiverr)	202	7	43	288	54
Hired help	258	13	40	355	86

Q: Have you ever bought any of the following goods or services through the Internet or apps?

Lack of knowledge is the key reasons for non use

Reason for not using platforms for buying (% of Internet users aged 15-65 who are aware of but don't use platforms)



Q: What is the primary reason you don't buy goods/services through the Internet or mobile apps?

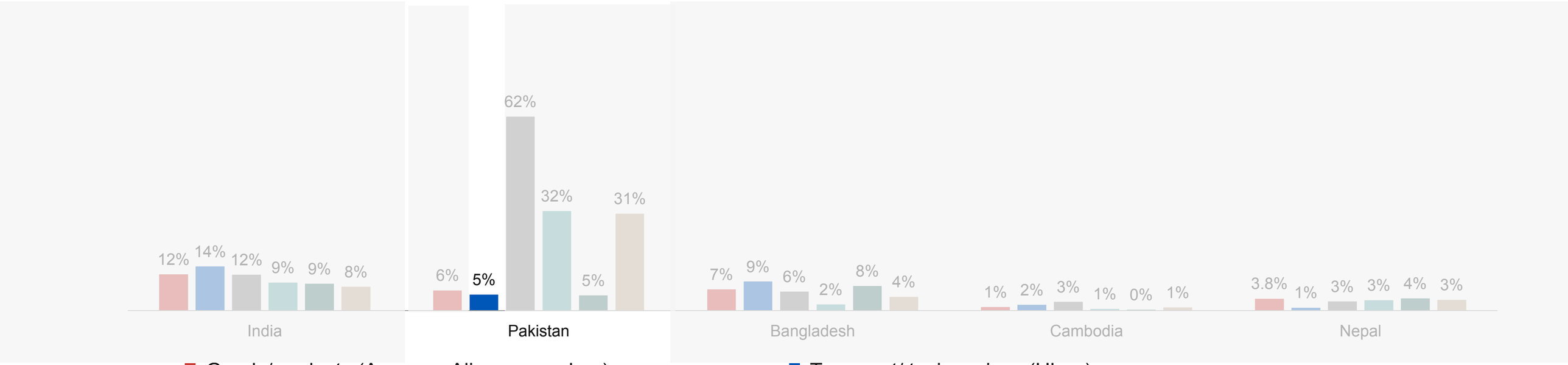
Base	India	Pakistan	Bangladesh	Cambodia	Nepal
Respondent who are aware of platforms but not using them	586	302	227	421	158

AFTER ACCESS

E-COMMERCE: ARE PEOPLE MAKING MONEY SELLING GOODS AND SERVICES?

Very low use of platforms to sell

Usage of platforms: selling (% of aged 15-65 internet users who aware of platforms)



