Uncredentialed and Underserved: Access to Mobile in One's Own Name

Consumer insights of 2.1 billion people

September 2021

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Key findings

Lack of proof of identity (ID) and other socio-economic barriers are preventing underserved populations from owning a SIM card and mobile subscription in their own name and accessing life-enhancing mobile services.

Proof of ID and access to mobile services in one's own name
Indicators by country in 2021

Adults...	...without official ID (any ID)	...without official ID (national ID card)	...without a SIM card registered in their own name who use someone else's instead	...aware of mobile services requiring proof of identity when using or accessing the service	...likely to adopt mobile services requiring ID verification by an MNO	...likely to receive government or social benefits on their mobile if an MNO verifies their ID digitally
ALGERIA	1%	4%	13%	21%	81%	22%
KENYA	3%	10%	15%	27%	85%	86%
MOZAMBIQUE	7%	34%	17%	20%	77%	50%
NIGERIA	7%	43%	10%	23%	95%	52%
BANGLADESH	2%	6%	21%	31%	86%	63%
INDIA	0%	4%	24%	27%	80%	57%
PAKISTAN	3%	8%	23%	25%	72%	51%

Base: total adult population aged 18+

Base: total adult SIM card users aged 18+

Base: total adult population aged 18+

Base: total adult population aged 18+ who are aware of ID-linked mobile services

Base: total adult population aged 18+ who receive government or social benefit payments

Proof of ID and access to mobile services in one's own name
Indicators of the most underserved populations in 2021

IN THE SEVEN SURVEY COUNTRIES WITH A COMBINED POPULATION OF AROUND 2.1 BILLION:

MANY DO NOT HAVE AN OFFICIAL FORM OF IDENTITY (ID)

up to **7%**

do not have any form of official ID[1]

up to **43%**

do not have a national ID card[1]

Certain underserved groups are significantly less likely to have an ID.[1]

Including those with no literacy skills,* those with primary education only,* women,* rural residents* and those aged 65+

ID IS A BARRIER TO ACCESSING A SIM CARD AND MOBILE SERVICES IN ONE'S OWN NAME

Mandatory prepaid SIM registration is required in

157 countries

and often requires an official ID

Those with a national ID card* are **significantly more likely (33 percentage points)** to have a SIM card registered in their own name than those without one[2]

MANY DO NOT HAVE A SIM CARD REGISTERED IN THEIR OWN NAME AND USE SOMEONE ELSE'S INSTEAD

up to **24%**

(potentially up to 33%) do not have a SIM card registered in their own name and use someone else's instead[2]

up to **27%**

say other adult males and

up to **30%**

say other adult females in their household do not have a SIM card registered in their own name and use someone else's instead[1]

THERE ARE OTHER BARRIERS TO ACCESSING A SIM CARD AND MOBILE SERVICES IN ONE'S OWN NAME:

up to **36%**

say a family member considers it inappropriate[3]

up to **10%**

say they are unable to travel to register for a SIM card[3]

up to **39%**

do not know why they do not have a SIM card registered in their own name[3]

CERTAIN GROUPS ARE MORE OR LESS LIKELY TO HAVE A SIM CARD IN THEIR OWN NAME

BEING THE HEAD OF HOUSEHOLD IS AN ADVANTAGE

A head of household* is up to 32% more likely than other household members to have a SIM card registered in their own name[2]

EDUCATION IS AN ADVANTAGE

People with secondary, degree and postgraduate education are, in general, more likely than those with primary education only* to have a SIM card registered in their own name[2]

GENDER GAP

Women* are

up to **42%**

less likely than men to have a SIM card registered in their own name[2]

DISABILITY GAP

Persons with disabilities* are

up to **30%**

less likely than persons without disabilities to have a SIM card registered in their own name[2]

EMPLOYMENT GAP

Those who are unemployed* are

up to **34%**

less likely than those who are employed to have a SIM card registered in their own name[2]

THERE ARE OPPORTUNITIES TO INCREASE ADOPTION OF ID-LINKED MOBILE SERVICES

AWARENESS OF ID-LINKED MOBILE SERVICES IS LOW

up to **31%**

are aware of mobile services that require an ID to use or access them[1]

WILLINGNESS TO ADOPT ID-LINKED MOBILE SERVICES IS HIGH

up to **95%**

of those who are are aware of mobile services that require ID verification by an MNO to use or access the service, are willing to use them[5]

BENEFICIARIES OF GOVERNMENT OR SOCIAL BENEFIT PAYMENTS ARE WILLING TO RECEIVE THEM VIA MOBILE

Up to 20% claim to receive benefits,[1] yet

up to **2%**

say they do so via mobile money[1]

up to **86%**

of beneficiaries are willing to receive payments via mobile[4]

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* Statistically significant driver (p<0.05–p<0.001)
1   Base = total adult population aged 18+
2   Base = total adult SIM card users aged 18+
3   Base = total adult SIM card users aged 18+ who use someone else's SIM card
4   Base = total adult population aged 18+ who receive government or social benefit payments
5   Base = total adult population aged 18+ who are aware of ID-linked mobile services
Survey countries: Algeria, Bangladesh, India, Kenya, Mozambique, Nigeria and Pakistan
Note: Statistics (e.g. 'up to 32%') refer to the country with the highest percentage / gap in the range of seven survey countries. See the main report sections for results by country

1

Introduction

In 157 countries with mandatory prepaid SIM registration, having an ID is critical to accessing mobile services in one's own name.

The ability to prove one's identity is essential to securing rights and access to life-enhancing services, including health care, voting, education, financial services, employment and social protections.[1] Identification (ID) is also critical to accessing mobile services in one's own name, especially in the 157 countries[2] that have implemented mandatory prepaid SIM registration policies.

However, in the seven countries[3] included in this year's nationally representative GSMA Consumer Survey, up to 43 per cent of respondents did not have a national ID card. Furthermore, up to 24 per cent did not have a SIM card registered in their own name and use someone else's instead. Those with a national ID card were 33 percentage points more likely to have a SIM card registered in their own name than those without one. Certain underserved groups are also less likely to have a SIM card registered in their own name, including women, who experience a gender gap of up to 42 per cent. These underserved groups often use someone else's SIM card and typically experience other cultural and social barriers to registering a SIM card in their own name.

Despite these gaps, there is encouraging evidence that during the COVID-19 pandemic progressive governments have been adapting their policies or relaxing regulations around KYC (Know Your Customer), SIM registration and identity to ensure more people can access a SIM card and mobile-enabled services in their own name, including social benefits.[4] Mobile network operators (MNOs) are also easing on-boarding for potential customers and offering a wider choice of empowering ID-linked mobile services through digital transformation[5] drives and partnerships with digital innovators and governments.[6]

> It is important for policymakers, MNOs and the development community to understand that many people are accessing mobile services through someone else's SIM card (mobile subscription) and, therefore, cannot reap the full benefits of digital and financial inclusion.

This study found that up to 39 per cent of respondents did not know why they use a SIM card (mobile subscription) registered in someone else's name, and up to just 31 per cent were aware that there are mobile services linked to an official ID. Encouragingly, among those who were aware of ID-linked mobile services, up to 95 per cent were willing to adopt them. This not only suggests that they trust MNOs, but that there may also be commercially sustainable opportunities for MNOs to partner with governments seeking to drive digital inclusion for their citizens.

This new report provides for the first time:

- Figures on ID ownership (by modality) and SIM card registration in one's own name;

- Figures showing the gap in ID ownership and SIM card registration in one's own name between different demographic and socio-economic groups;

- A review of the barriers to accessing a SIM card in one's own name;

- The household composition of those who use SIM cards registered in another's name;

- Evidence of awareness and willingness to adopt ID-linked mobile services and benefits; and

- Econometric analysis of the likelihood of different demographics and socio-economic groups acquiring an official ID or registering a SIM card in their own name.

1   The World Bank. (n.d.). "ID4D Data: Global Identification Challenge by the Numbers".
2   GSMA. (2021). Access to mobile services and proof of identity 2021.
3   With a combined population of 2.1 billion based on UN population data for 2020.
4   Lowe, C. et al. (2021). Digital identity: accelerating financial inclusion during a crisis. GSMA.
5   Lowe, C. and Theodorou, Y. (2021). Commercially sustainable roles for mobile operators in digital ID ecosystems. GSMA.
6   See: www.safaricom.co.ke/about/media-center/publications/press-releases/release/1041

Scope

The findings of this report are nationally representative and sourced from the annual GSMA Consumer Survey,[7] which in 2020 had around 8,000 respondents from seven low- and middle-income countries (LMICs) (see Figure 1), including **Algeria**, **Bangladesh**, **India**, **Kenya**, **Mozambique**, **Nigeria** and **Pakistan**. An econometric analysis of the findings was conducted to uncover predictors of ID adoption and owning a SIM card registered in one's own name.

Figure 1

GSMA Consumer Survey 2020 sample

Pakistan
1,000 respondents

Bangladesh
1,000 respondents

Algeria
1,000 respondents

India
2,000 respondents

Nigeria
1,000 respondents

Kenya
1,000 respondents

Mozambique
1,000 respondents

7   See Appendices for detailed methodology.

2

Official proof of identity

Many respondents lack a birth certificate or national ID card, particularly in Nigeria and Mozambique, and certain underserved groups are less likely to own an official form of ID. Gaps in ID adoption are driven primarily by, but not limited to, having only a primary education and no literacy skills.

Official proof of identity (ID)

Official proof of identity (ID) is often required to access public and private services, including a mobile subscription in one's own name (SIM card and mobile number). A government-issued or recognised ID credential is typically required to complete SIM registration and Know Your Customer (KYC) on-boarding processes mandated by governments and implemented by MNOs.[8]

A national ID card or number is increasingly required to successfully register for a SIM card (mobile subscription) in one's own name. In practice, various forms of ID are still accepted, although openness to alternative IDs varies widely from country to country.[9] In Nigeria, for example, various types of IDs have traditionally been accepted for SIM registration, but this is being phased out as a new national ID is rolled out. Mobile customers will be required to re-register with their MNOs using their new national ID.[10]

This study found that a national ID was the most commonly cited form of identification in all seven countries, followed by a birth certificate (see Figure 2). Other types of IDs exist, however, and appear to be most common in Algeria, Mozambique and Nigeria where national ID programmes are not as well established as in the other countries in the study. Many people do not have any proof of identity. Up to seven per cent of respondents said they did not have any form of official ID and up to 43 per cent said they did not have a national ID card, primarily in Nigeria and Mozambique. While not having an ID is a barrier to registering a SIM card in one's own name, it is not the only barrier.

National ID card

Nigeria and Mozambique have the widest gaps in ID ownership among various demographic and socio-economic groups (up to a 36 per cent gap in one case), with women, rural residents, those with no literacy skills and non heads of household significantly less likely to own a national ID card (see Figures 3–6). In both countries, as well as in Kenya, those with less education (see Figure 9) are also much less likely to have a national ID card.

In most countries, trends indicate that a head of household is more likely to own a national ID card while those in the 18 to 24 age group (see Figure 8) are less likely to own one. **More in-depth analysis (see Figures 10 and 11) revealed that three underserved groups are still significantly less likely to own a national ID card, even when other factors are accounted and controlled for.[11] These groups are those with primary education only (p<0.001),[12] those with no literacy skills (p<0.01) and women (p<0.05).**

8   GSMA. (9 February 2018). "Mandatory Registration of Prepaid SIMs", Mobile Policy Handbook.

9   GSMA (2021). Access to Mobile Services and Proof of Identity 2021.

10   National Identity Management Commission. (2 February 2021). Federal Government Lauds Citizens, Extends NIN-SIM Linkage Deadline by 8 Weeks.

11   For example, the ID adoption gap between men and women still exists even when ID adoption is made equal across all other factors, such as between those working and not working or those in urban and rural areas. This means gender is a driver of the ID adoption gap.

12   Statistical analysis (regression) shows, in this instance, that those with primary education only are less likely to own a national ID card. p<0.001 means there is a less than 0.1% probability that this result occurred by chance, meaning this result is statistically highly significant. p<0.01 is a less than 1% probability and p<0.05 is a less than 5% probability. Both results are also considered statistically significant.

Birth certificate

In Kenya and Pakistan, there are wide gaps in birth certificate ownership between demographic and socio-economic groups, particularly women and persons with disabilities. Trends in most survey countries also showed that rural residents, non-heads of household, those with no literacy and those with less education (except Algeria) are less likely to own a birth certificate (see Figures 3–9).

A more in-depth analysis (see Figures 10 and 11) also found that those who are not literate (p<0.001)[13] and those with primary education only (p<0.01) are significantly less likely to own a birth certificate, even when other factors have been accounted and controlled for.[14] This is in addition to those aged 65+ (p<0.001) and rural residents (p<0.01).

The range of IDs available in the seven survey countries have both benefits and challenges.
MNOs in countries with a comprehensive national ID can harness it to robustly authenticate customers for many digital services, however, relying solely on the dominant type of ID can create a barrier for underserved groups. Lessons from the pandemic showed that relaxing identity requirements and accepting alternative forms of ID enhanced inclusion for many.[15] Robust yet flexible identity requirements could boost mobile-led digital inclusion, provide commercially sustainable opportunities for the private sector and improve government- and NGO-led benefits programmes.[16]
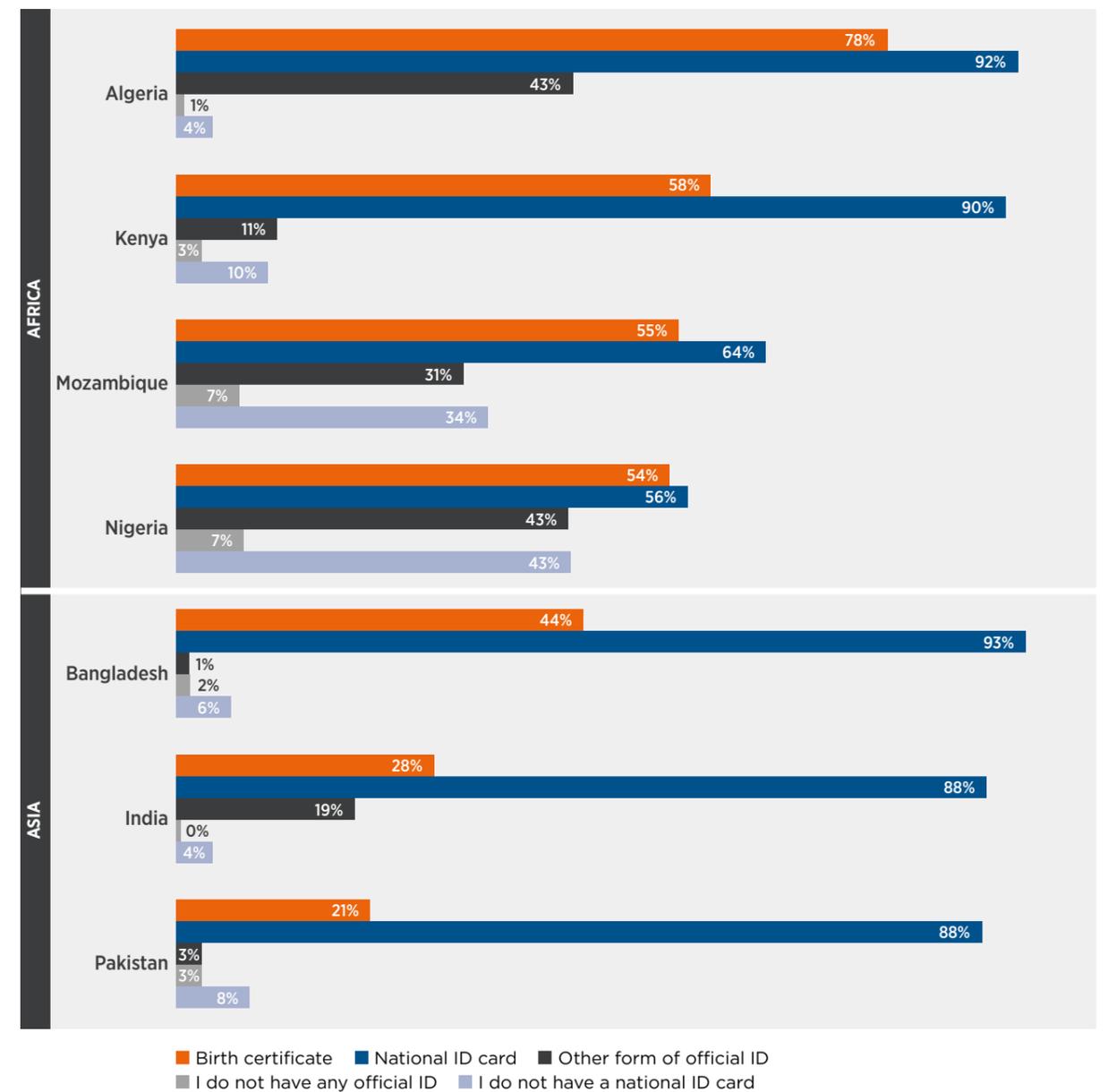
Official ID ownership