- Goods/products (Amazon, Aliexpress, ebay)
- Transport/ taxi services (Uber,)
- Hired help
- Accommodation (AirBnB)
- Tickets and appointments (movie/railway/ doctor appointments)
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Base : Internet users who are aware of the Platforms	India	Pakistan	Bangladesh	Cambodia	Nepal
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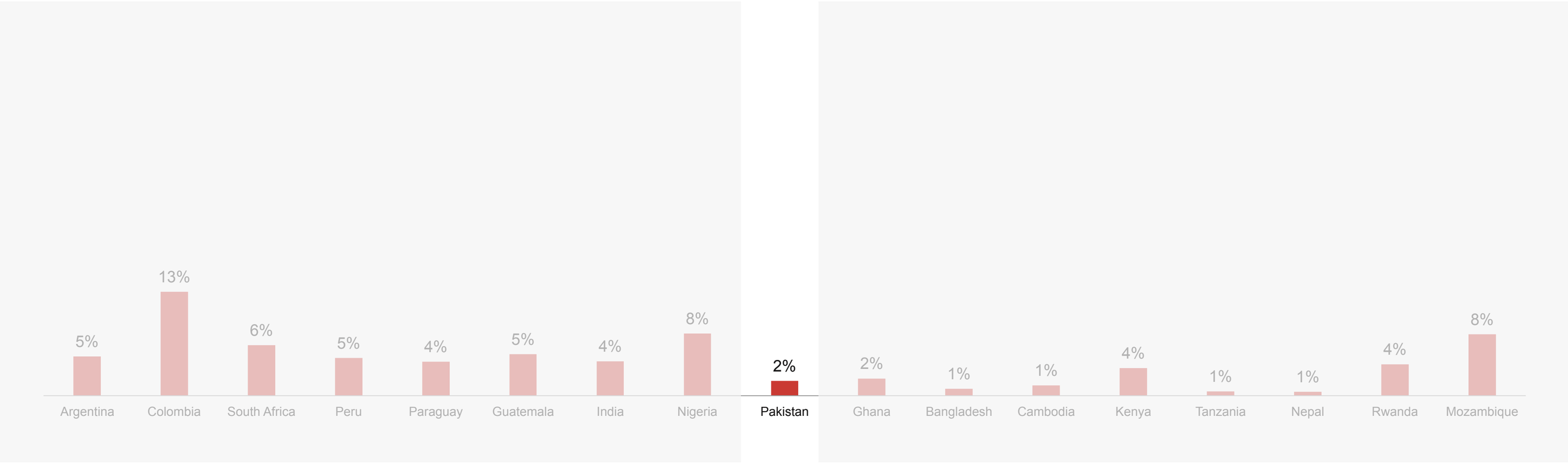
Microwork/freelance (Upwork, Fiverr)	202	7	43	288	55

Q: Have you ever sold any goods or services through the internet or apps?

Only 2% of aged 15-65 Internet users used a platform to selling labor and earn income via **digital work**

Usage of platforms: selling (% of aged 15-65 internet users)