A national ID is the most prevalent official form of ID in all seven survey countries (see Figure 2). In countries where a national ID card has yet to be rolled out extensively, other types of IDs are still widely used, particularly birth certificates.

Figure 2

Ownership of official ID documents, by country
Percentage of total adult population

AFRICA

Algeria
- Birth certificate: 78%
- National ID card: 92%
- Other form of official ID: 43%
- I do not have any official ID: 1%
- I do not have a national ID card: 4%

Kenya
- Birth certificate: 58%
- National ID card: 90%
- Other form of official ID: 11%
- I do not have any official ID: 3%
- I do not have a national ID card: 10%

Mozambique
- Birth certificate: 55%
- National ID card: 64%
- Other form of official ID: 31%
- I do not have any official ID: 7%
- I do not have a national ID card: 34%

Nigeria
- Birth certificate: 54%
- National ID card: 56%
- Other form of official ID: 43%
- I do not have any official ID: 7%
- I do not have a national ID card: 43%

ASIA

Bangladesh
- Birth certificate: 44%
- National ID card: 93%
- Other form of official ID: 1%
- I do not have any official ID: 2%
- I do not have a national ID card: 6%

India
- Birth certificate: 28%
- National ID card: 88%
- Other form of official ID: 19%
- I do not have any official ID: 0%
- I do not have a national ID card: 4%

Pakistan
- Birth certificate: 21%
- National ID card: 88%
- Other form of official ID: 3%
- I do not have any official ID: 3%
- I do not have a national ID card: 8%

Legend:
- Birth certificate
- National ID card
- Other form of official ID
- I do not have any official ID
- I do not have a national ID card

Question: Which, if any, of the following official identification documents do you have? Base: All respondents aged 18+, n=1,000–2,000 (including those responding with "prefer not to answer"). Sample: Nationally representative. Note: "Other form of official ID" tends to be, among others, a passport, driving licence or voter card; see Appendices for list of IDs by country. Source: GSMA Consumer Survey 2020

13   Statistical analysis (regression) shows, in this instance, that those with primary education only are less likely to own a national ID card. p<0.001 means there is a less than 0.1% probability that this result occurred by chance, meaning this result is statistically highly significant. p<0.01 is a less than 1% probability and p<0.05 is a less than 5% probability. Both results are also considered statistically significant.
14   For example, the ID adoption gap between men and women still exists even when ID adoption is made equal across all other factors, such as between those working and not working or those in urban and rural areas. This means gender is a driver of the ID adoption gap.
15   Lowe, C. et al. (2021). Digital identity: accelerating financial inclusion during a crisis. GSMA.
16   Lowe, C. and Theodorou, Y. (2021). Commercially sustainable roles for mobile operators in digital ID ecosystems. GSMA.

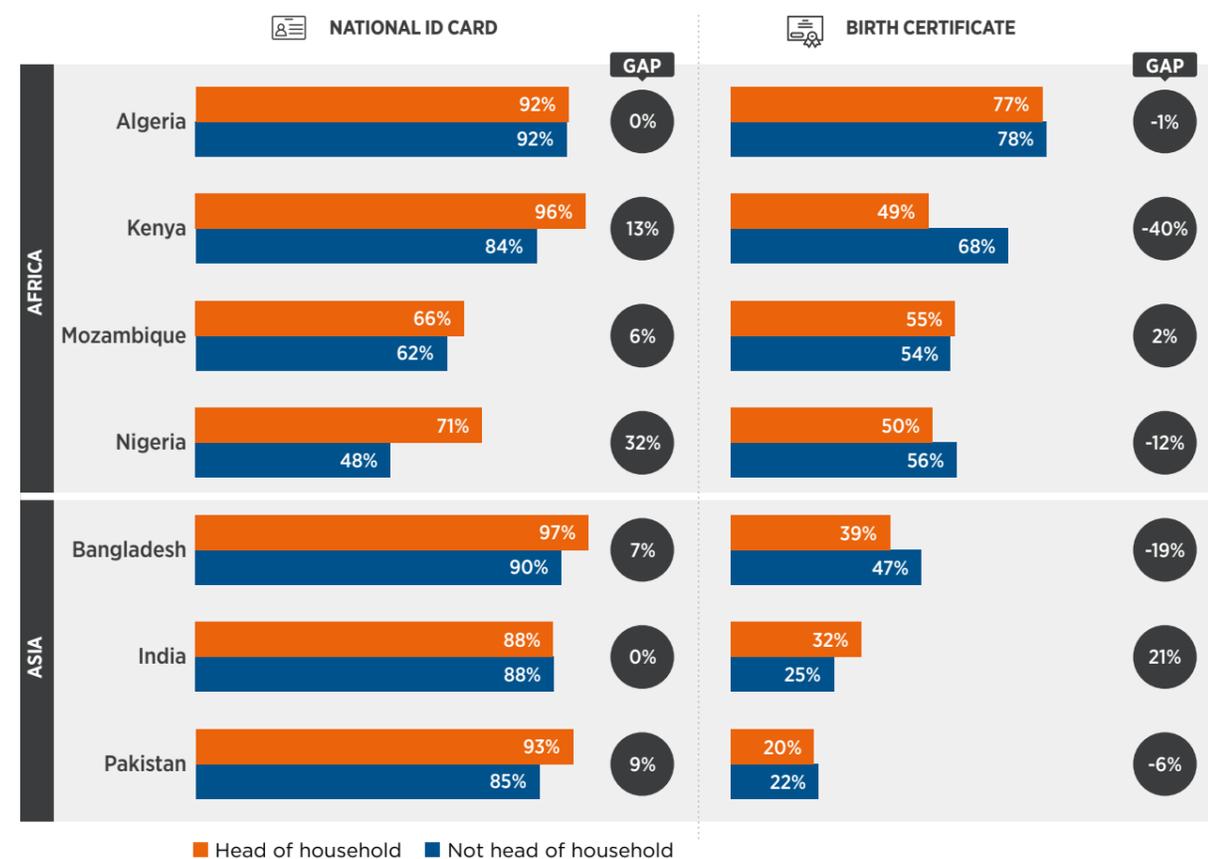# Gaps in ID adoption between demographic and socio-economic groups

Head-of-household gap

Those who claim to be a head of household[17] are more likely to own a national ID card than other household members, particularly in Nigeria and Kenya (see Figure 3). Among those with a birth certificate, other household members are instead more likely to own one, especially in Kenya and Bangladesh.

Ownership of official ID by household status, by country
Percentage of total adult population

	NATIONAL ID CARD	GAP	BIRTH CERTIFICATE	GAP
AFRICA				
Algeria	Head: 92% / Not head: 92%	0%	Head: 77% / Not head: 78%	-1%
Kenya	Head: 96% / Not head: 84%	13%	Head: 49% / Not head: 68%	-40%
Mozambique	Head: 66% / Not head: 62%	6%	Head: 55% / Not head: 54%	2%
Nigeria	Head: 71% / Not head: 48%	32%	Head: 50% / Not head: 56%	-12%
ASIA				
Bangladesh	Head: 97% / Not head: 90%	7%	Head: 39% / Not head: 47%	-19%
India	Head: 88% / Not head: 88%	0%	Head: 32% / Not head: 25%	21%
Pakistan	Head: 93% / Not head: 85%	9%	Head: 20% / Not head: 22%	-6%

■ Head of household ■ Not head of household

Question: Which, if any, of the following official identification documents do you have? Base: All respondents avged 18+; for head of household n=312–782; for non-head of household n=467–1,218. Sample: Nationally representative. Note: the head-of-household gap refers to how much less likely another household member is to own an official ID than the head of household. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020
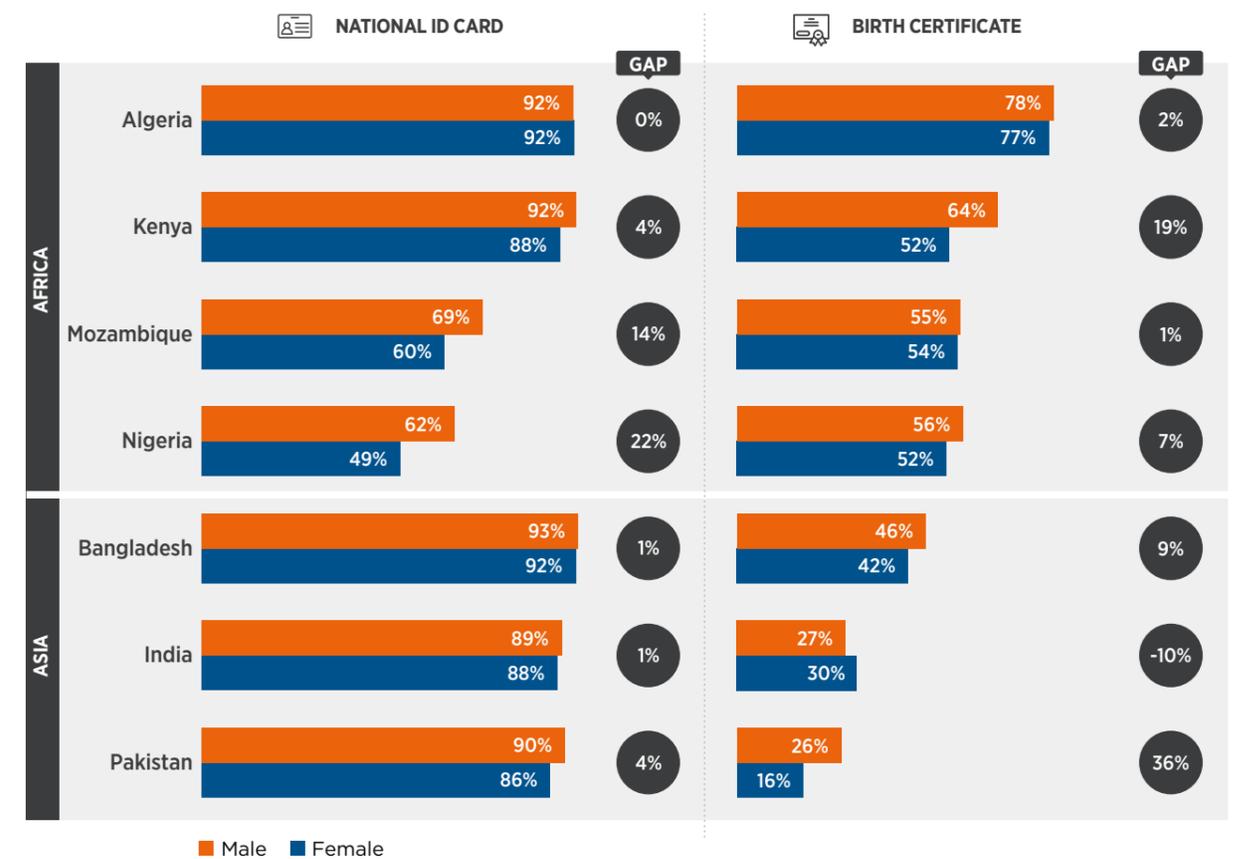
Gender gap

While the gender gap in official ID ownership is relatively small, men are, in general, more likely than women to own a national ID or birth certificate (see Figure 4). The gender gap is most prominent in Nigeria and Mozambique (for a national ID card) and Pakistan and Kenya (for a birth certificate).

Ownership of official ID by gender, by country
Percentage of total adult population

	NATIONAL ID CARD	GAP	BIRTH CERTIFICATE	GAP
AFRICA				
Algeria	Male: 92% / Female: 92%	0%	Male: 78% / Female: 77%	2%
Kenya	Male: 92% / Female: 88%	4%	Male: 64% / Female: 52%	19%
Mozambique	Male: 69% / Female: 60%	14%	Male: 55% / Female: 54%	1%
Nigeria	Male: 62% / Female: 49%	22%	Male: 56% / Female: 52%	7%
ASIA				
Bangladesh	Male: 93% / Female: 92%	1%	Male: 46% / Female: 42%	9%
India	Male: 89% / Female: 88%	1%	Male: 27% / Female: 30%	-10%
Pakistan	Male: 90% / Female: 86%	4%	Male: 26% / Female: 16%	36%

■ Male ■ Female

Question: Which, if any, of the following official identification documents do you have? Base: All respondents aged 18+; for males n=461–1,048; for females n=490–952. Sample: Nationally representative. Note: the gender gap refers to how much less likely a woman is to own an official ID than a man. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020

17   A "head of household" is defined as someone who typically makes decisions for the household, and they may also be the chief wage earner from paid work or any other form of income.
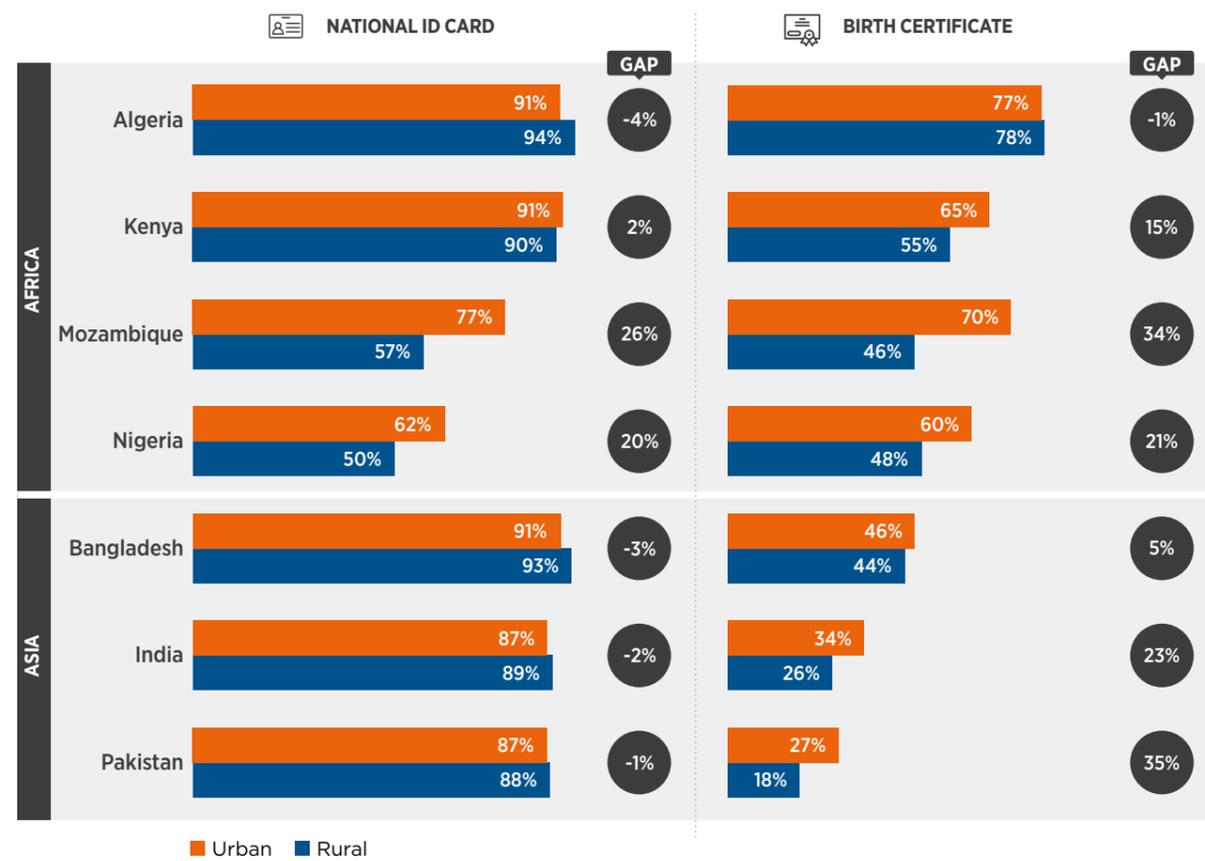
Urban-rural gap

A similar percentage of urban and rural residents own national ID cards (see Figure 5), except in Mozambique and Nigeria where urban populations are more likely to own one. Aside from Algeria, urban residents tend to be more likely to own a birth certificate than rural residents.

Ownership of official ID by location, by country
Percentage of total adult population

		NATIONAL ID CARD	GAP		BIRTH CERTIFICATE	GAP
AFRICA	Algeria	Urban 91% / Rural 94%	-4%		Urban 77% / Rural 78%	-1%
	Kenya	Urban 91% / Rural 90%	2%		Urban 65% / Rural 55%	15%
	Mozambique	Urban 77% / Rural 57%	26%		Urban 70% / Rural 46%	34%
	Nigeria	Urban 62% / Rural 50%	20%		Urban 60% / Rural 48%	21%
ASIA	Bangladesh	Urban 91% / Rural 93%	-3%		Urban 46% / Rural 44%	5%
	India	Urban 87% / Rural 89%	-2%		Urban 34% / Rural 26%	23%
	Pakistan	Urban 87% / Rural 88%	-1%		Urban 27% / Rural 18%	35%

■ Urban ■ Rural

Question: Which, if any, of the following official identification documents do you have? Base: All respondents aged 18+; for urban n=312–710; for rural n= 290–1,400. Sample: Nationally representative. Note: the urban-rural gap refers to how much less likely a person in a rural setting is to own an official ID than a person in an urban setting. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020
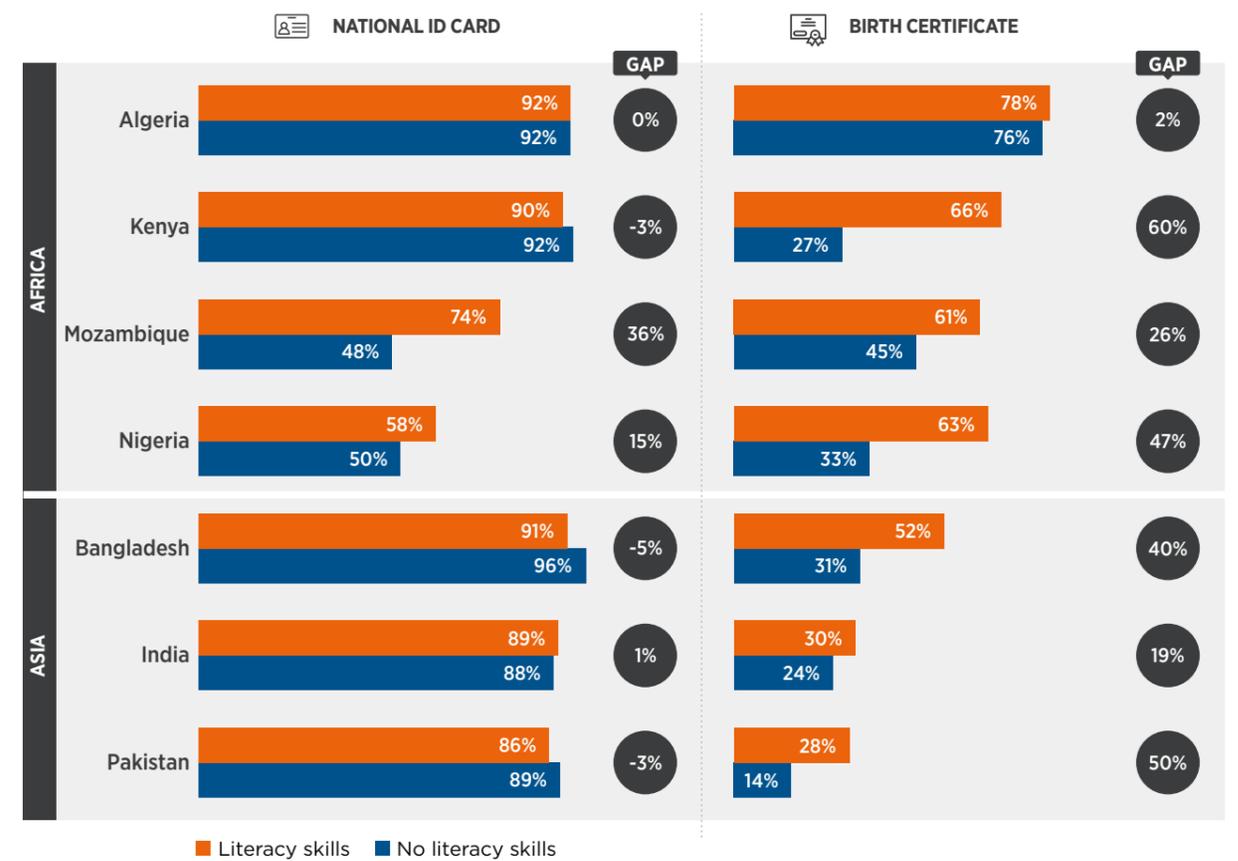
Literacy gap

People with literacy skills in Mozambique and Nigeria are noticeably more likely to own a national ID card (see Figure 6) than those with no literacy skills. Similarly, those with literacy skills across all surveyed countries are more likely to own a birth certificate, particularly in Kenya, Pakistan, Nigeria and Bangladesh.

Ownership of official ID by literacy skills,[18] by country
Percentage of total adult population

		NATIONAL ID CARD	GAP		BIRTH CERTIFICATE	GAP
AFRICA	Algeria	Literacy 92% / No literacy 92%	0%		Literacy 78% / No literacy 76%	2%
	Kenya	Literacy 90% / No literacy 92%	-3%		Literacy 66% / No literacy 27%	60%
	Mozambique	Literacy 74% / No literacy 48%	36%		Literacy 61% / No literacy 45%	26%
	Nigeria	Literacy 58% / No literacy 50%	15%		Literacy 63% / No literacy 33%	47%
ASIA	Bangladesh	Literacy 91% / No literacy 96%	-5%		Literacy 52% / No literacy 31%	40%
	India	Literacy 89% / No literacy 88%	1%		Literacy 30% / No literacy 24%	19%
	Pakistan	Literacy 86% / No literacy 89%	-3%		Literacy 28% / No literacy 14%	50%

■ Literacy skills ■ No literacy skills

Question: Which, if any, of the following official identification documents do you have? Base: All respondents aged 18+; for literacy skills n=489–1,348; for no literacy skills n=196–652. Sample: Nationally representative. Note: the literacy gap refers to how much less likely a person with no literacy skills is to own an official ID than a person with literacy skills. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020

18   A person with no literacy skills is defined as a person who reports "I have great difficulties reading and writing" or "I am unable to read or write".

BOX 1

The role of national ID ownership in the digital inclusion of persons with disabilities

In many LMICs, persons with disabilities experience various barriers to digital inclusion.[19] Evidence gathered by the GSMA AssistiveTech programme highlighted that lack of ID is a barrier to owning and using a phone for persons with disabilities in Kenya and Bangladesh.[20]

For the first time, the GSMA Consumer Survey 2020 gathered data on the role of national ID ownership in the digital inclusion of persons with disabilities. As shown in Figure 7, data was analysed for Mozambique and India where the sample sizes allowed for a disaggregated analysis by disability prevalence and ID ownership.

The data shows that national ID ownership played a different role in the two countries. In India, for instance, persons with disabilities are less digitally included regardless of ID ownership. The gaps in mobile ownership and mobile internet use between persons with and without disabilities are significant, with only

marginal gaps between persons with disabilities who own a form of ID and those who do not. In Mozambique, on the other hand, people without a national ID have lower levels of mobile ownership regardless of disability. While people without a national ID use mobile internet less, the gaps between persons with disabilities and persons without disabilities are more significant.

This analysis highlights that a lack of ID is a critical barrier in the digital inclusion of persons with disabilities. In general, persons with disabilities who do not have an ID have lower levels of mobile ownership and mobile internet use. The lack of ID compounds other barriers to digital inclusion for persons with disabilities, such as accessibility, digital skills, affordability, relevance, and safe and secure use.[21] Addressing the lack of ID will help drive the digital inclusion of persons with disabilities.

Figure 7

Sole mobile ownership and mobile internet use, by ID ownership and disability

Questions: For sole mobile ownership, respondents were asked if they have sole or main use of a SIM card, or a mobile phone that does not require a SIM and use it at least once a month. For mobile internet adoption, respondents were asked if they have used the internet on a mobile phone in the last three months. Base: All respondents aged 18+. For persons with disabilities, n=106–247 and for non-disabled persons, n=894–1,753. Source: GSMA Consumer Survey 2020

19   Aranda-Jan, C. (2020). The Mobile Disability Gap Report 2020. GSMA.
20   Aranda-Jan, C. & Boutard, A. (2019). Understanding the mobile disability gap: Insights on mobile phone access and usage by persons with disabilities in Kenya and Bangladesh. GSMA.
21   Aranda-Jan, C (2020). The Mobile Disability Gap Report 2020. GSMA.

BOX 2

Spotlight on Turkcell: Making digital identity accessible for all

The COVID-19 pandemic generated a growing demand in Turkey for a digitised form of identity that could both consolidate multiple forms of identification (ID) in one place and also be a verified source of ID for use on digital platforms. In response to this need, Turkcell launched their digital Identity solution, Proov, in March 2021. Proov is a blockchain-enabled digital identity management application that, as of August 2021, provides over 57,000 users with a secure and hassle free digital identity verification method. Once a user has installed the app, and uploaded a photo of their face and government issued ID, they then upload all their different forms of identification, such as student, employee, club membership and public service IDs, to be stored securely in their ID wallet. Users can then use Proov to access any digital service that is integrated with it.

It is estimated that approximately 4.8 million people in Turkey have a disability.[22] As evidenced by the GSMA consumer survey data, people with disabilities in survey countries are less likely to have access to a SIM card or mobile services registered in their own name and also less likely to have formal ID. A mobile-enabled identity solution like Proov could improve access to a growing number of digital services for people with disabilities and ensure that they are not left behind. In recognition of this, and aligned with their commitment to ensure equal access to and full use of all their products and services by people with disabilities, Turkcell prioritised the accessibility of Proov for customers with disabilities.

Turkcell developed Proov with React Native language that provides components (e.g. the code for a text button) that are already embedded with accesibility properties, thereby enhancing the user interface for people with disabilities. Turkcell added accessibility tags to custom-developed components of the app's user-interface and tested these features with common

built-in accessibility features such as VoiceOver (iOS) and Talkback (Android). As part of its broader effort to enhance accessibility of all its digital products, Turkcell has also included accessibility acceptance criteria for their quality assurance process. To support this, employees with visual impairments are embedded in their quality assurance team. Following additional accessibility enhancements post-launch and approval from the accessibility assurance team, Proov was relaunched in June 2021.

Turkcell has indicated that there are some further accessibility improvements that can be made to Proov that they are exploring. Some third party software development kits (SDKs) which enable optical character recognition (OCR), near field communication (NFC) and liveness check functionalities are not yet accessible however, once accessible SDKs are available it intends to import them into Proov. Turkcell's prioritisation of accessibility is therefore enforcing enhanced accessibility of solutions from suppliers in the value chain.