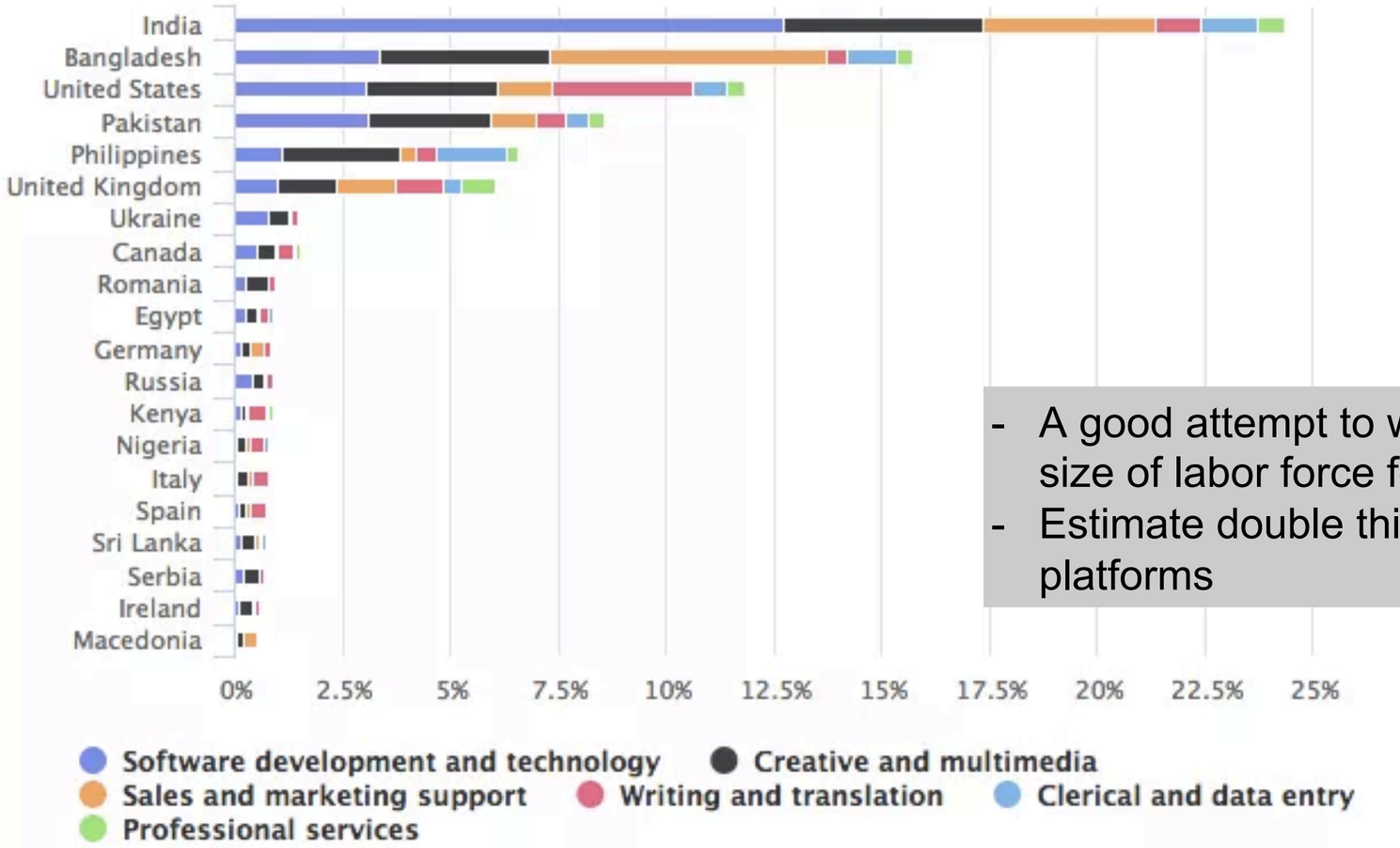


Q: Some people find paid jobs or tasks by connecting directly with people who want to hire them using a website or mobile app. In the last year, have you earned money by taking on jobs of this type?

Base	Argentina	Colombia	South Africa	Peru	Paraguay	Guatemala	India	Nigeria	Pakistan	Ghana	Bangladesh	Cambodia	Kenya	Tanzania	Rwanda	Mozambique
Internet users	1,006	1,192	829	1,120	886	1,104	919	537	427	311	266	804	440	266	172	238

South Asia among largest supplier of labor to digital platforms; Pakistan 4th in the list

Online Labor Index top occupation by country, 1-6 July 2017



- A good attempt to weigh and project actual size of labor force for these platforms
- Estimate double this number of all other platforms

Source: Kässi, O. & Lehdonvirta, V. (2016) Online Labor Index: Measuring the Online Gig Economy for Policy and Research. Paper presented at Internet, Politics & Policy 2016, 22-23 September, Oxford, UK. http://ilabour.oii.ox.ac.uk/online-labour-index/

CONCLUSIONS

Some implied needs

- Demand stimulation (only 14% of target population use Internet)
- Increased awareness and salience raising (Only 37% of the target population aware of the internet)
- Low network quality in rural areas
- Increase affordability of smart phones (25% of those who don’t own a smartphone cite affordability as main barrier to ownership)
- Increase affordability of data (18% of current internet users would use the Internet more if data cost were more affordable)
- Increase digital literacy (lack of skills is the reason why 87% of those who know about platforms don’t use them to buy goods or services)

What can be done?

- **Literacy** - Start young. integrate digital literacy and ethics into school curriculum

- **Demand stimulation**: Use various schemes. E.g. Financial incentives for online applications for eGov services (invest in face-to face or counter service in targeted areas where Internet penetration and/or digital literacy is low).

- **Affordability of phones + services:** Balance policy objectives: between revenue generation vs economic stimulation from Internet growth and use
  - Tax burden on smart phones; get the basic phones out of circulation ("recycle" scheme?)
  - Uncertainty over license renewals (in 2019) → halting of investments
  - High (relative) spectrum costs →operators buy small chunks → also impacts poor quality
  - Rights of way: still a huge problem → slow network rollout

THANK YOU

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