> "For customers with disabilities, the most important responsibility of a company is to provide accessibility in all products and services. As a blind person, I strongly believe it is imperitive to work with people with disabilities, to understand our real user needs, designing products as accesible as possible to meet our needs, and finally, to test the accessibility of these products with us [customers with disabilities]. I had a chance to work very closely with the Proov team to enhance and ensure accessibility of the application. I feel equal while using Proov thanks to its accessibility."
>
> **— Gamze Sofuoglu, Master Lead Brand Manager at Turkcell**

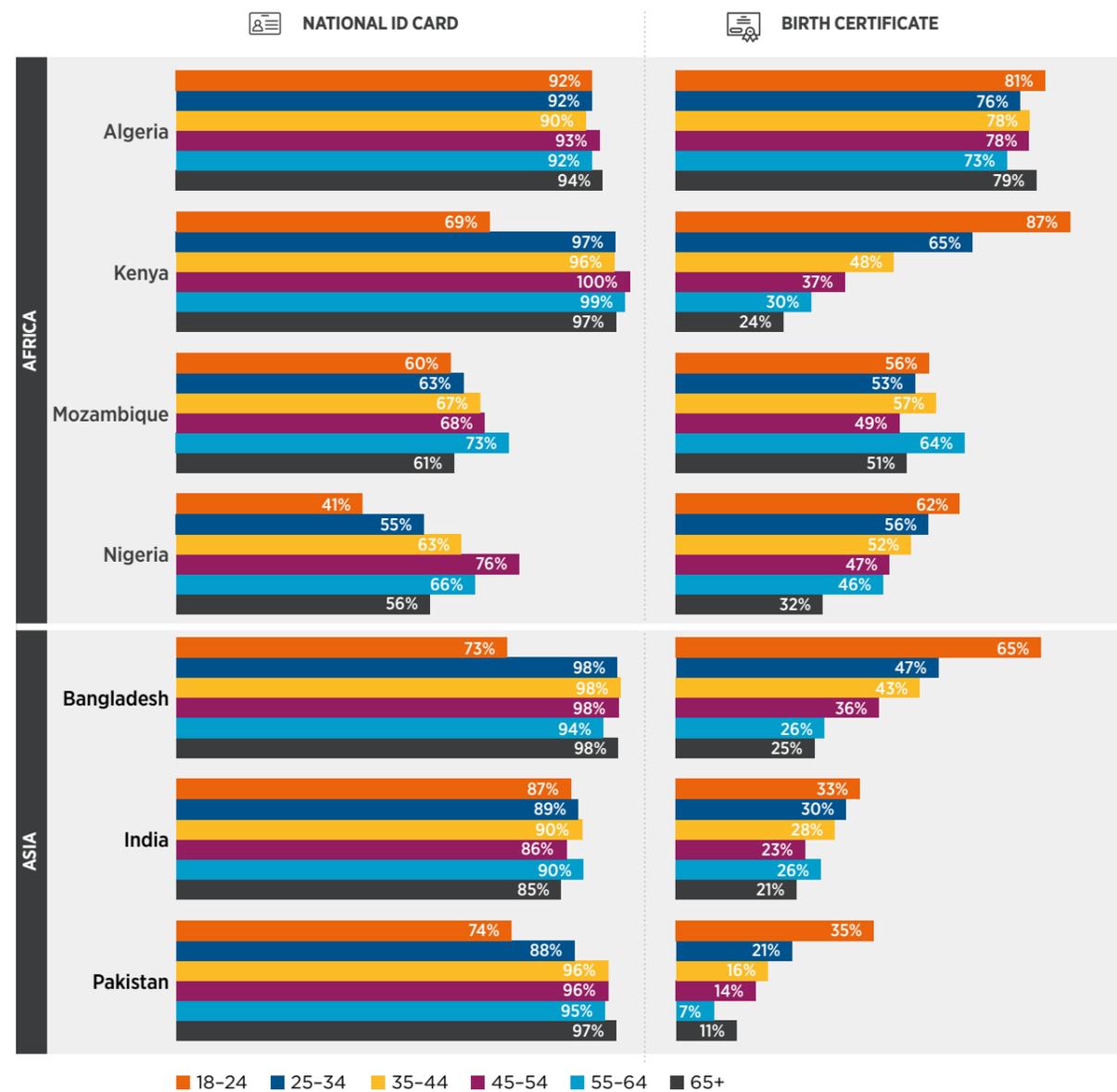22   Turkish Statistical institute, 2011 Population and Housing Census

Age

Those aged 18–24 are less likely to own a national ID than other age groups (see Figure 8) and the likelihood of owning a national ID tends to increase with age in Nigeria (up to those aged 45–54) and Mozambique (up to those aged 55–64). Apart from Algeria and Mozambique, birth certificate ownership is generally more prevalent among younger age groups and decreases with age.

Figure 8

Ownership of official ID by age, by country
Percentage of total adult population

NATIONAL ID CARD · **BIRTH CERTIFICATE**

AFRICA

Algeria — National ID: 92%, 92%, 90%, 93%, 92%, 94% · Birth Certificate: 81%, 76%, 78%, 78%, 73%, 79%

Kenya — National ID: 69%, 97%, 96%, 100%, 99%, 97% · Birth Certificate: 87%, 65%, 48%, 37%, 30%, 24%

Mozambique — National ID: 60%, 63%, 67%, 68%, 73%, 61% · Birth Certificate: 56%, 53%, 57%, 49%, 64%, 51%

Nigeria — National ID: 41%, 55%, 63%, 76%, 66%, 56% · Birth Certificate: 62%, 56%, 52%, 47%, 46%, 32%

ASIA

Bangladesh — National ID: 73%, 98%, 98%, 98%, 94%, 98% · Birth Certificate: 65%, 47%, 43%, 36%, 26%, 25%

India — National ID: 87%, 89%, 90%, 86%, 90%, 85% · Birth Certificate: 33%, 30%, 28%, 23%, 26%, 21%

Pakistan — National ID: 74%, 88%, 96%, 96%, 95%, 97% · Birth Certificate: 35%, 21%, 16%, 14%, 7%, 11%

Legend: ■ 18–24 ■ 25–34 ■ 35–44 ■ 45–54 ■ 55–64 ■ 65+

Question: Which, if any, of the following official identification documents do you have? Base: All respondents aged 18+, for all age groups n=59–565, Sample: Nationally representative. Source: GSMA Consumer Survey 2020
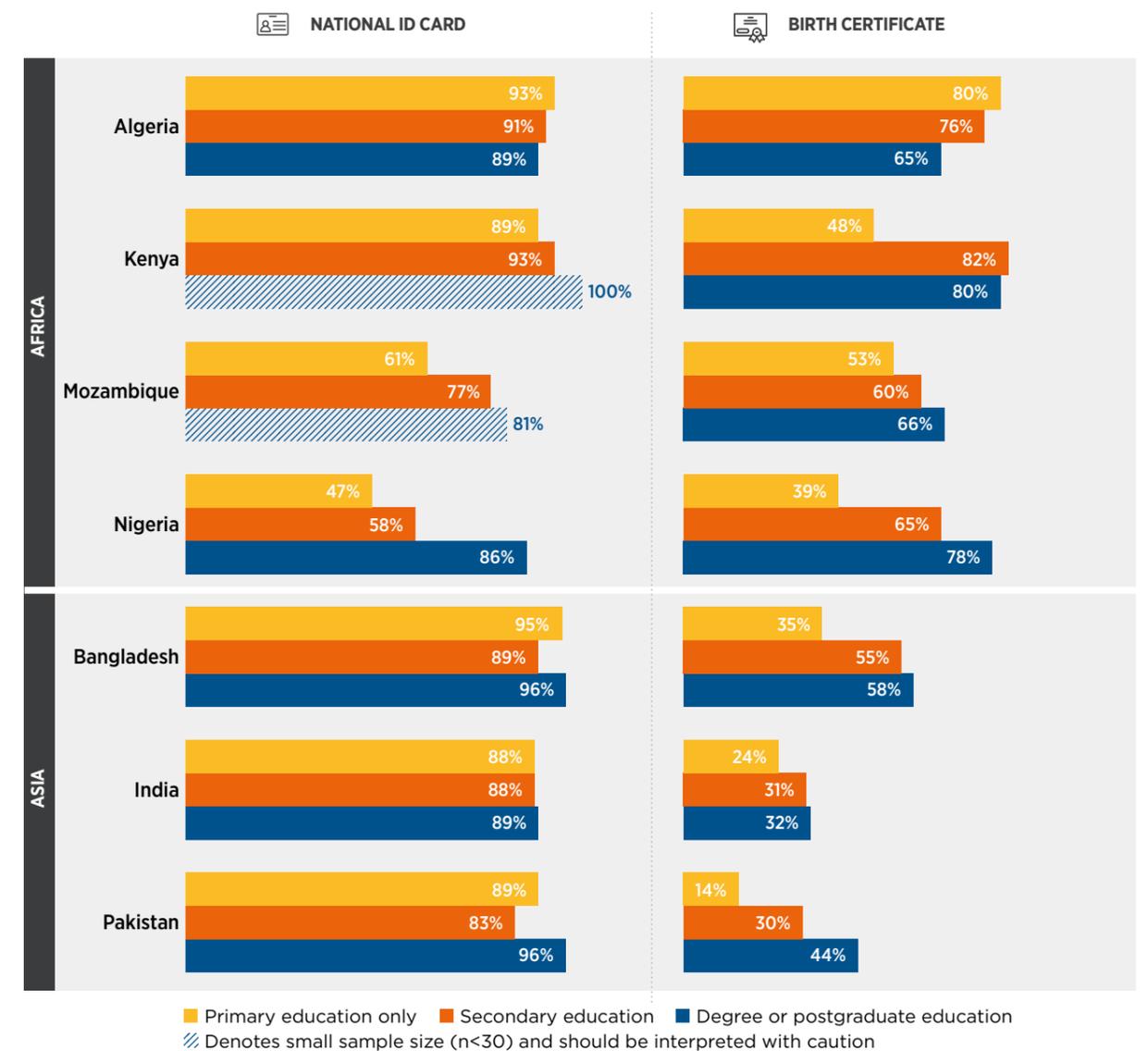
Education

Among respondents from the three Sub-Saharan African countries in the survey, those with higher levels of education were more likely to own a national ID card (see Figure 9). There was a similar but more pronounced trend in birth certificate ownership in all countries surveyed except Algeria, where the inverse was true.

Figure 9

Ownership of official ID by education level, by country
Percentage of total adult population

NATIONAL ID CARD · **BIRTH CERTIFICATE**

AFRICA

Algeria — National ID: 93%, 91%, 89% · Birth Certificate: 80%, 76%, 65%

Kenya — National ID: 89%, 93%, 100% · Birth Certificate: 48%, 82%, 80%

Mozambique — National ID: 61%, 77%, 81% · Birth Certificate: 53%, 60%, 66%

Nigeria — National ID: 47%, 58%, 86% · Birth Certificate: 39%, 65%, 78%

ASIA

Bangladesh — National ID: 95%, 89%, 96% · Birth Certificate: 35%, 55%, 58%

India — National ID: 88%, 88%, 89% · Birth Certificate: 24%, 31%, 32%

Pakistan — National ID: 89%, 83%, 96% · Birth Certificate: 14%, 30%, 44%

Legend: ■ Primary education only ■ Secondary education ■ Degree or postgraduate education
▨ Denotes small sample size (n<30) and should be interpreted with caution

Question: Which, if any, of the following official identification documents do you have? Base: All respondents aged 18+, for all education groups n=17–978. Sample: Nationally representative. Source: GSMA Consumer Survey 2020

Predictors of owning an official form of ID

The previous section (Figures 3–9) highlighted gaps in ID ownership (national ID cards and birth certificates) between different demographic and socio-economic groups. However, a more in-depth analysis revealed that only some of these gaps remain when all other factors are controlled for (i.e. made equal)[23] (see Figures 10 and 11).

This study found that the following underserved groups were significantly less likely to have a national ID card (see Figure 10):

- **Those with primary education only** (eight percentage points less likely than those with a degree or postgraduate education, $p<0.001$);

- **Those with no literacy skills** (four percentage points less likely than those with literacy skills, $p<0.01$); and

- **Women** (two percentage points less likely than men, $p<0.05$).

Based on the data, we can be confident that these factors drive the adoption gap for national ID cards.

Furthermore, there are two age groups who are significantly more likely to have a national ID card (and drive adoption):

- **25–34 age group** (11 percentage points more likely than those who are 18–24, $p<0.001$); and

- **65+ age group** (15 percentage points more likely than those who are 18–24, $p<0.001$).[24]

This study also found that the following underserved groups are significantly less likely to have a birth certificate (see Figure 11):

- **65+ age group** (18 percentage points less likely than those who are 18–24, $p<0.001$);

- **Those with primary education only** (11 percentage points less likely than those with a degree or postgraduate education, $p<0.01$);
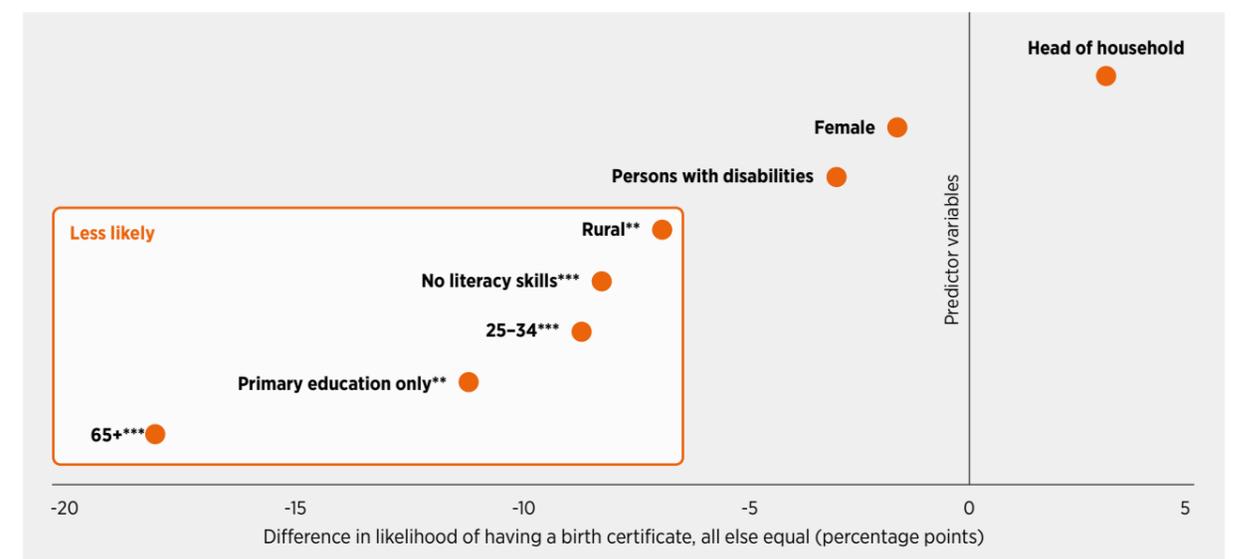
- **25–34 age group** (eight percentage points less likely than those who are 18–24, $p<0.001$);

- **Those with no literacy skills** (eight percentage points less likely than those with literacy skills, $p<0.001$); and

- **Rural residents** (seven percentage points less likely than those living in urban areas, $p<0.01$).

Based on this data, we can be confident that these factors drive the adoption gap for birth certificates.

Predictors of having a national ID card
Aggregate of seven countries

Base: Total adult population aged 18+, n=8,000 for all seven countries. Sample: Nationally representative (Algeria, Bangladesh, India, Kenya, Mozambique, Nigeria and Pakistan). Note: *$p<0.05$, **$p<0.01$ and ***$p<0.001$ indicate the significance level of results. Although they do show an effect (i.e. there is a gap) when other factors are controlled for, results without a star symbol indicate statistically insignificant variables. These regressions include all seven countries and results may differ by country. The marginal effect of "primary education only" is relative to the base category "degree or postgraduate education"; the marginal effects of the age brackets 25–34 and 65+ are relative to the base category 18–24. All other variables are binary. Results are marginal effects and have been multiplied by 100 (and rounded to the nearest percentage point) to obtain the percentage point change in the probability of adoption of a national ID card. Results shown are when other relevant socio-economic and demographic factors are controlled for. Source: GSMA Consumer Survey 2020

Predictors of having a birth certificate
Aggregate of seven countries[25]

Base: Total adult population aged 18+, n=8,000 for all seven countries. Sample: Nationally representative (Algeria, Bangladesh, India, Kenya, Mozambique, Nigeria and Pakistan). Note: *$p<0.05$, **$p<0.01$ and ***$p<0.001$ indicate the significance level of results. Although they do show an effect (i.e. there is a gap) when other factors are controlled for, results without a star symbol indicate statistically insignificant variables. These regressions include all seven countries and results may differ by country. The marginal effect of "primary education only" is relative to the base category "degree or postgraduate education"; the marginal effects of the age brackets 25–34 and 65+ are relative to the base category 18–24. All other variables are binary. Results are marginal effects and have been multiplied by 100 (and rounded to the nearest percentage point) to obtain the percentage point change in the probability of adoption of a birth certificate. Results shown are when other relevant socio-economic and demographic factors are controlled for. Source: GSMA Consumer Survey 2020

23   For example, the ID adoption gap between men and women still exists even when ID adoption is made equal across all other factors, such as between those who are working and those who are not working or those in urban and rural areas. This means gender is a driver of the ID adoption gap.

24   See Appendices for detailed methodology.

25   See Appendices for detailed methodology.

3

Access to a SIM card and mobile services in one's own name

Lack of ID is a barrier to registering a SIM card in one's own name and accessing mobile services, but it is not the only barrier. One in five SIM card users do not have a SIM registered in their own name and use someone else's instead. This is most prevalent in India and Pakistan and driven primarily by, but not limited to, having only primary education and being female.

Earlier research[26] by the GSMA has found that 157 countries have implemented mandatory SIM registration. All countries included in this study have SIM registration policies in place. Under such a policy, people are required to provide proof of ID in order to register for and own a SIM card (a mobile subscription) in their own name. Although it is still possible to access mobile services via someone else's SIM card, there are likely various limitations to full digital and financial inclusion that restrict users' ability to spend and freedom to participate fully in society via mobile.

Among the seven countries surveyed, about four in five SIM card users[27] have a SIM card registered in their own name. However, one in five do not and instead use a SIM card registered in someone else's name (see Figure 12). Given that the results of this study are nationally representative, this could equate to around 285 million people[28] using SIM cards registered in other people's names. Nigeria and Algeria have the highest levels of ownership of SIM cards registered in one's own name. India, meanwhile, has the lowest with 24 per cent of SIM card users (possibly up to 33 per cent, if those who answered "prefer not to answer" are considered) using a SIM card registered in someone else's name.

Official IDs tend to allow an individual to register a SIM card in their own name. Here, there is an ownership gap (of registered SIM cards) between those who have a national ID card (more likely to own one) and those who do not (less likely to own one). This gap varies by country and reaches up to 94 per cent in Kenya (see Figure 13). There are also large gaps in Bangladesh, India and Pakistan. Further analysis revealed that those who own a national ID card are significantly more likely (by 33 percentage points,

p<0.001)[29] to have a SIM card registered in their own name than those who do not, even when all other factors are controlled for (i.e. made equal)[30] (see Figure 19). Therefore, owning a national ID drives ownership of SIM cards registered in one's own name.

Looking at demographics, the ownership gap (of a SIM card registered in one's own name) between a head of household[31] and other household members (see Figure 14) climbs to 32 per cent in Pakistan with Bangladesh, India and Kenya also exhibiting large gaps. **Further analysis (see Figure 19) showed that this gap still exists even when other factors are controlled for.[32] A head of household was found to be significantly more likely (by seven percentage points, p<0.001) to own a SIM card registered in their own name than other household members.**

Among certain underserved groups, some demographics are less likely to own a SIM card registered in their own name than others. These groups include women, those with primary education only, persons with disabilities[33] and those who are unemployed (see Figures 15–18). There is a gender gap (see Figure 15) in all seven survey countries with the largest gaps in India and in Pakistan, where it reaches up to 42 per cent. There is also an employment gap (see Figure 16) between those who are employed and unemployed in every country, with Pakistan again standing out with a gap of 34 per cent. There is a disability gap (see Figure 17) between persons with disabilities and persons without disabilities in most countries, most notably in Nigeria at 30 per cent. Finally, there is a trend among those who only have primary education being much less likely to own a SIM card registered in their own name (see Figure 18).

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26   GSMA. (2021). Access to mobile services and proof of identity 2021.

27   SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets.

28   Estimate based upon an extrapolation of the nationally representative survey data from the seven countries and with reference to UN population data for 2020.

29   Statistical analysis (regression) shows, in this instance, that those with a national ID card are more likely to have a SIM card registered in their own name. p<0.001 means there is a less than 0.1% probability that this result occurred by chance, meaning this result is statistically highly significant. p<0.01 is a less than 1% probability and p<0.05 is a less than 5% probability. Both results are also considered statistically significant.

30   For example, the adoption gap in having a SIM card registered in one's own name between men and women still exists even when adoption is made equal across all other factors, such as between those working and not working or those in urban and rural areas. This means gender is a driver of the adoption gap.

31   A "head of household" is defined as someone who typically makes decisions for the household, and may also be the chief wage earner from paid work or any other form of income.

32   Ibid.

33   A "person with disabilities" is defined as a person who reports any acute difficulty ("a lot of difficulty") or complete inability ("cannot do at all") to perform one or more of the functional domains of the Washington Group Short Set of Disability Questions (see Appendices).

Further analysis revealed that these gaps remain even when all other factors are controlled for (i.e. made equal).[34] This means that the underserved groups mentioned earlier are still significantly less likely to own a SIM card registered in their own name and use someone else's instead (see Figure 19). Women are nine percentage points less likely than men (p<0.001) to own a SIM card registered in their own name, those with primary education only are nine percentage points less likely than those with degree or postgraduate education (p<0.001), persons with disabilities are seven percentage points less likely than persons without disabilities (p<0.001) and those who are unemployed are four percentage points less likely than those who are employed (p<0.001).

> These findings suggest that governments should balance mandatory SIM registration requirements with the prevalence and type of ID ownership in their country, and the ability of citizens to register for a SIM card and mobile subscription. The barriers faced by underserved demographic and socio-economic groups should also be considered.
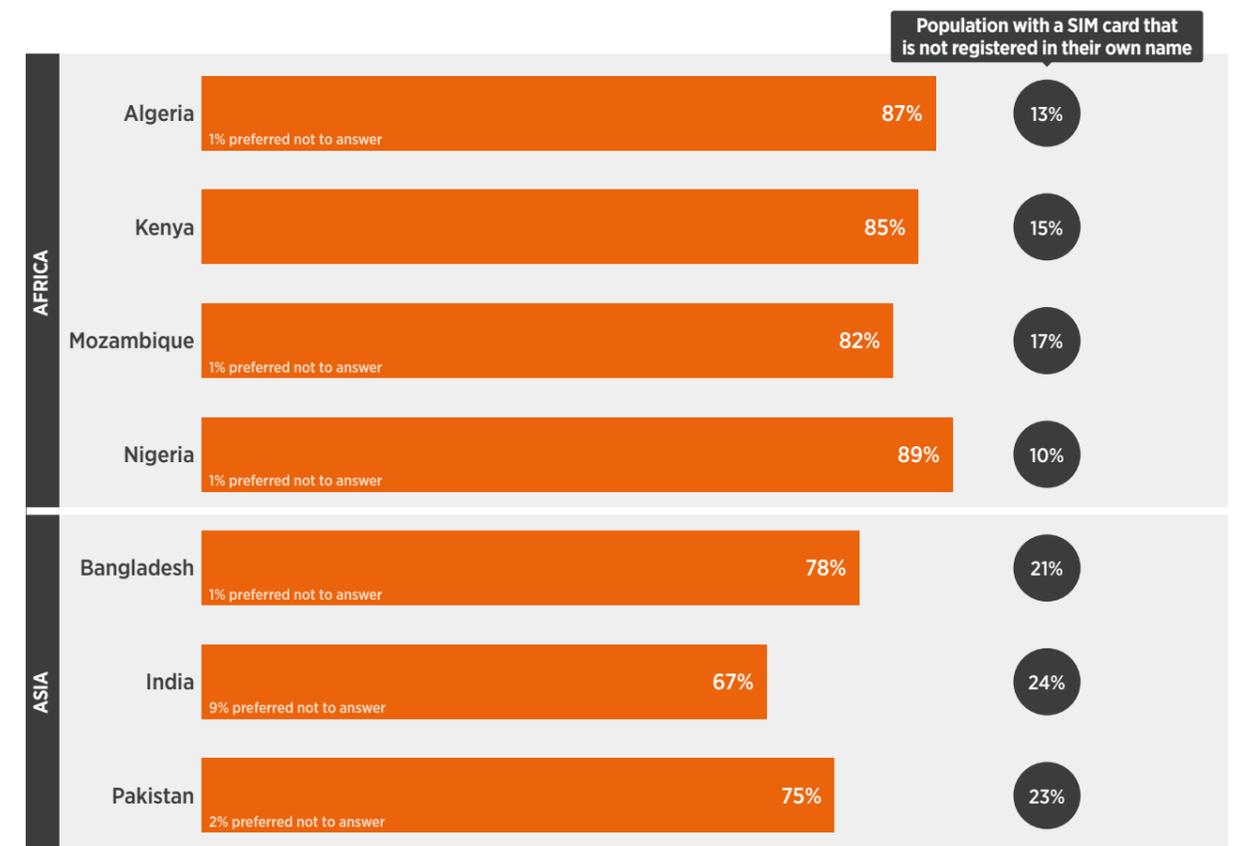
Access to a SIM card and mobile services in one's own name

Among the seven countries, around one in five respondents reported that they do not have a SIM card registered in their own name and use someone else's instead (see Figure 12). This reaches up to 24 per cent of respondents in India. Nine per cent of respondents from India preferred not to answer the question, masking a potentially higher number of people who rely on others' SIM cards.

Figure 12

Ownership of a SIM card registered in one's own name, by country
Percentage of total adult SIM card users

Population with a SIM card that is not registered in their own name

AFRICA			
Algeria	87% (1% preferred not to answer)	13%
Kenya	85%	15%
Mozambique	82% (1% preferred not to answer)	17%
Nigeria	89% (1% preferred not to answer)	10%

ASIA			
Bangladesh	78% (1% preferred not to answer)	21%
India	67% (9% preferred not to answer)	24%
Pakistan	75% (2% preferred not to answer)	23%

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+, n=545–1,451. Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020.

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34 For example, the adoption gap between men and women for having a SIM card registered in one's own name remains even when adoption is made equal across all other factors, such as between those who work and do not work or those in urban and rural areas. This means gender is a driver of the adoption gap.
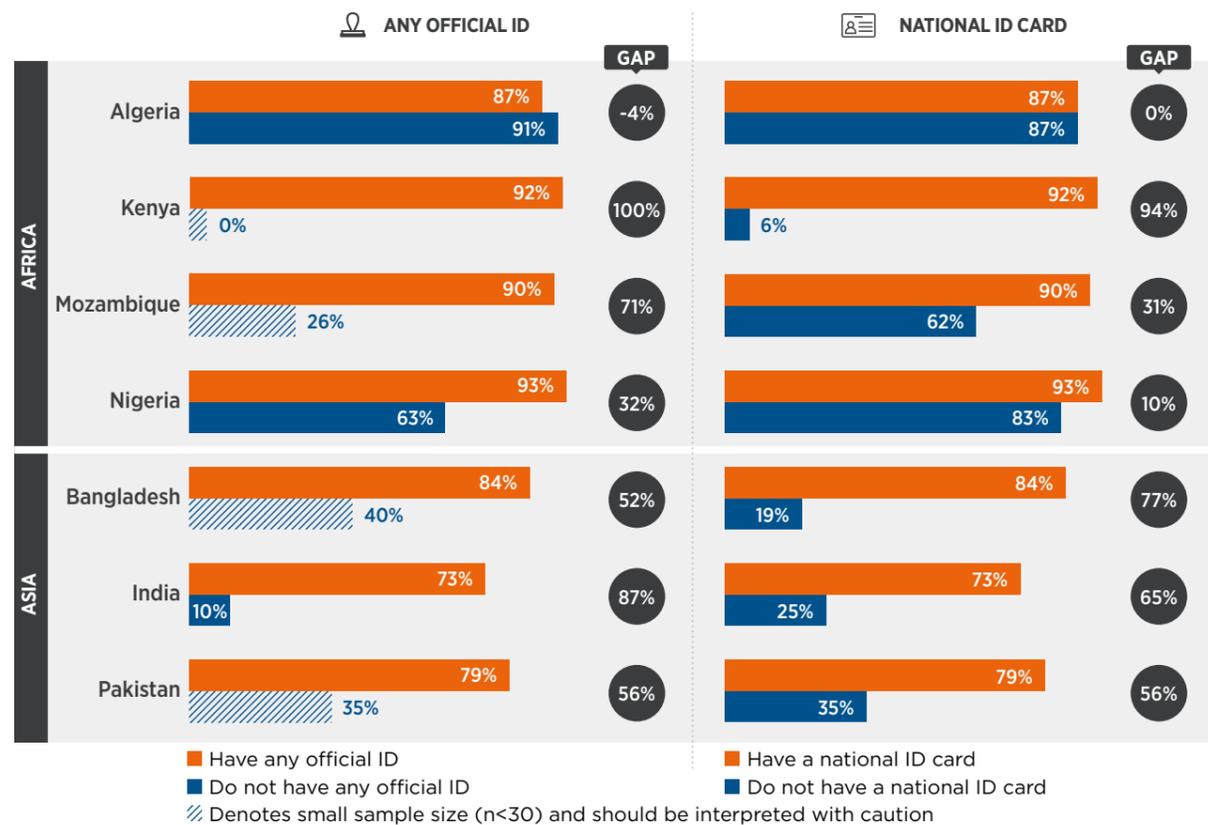
Identity gap

Individuals without an official ID[35] can face a barrier to registering a SIM card in their own name and accessing mobile services, particularly as national IDs become more common (e.g. Nigeria)[36] and required for mandatory SIM registration. However, for those without the requisite ID, alternative forms of ID are still accepted for SIM registration in some countries (as indicated in Figure 13 by the widening gaps between "any official ID" and "national ID card"). Various governments also relaxed ID requirements during the COVID-19 pandemic.[37] Among the seven survey countries (see Figure 13), there is an ownership gap (in registered SIM cards) between those who have an official ID (more likely to own one) and those who do not (less likely to own one). This gap is evident in all countries except Algeria and is prominent in Kenya, Bangladesh, India and Pakistan.

Ownership of a SIM card registered in one's own name, by ID adoption and country
Percentage of total adult SIM card users

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+; for Have any official ID n=518–1,327; for Do not have any official ID n=21–123; for Have a national ID card n=393–1,276; for Do not have a national ID card n=64–373. Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in someone else's name. The "identity gap" refers to how much less likely a person without official ID is to own a SIM card registered in their own name than a person with an official ID. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020.

Head-of-household gap

A head of household[38] is more likely to own a SIM card registered in their own name and have access to mobile services than other household members in all seven countries (see Figure 14). This is most evident in Pakistan and there are also significant gaps in India, Bangladesh and Kenya.

Ownership of a SIM card registered in one's own name by household status, by country
Percentage of total adult SIM card users

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+; for Head of household n=268–585; for Not head of household n=240–866. Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. The head-of-household gap refers to how much less likely another household member is to own a SIM card registered in their own name than the head of household. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020.

35 "Official ID" is defined as government-recognised or government-issued ID documents that prove who you are, such as birth certificates national ID cards or another form of official ID.
36 NIMC. (2 February 2021). Federal Government Lauds Citizens, Extends NIN-SIM Linkage Deadline by 8 Weeks.
37 Lowe, C. et al. (2021). Digital identity: accelerating financial inclusion during a crisis. GSMA.
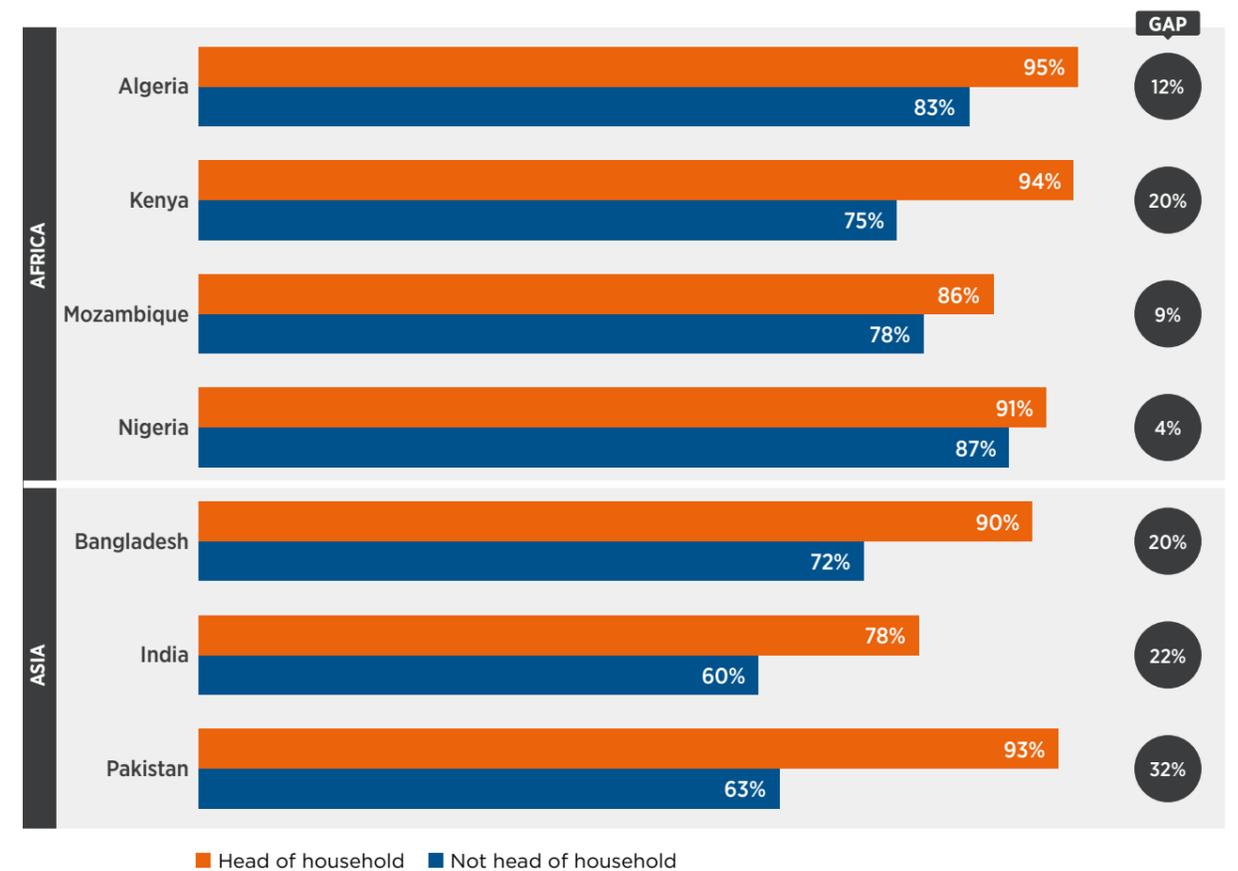
38 A "head of household" is defined as someone who typically makes decisions for the household, and may also be the chief wage earner from paid work or any other form of income.

Several underserved groups are less likely to own a SIM card registered in their own name and use someone else's instead.
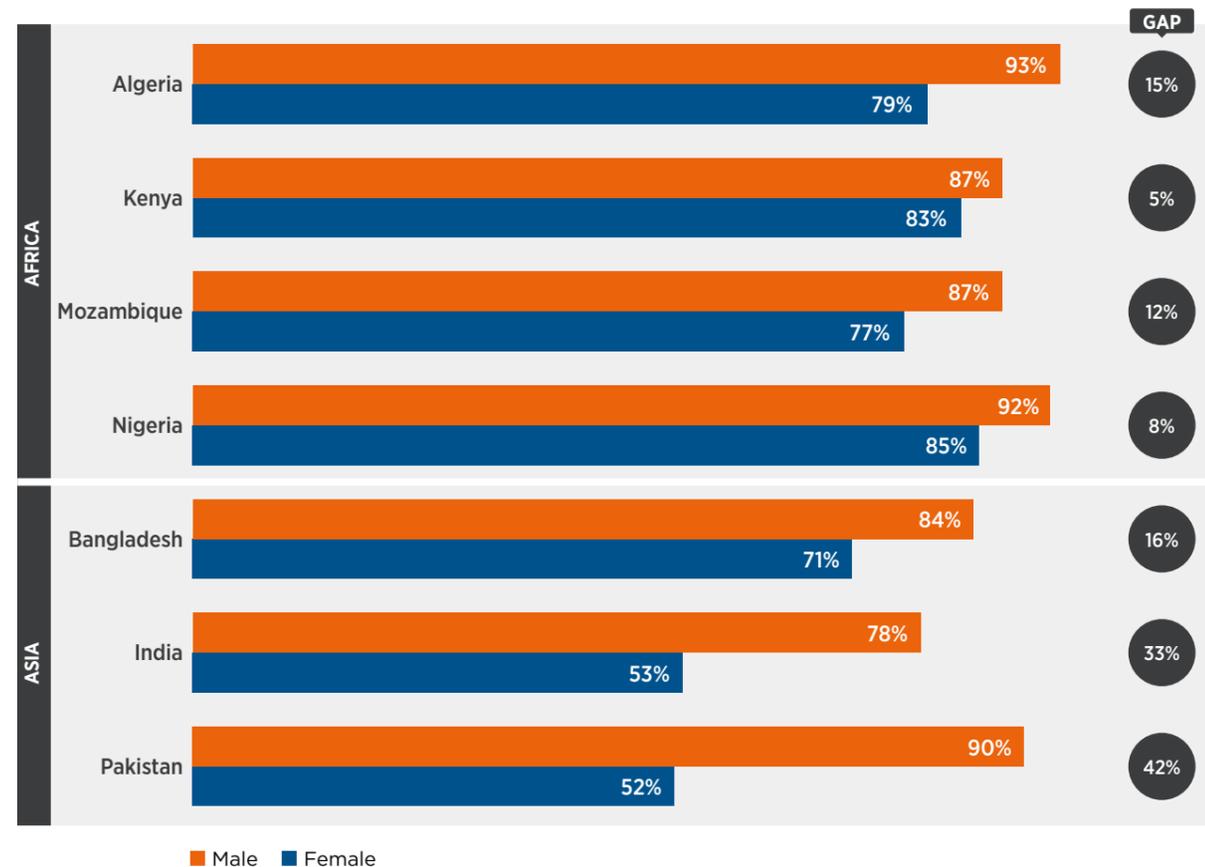
Gender gap

Women are disadvantaged in every country surveyed and, compared with men, are much less likely to have registered a SIM card in their own name. The widest gender gaps are in Pakistan and India (see Figure 15).

Ownership of a SIM card registered in one's own name by gender, by country
Percentage of total adult SIM card users

		GAP
AFRICA		
Algeria	Male 93% / Female 79%	15%
Kenya	Male 87% / Female 83%	5%
Mozambique	Male 87% / Female 77%	12%
Nigeria	Male 92% / Female 85%	8%
ASIA		
Bangladesh	Male 84% / Female 71%	16%
India	Male 78% / Female 53%	33%
Pakistan	Male 90% / Female 52%	42%

■ Male ■ Female

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+; for Male n=294–817; for Female n= 251–633. Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. The "gender gap" refers to how much less likely a woman is to own a SIM card registered in their own name than a man. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020.
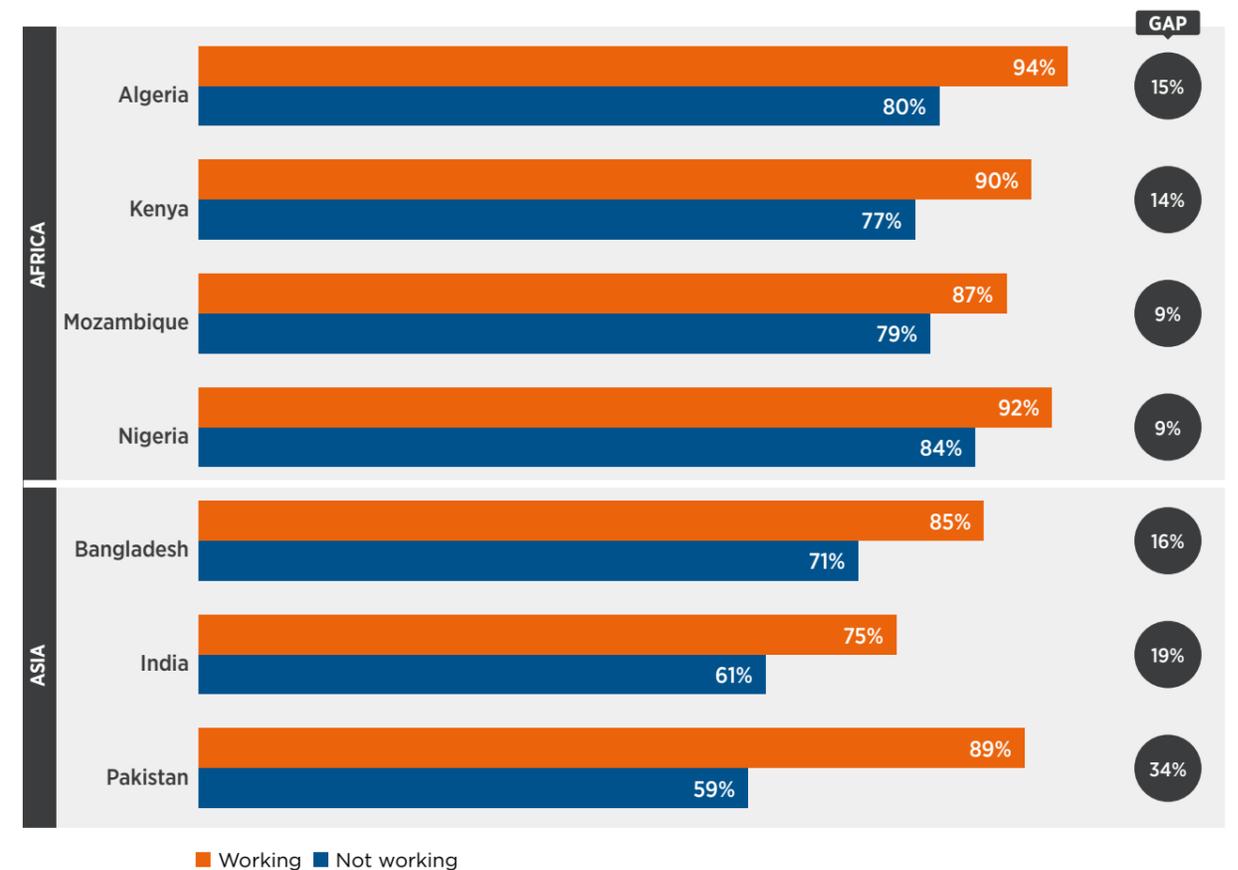
Employment gap

Across all seven countries, those who are unemployed are much less likely to have a SIM card registered in their own name than those who are employed, especially in Pakistan and India (see Figure 16).

Ownership of a SIM card registered in one's own name by employment status, by country
Percentage of total adult SIM card users

		GAP
AFRICA		
Algeria	Working 94% / Not working 80%	15%
Kenya	Working 90% / Not working 77%	14%
Mozambique	Working 87% / Not working 79%	9%
Nigeria	Working 92% / Not working 84%	9%
ASIA		
Bangladesh	Working 85% / Not working 71%	16%
India	Working 75% / Not working 61%	19%
Pakistan	Working 89% / Not working 59%	34%

■ Working ■ Not working

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+; for Male n=294–817; for Female n= 251–633. Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. The "gender gap" refers to how much less likely a woman is to own a SIM card registered in their own name than a man. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020.
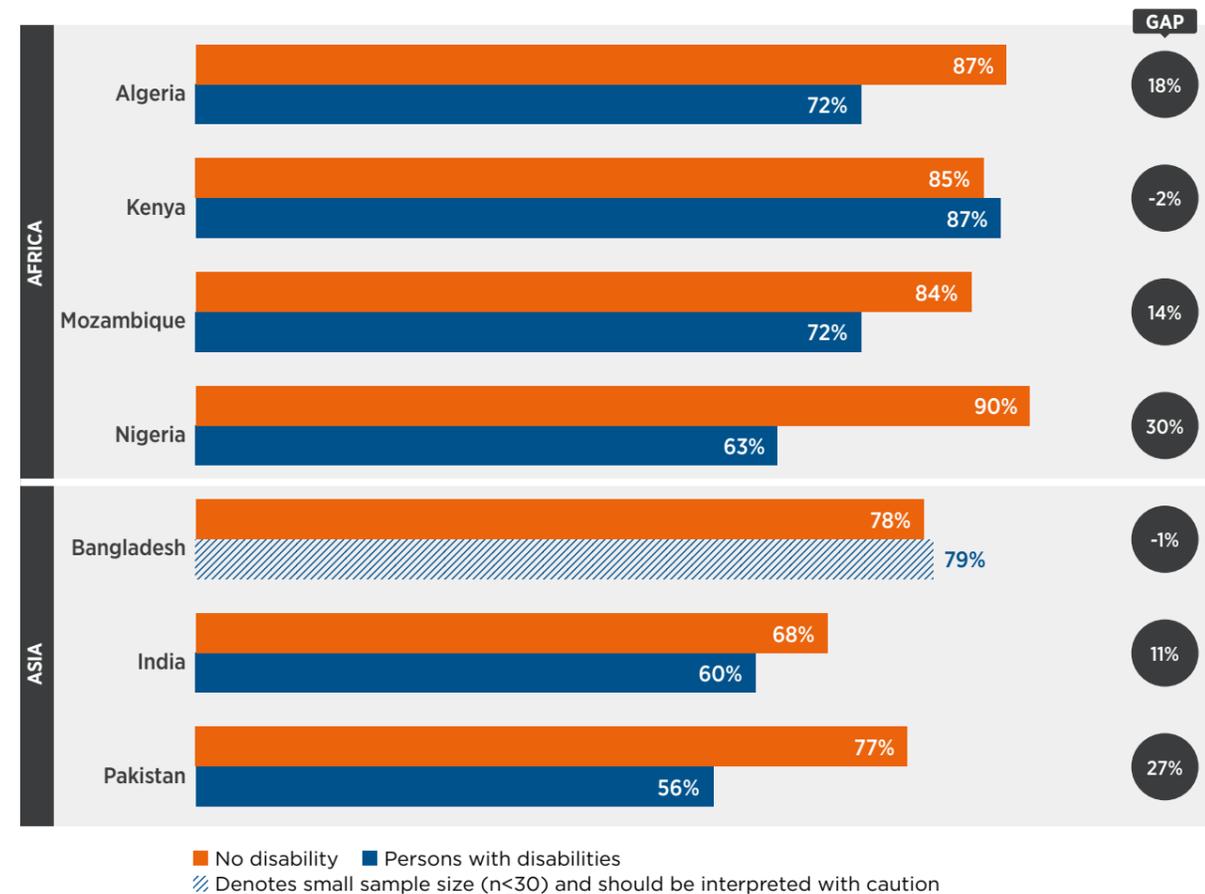
Disability gap

Persons with disabilities,[39,40] are less likely to have a SIM card registered in their own name in all countries except Kenya (see Figure 17). Nigeria and Pakistan have the widest gaps.

Ownership of a SIM card registered in one's own name by disability status, by country
Percentage of total adult SIM card users

AFRICA

		GAP
Algeria	No disability 87% / Persons with disabilities 72%	18%
Kenya	No disability 85% / Persons with disabilities 87%	-2%
Mozambique	No disability 84% / Persons with disabilities 72%	14%
Nigeria	No disability 90% / Persons with disabilities 63%	30%

ASIA

		GAP
Bangladesh	No disability 78% / Persons with disabilities 79%	-1%
India	No disability 68% / Persons with disabilities 60%	11%
Pakistan	No disability 77% / Persons with disabilities 56%	27%

■ No disability ■ Persons with disabilities
▨ Denotes small sample size (n<30) and should be interpreted with caution

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+; for No disability n=488–1,301; for Persons with disabilities n=17–150. Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. The "disability gap" refers to how much less likely a person with disabilities is to own a SIM card registered in their own name than a person with no disability. See Appendices for gap calculation. Source: GSMA Consumer Survey 2020.
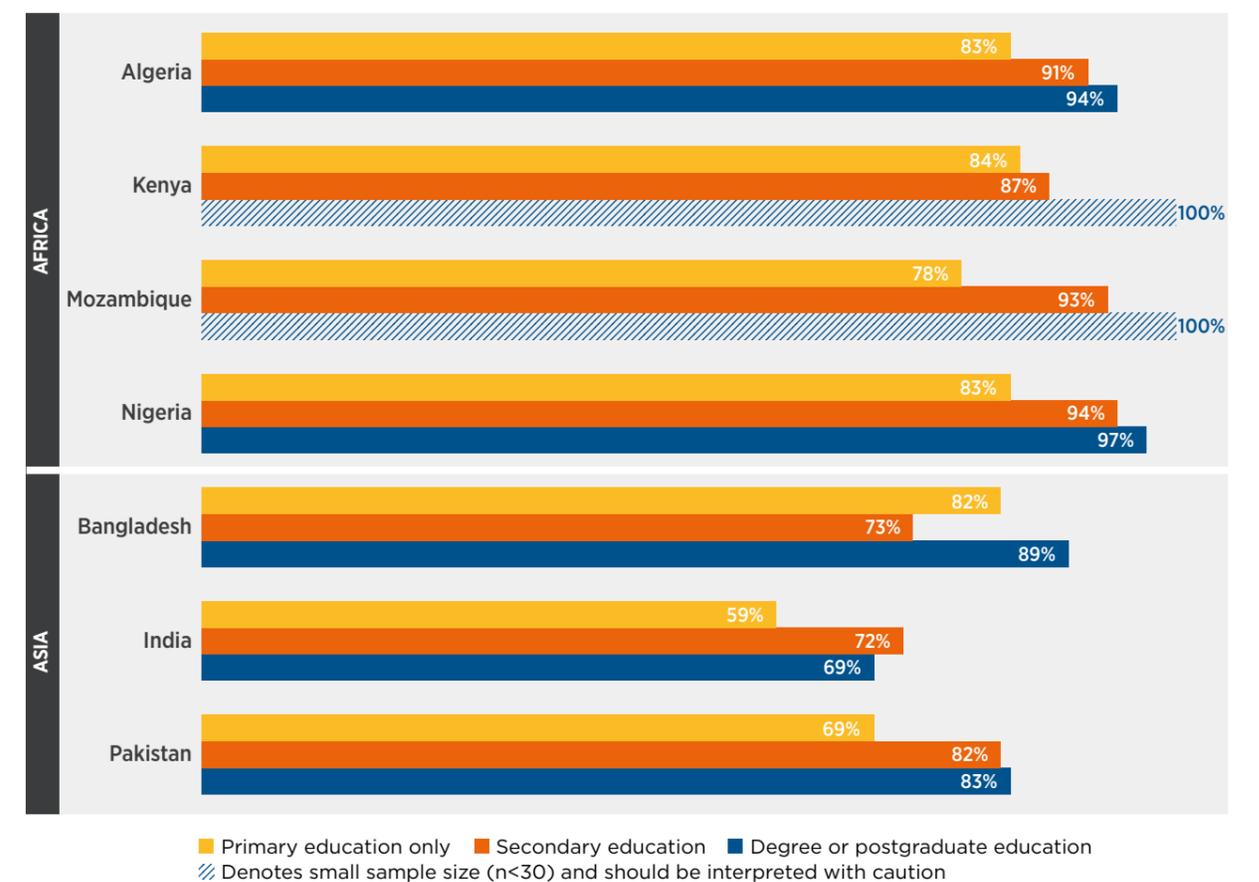
Education

Across all countries surveyed, there is a trend linking attainment of higher education levels to a greater likelihood of having a SIM card registered in one's own name (see Figure 18).

Ownership of a SIM card registered in one's own name by education level, by country
Percentage of total adult SIM card users

AFRICA

	Primary	Secondary	Degree
Algeria	83%	91%	94%
Kenya	84%	87%	100%
Mozambique	78%	93%	100%
Nigeria	83%	94%	97%

ASIA

	Primary	Secondary	Degree
Bangladesh	82%	73%	89%
India	59%	72%	69%
Pakistan	69%	82%	83%

■ Primary education only ■ Secondary education ■ Degree or postgraduate education
▨ Denotes small sample size (n<30) and should be interpreted with caution

Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+; for all education levels n=17–767 Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. Source: GSMA Consumer Survey 2020.

39   A "person with disabilities" is defined as a person who reports any acute difficulty ("a lot of difficulty") or complete inability ("cannot do at all") to perform one or more of the functional domains of the Washington Group Short Set of Disability Questions (see Appendices).

40   See: www.gsma.com/mobilefordevelopment/assistive-tech/

Predictors of having a SIM card registered in one's own name

The previous section (Figures 13–18) highlighted gaps in ownership of a SIM card registered in one's own name between different demographic and socio-economic groups. However, deeper analysis revealed that only some of these gaps remained when other related factors were controlled for (i.e. made equal),[41] such as age and education (see Figure 19).
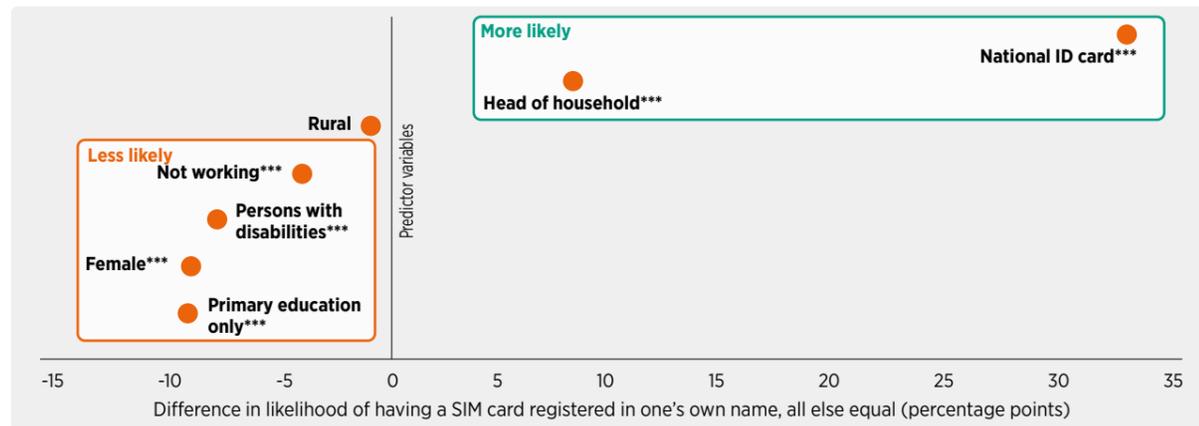
For that reason, this study has found that the following underserved groups are significantly less likely to have a SIM card registered in their own name (and use someone else's SIM card instead):

• **Those with primary education only** (nine percentage points less likely than those with degree or postgraduate education, p<0.001);

• **Women** (nine percentage points less likely than men, p<0.001);

• **Persons with disabilities** (seven percentage points less likely than persons with no disability, p<0.001); and

• **Those who are unemployed** (four percentage points less likely than those who are employed, p<0.001).

Based on this data, we can be confident that these factors drive the ownership gap.

Moreover, there are two groups that are significantly more likely to have a SIM card registered in their own name (and drive SIM card ownership):

• **Those who have a national ID card** (33 percentage points more likely than those who do not have one, p<0.001); and

• **Heads of household** (seven percentage points more likely than other household members, p<0.001).

Figure 19

Predictors of having a SIM card registered in one's own name[42]
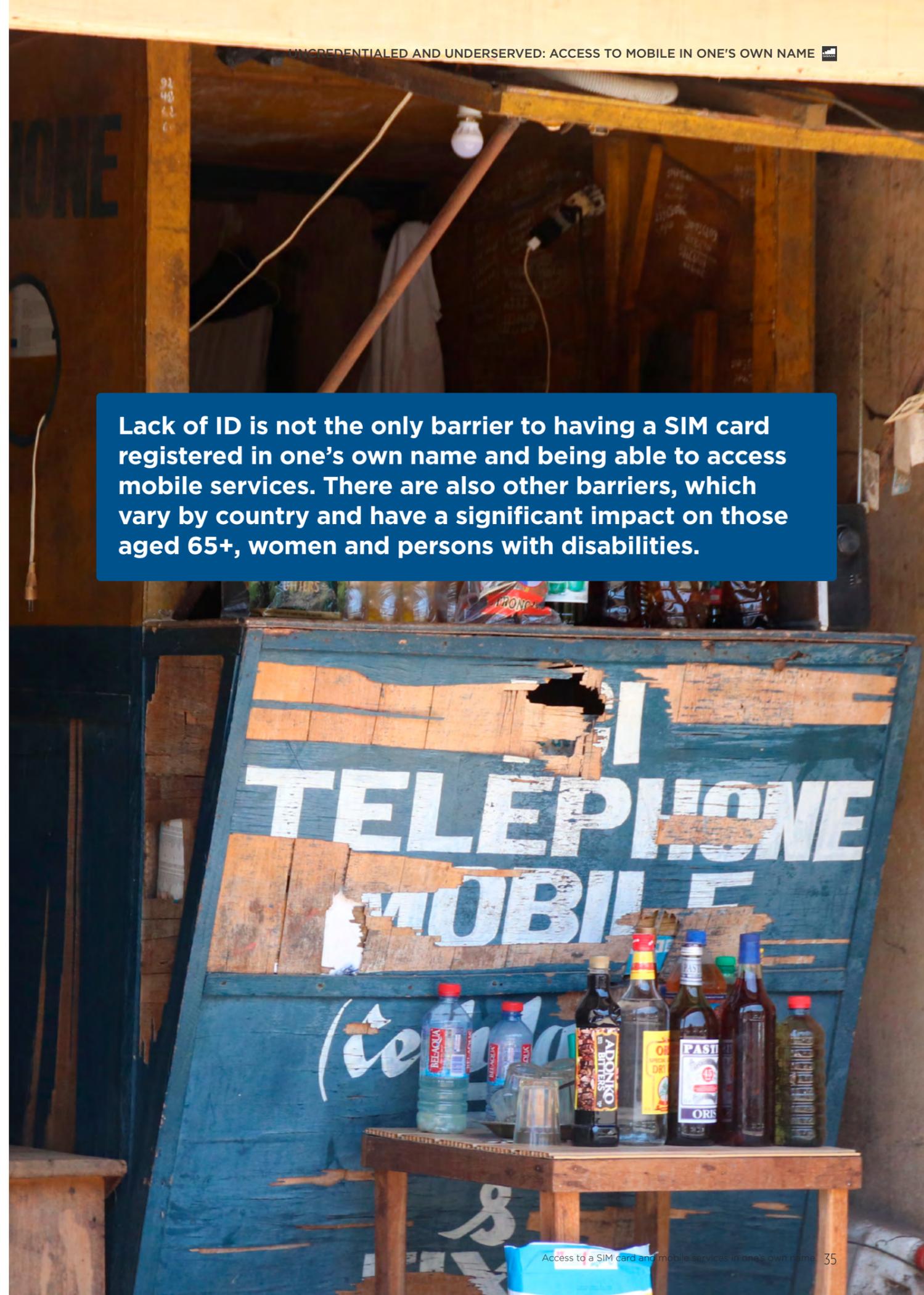Aggregate of seven countries

Base: All adult SIM card users aged 18+, n = 6,037 for all seven countries aggregated (individual country results may differ). Sample: Nationally representative (Algeria, Bangladesh, India, Kenya, Mozambique, Nigeria and Pakistan). Note: SIM card users are defined as those that have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Note: Where an individual presents official ID documents during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. Note: = *p<0.05, ** p<0.01 and ***p<0.001 indicate the significance level of results. Results without a star symbol indicate statistically insignificant variables. Note: These regressions include all seven countries – results may differ by country; the marginal effect of "primary education only" is relative to the base category "degree or postgraduate education". All other variables are binary. Note: Results are "marginal effects" and have been multiplied by 100 (and rounded to the nearest percentage point) to obtain the percentage point change in the probability of adoption of technology (SIM card registered in one's own name). Results shown are when other relevant socio-economic and demographic factors are controlled for. Source: GSMA Consumer Survey 2020

41   For example, the gap between men and women remains even when ownership of a SIM card registered in one's own name is made equal across all other factors, such as between those who are working and those who are not or those in urban and rural areas. This means gender is a driver of the gap in ownership of a SIM card registered in one's own name.

42   See Appendices for detailed methodology.

Lack of ID is not the only barrier to having a SIM card registered in one's own name and being able to access mobile services. There are also other barriers, which vary by country and have a significant impact on those aged 65+, women and persons with disabilities.

> This study has uncovered the scale of an issue: that potentially hundreds of millions of people are using SIM cards (mobile subscriptions) registered in someone else's name (see section 3). This suggests that these people might never be fully in control of how they use and pay for their mobile service. They might also never be able to access mobile services in their own name and achieve full digital and financial inclusion.

Further analysis of a typical household in the seven survey countries has confirmed the prevalence of this, especially in Bangladesh, India and Pakistan. About three in four adult respondents in all seven countries (2.1 billion people)[43] say they use a SIM card. Yet, among these, one in five (285 million people)[44] say they do not have a SIM card registered in their own name and use someone else's instead. The problem is magnified by one in four adult respondents also saying that other adult men and women in their household do not have a SIM card registered in their own name and use someone else's instead (see Figure 20).

Looking at barriers, there are various reasons why people do not have a SIM card registered in their own name and use someone else's instead (see Table 1). Results from this study show that country contexts vary considerably and results differ. ID is a notable and sometimes clear barrier to a mobile user progressing through SIM registration to successfully registering a SIM card in their own name (see Figures 13 and 19). Yet, it is not the only barrier that respondents mentioned.

In general, the main reasons people in the seven countries do not have a SIM card registered in their own name are that they use a SIM card registered by a family member or friend, they do not have an official ID required for SIM registration or a family member has deemed it inappropriate for them to register for a SIM card in their own name. Interestingly, around one in five respondents[45] said they do not know why they do not have a SIM card registered in their own name, suggesting a possible lack of awareness of being able to register for a SIM card and access mobile services in their own name. This implies that MNOs and governments may need to raise awareness of the range of benefits to be gained from accessing mobile services in one's own name.

These barriers differ widely in each country. In Algeria, Mozambique, Nigeria and Bangladesh, respondents said they do not have a SIM card registered in their own name primarily because they use a SIM registered by a family member or friend. In Kenya and Mozambique, a common explanation was that people do not have the official ID to meet SIM registration requirements. In Algeria, India and Pakistan, there is a tendency for family members to deem it inappropriate for one to register a SIM card in their own name.

Also of concern is that in India 39 per cent[46] "don't know" why they do not have a SIM card registered in their own name. This may be due to a prevailing culture of males, husbands or heads of household providing SIM cards (mobile subscription) that results in little or no awareness that one can register for their own SIM card and access mobile services in their own name. Alternatively, there may be some reluctance to answering the survey question honestly because identity is a potentially sensitive topic, as highlighted by the recent Supreme Court case in India concerning the national ID system, Aadhaar, and civil liberties.[47,48]
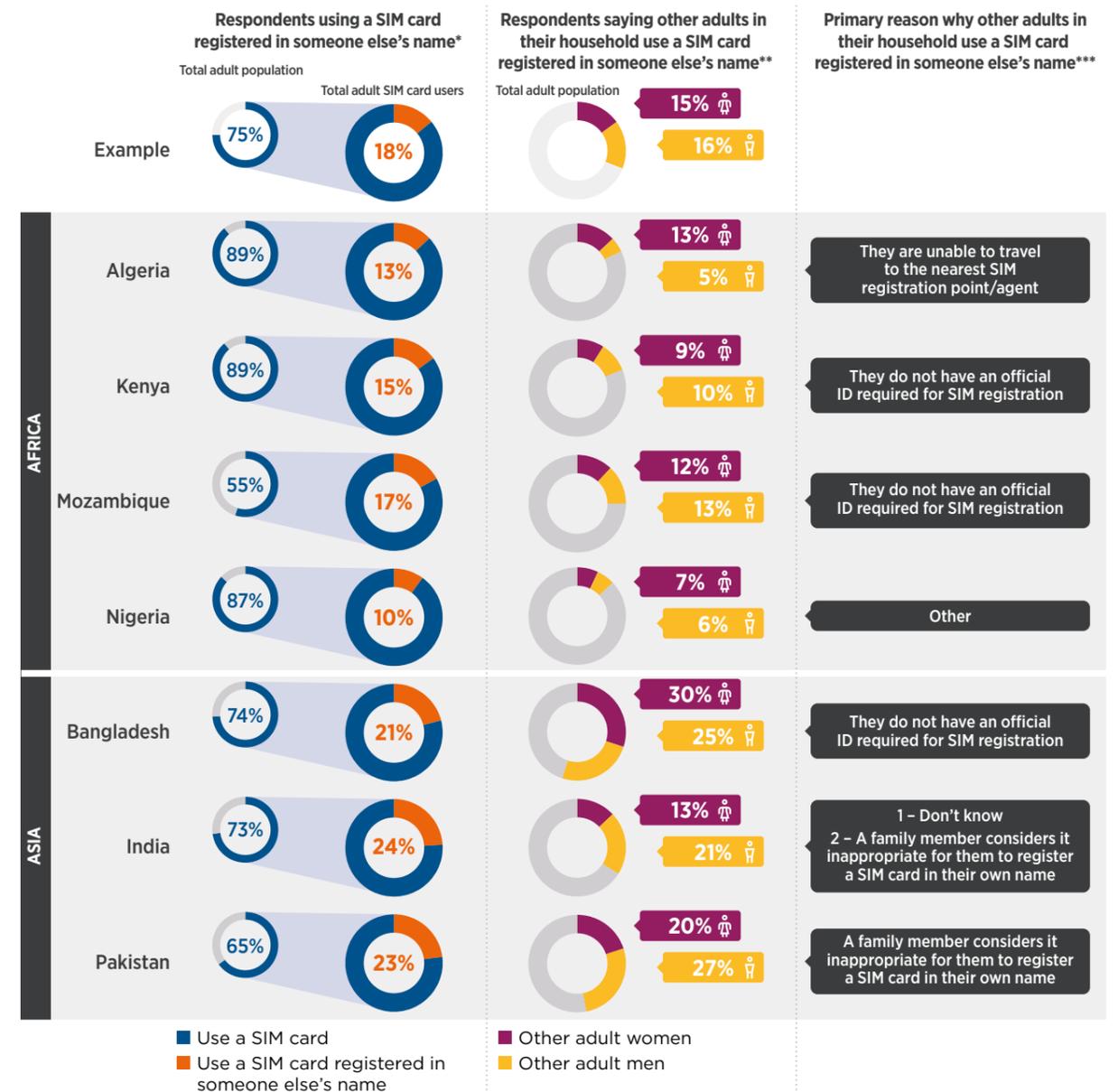
In terms of barriers for different socio-economic and demographic groups (see Table 2), those aged 65+ and women are significantly more likely to use someone else's SIM card (mobile subscription) and not have one registered in their own name, which appears to be due to cultural and family-related barriers. Moreover, persons with disabilities are significantly more affected by their inability to travel to register a SIM card in their own name.

On the positive side, some socio-economic and demographic groups are less likely to experience barriers to ownership and registering a SIM card in their own name. Those aged 65+ and in the 25–34 age group are significantly less likely to lack an official form of ID required for SIM registration while those in rural locations are less likely to use a family member's or friend's SIM card.

1 in 4 people say other adults in their household do not have a SIM card registered in their own name and instead use someone else's.

Figure 20

Household composition: those without SIM cards registered in their own name

Region	Country	Use a SIM card (Total adult population)	Use a SIM card registered in someone else's name (Total adult SIM card users)	Other adult women	Other adult men	Primary reason why other adults in their household use a SIM card registered in someone else's name***
	Example	75%	18%	15%	16%	
AFRICA	Algeria	89%	13%	13%	5%	They are unable to travel to the nearest SIM registration point/agent
	Kenya	89%	15%	9%	10%	They do not have an official ID required for SIM registration
	Mozambique	55%	17%	12%	13%	They do not have an official ID required for SIM registration
	Nigeria	87%	10%	7%	6%	Other
ASIA	Bangladesh	74%	21%	30%	25%	They do not have an official ID required for SIM registration
	India	73%	24%	13%	21%	1 – Don't know 2 – A family member considers it inappropriate for them to register a SIM card in their own name
	Pakistan	65%	23%	20%	27%	A family member considers it inappropriate for them to register a SIM card in their own name

Legend:
- Use a SIM card
- Use a SIM card registered in someone else's name
- Other adult women
- Other adult men

*The left-hand chart shows the percentage of the total adult population (all respondents) using a SIM card; the right-hand chart shows, among those adults using a SIM card, the percentage who use a SIM card registered in someone else's name. For the total adult population (all respondents) n=1,000–2,000. For the right-hand chart/population: Question: Typically, when you register a SIM card in your own name you are required to show your ID documents. Do you have a SIM card registered in your name? Base: All adult SIM card users aged 18+, n=545–1,451 (including those responding "yes" and "prefer not to answer"). Sample: Nationally representative Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. **Question: Are any other adult members of your household the primary user of a SIM card that is registered in someone else's name? Base: All respondents aged 18+, n=1,000–2,000 (including those responding with "no" and "prefer not to answer"). Sample: Nationally representative. ***Question: Which of the following best describes why they do not have a SIM card registered in their own name? Base: All respondents aged 18+ who know of other members of their household using SIM cards registered in another person's name, n=107–562 (including those responding "prefer not to answer"). Sample: Nationally representative. Note: Due to research limitations, a wider variety of barriers could not be examined and warrant further investigation. Here, "Other" may refer to affordability, relevance, awareness, literacy and skills or safety and security. Source: GSMA Consumer Survey 2020

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43 Based on UN population data for 2020.
44 Estimate based on an extrapolation of the nationally representative survey data in seven countries and with reference to UN population data for 2020.
45 Base: all adults aged 18+ using a SIM card that is not registered in their own name
46 Ibid.
47 See: https://dot.gov.in/sites/default/files/29-09-2020.pdf?download=1
48 Pisa, M. and Woodsome, J. (7 February 2019). Overcoming the "Know Your Customer" Hurdle with E-KYC. Center for Global Development.

Reasons why people do not have a SIM card registered in their own name and use someone else's instead

While a lack of official ID is indeed a barrier to accessing a SIM and mobile services in one's own name, it was not the only barrier. Various other barriers were cited by respondents and they vary by country (see Table 1).

Table 1

Reasons why people do not have a SIM card registered in their own name and use someone else's instead, by country
Percentage of respondents who have a SIM card that is not registered in their own name

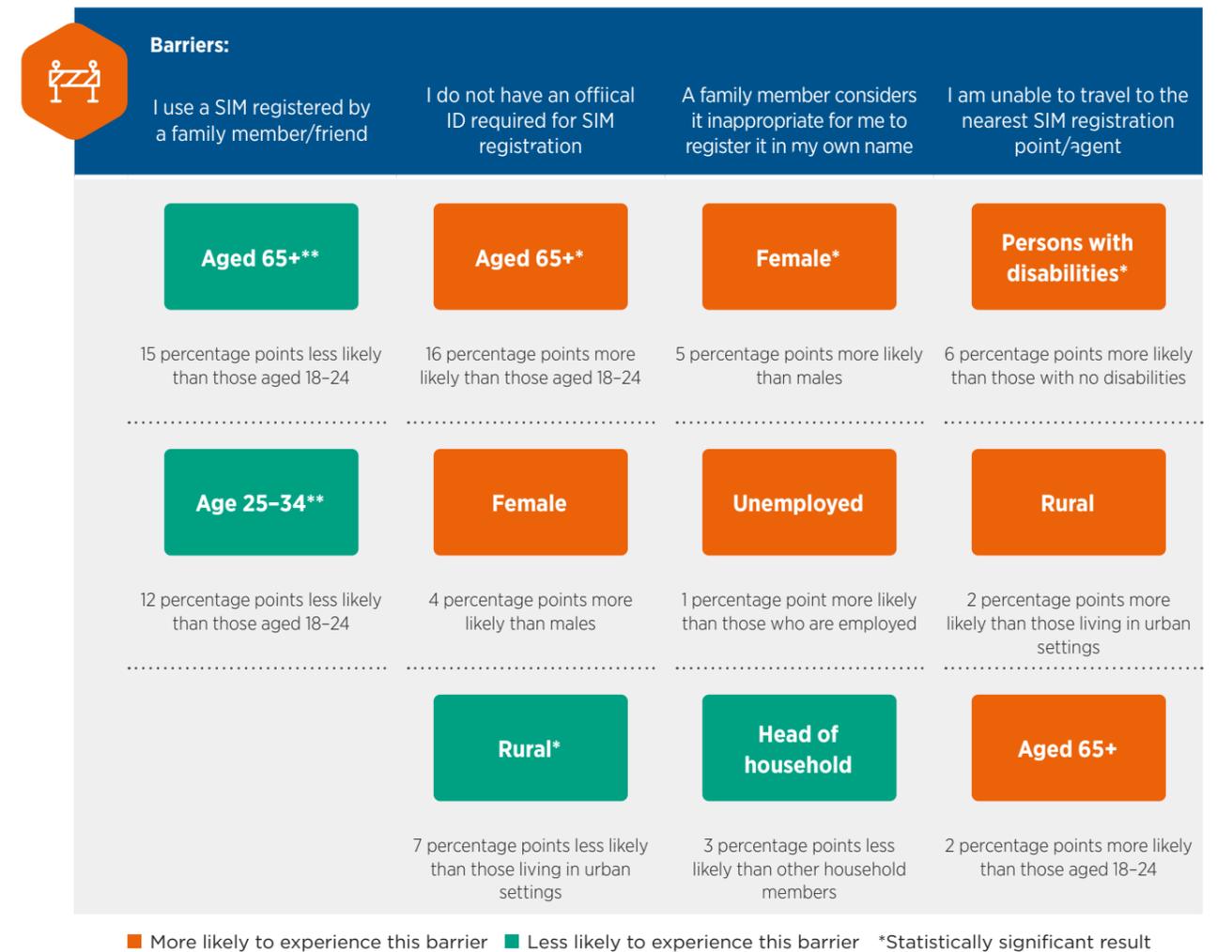|	Barriers:	I use a SIM registered by a family member/friend	I do not have an offiical ID required for SIM registration	A family member considers it inappropriate for me to register it in my own name	I am unable to travel to the nearest SIM registration point/agent	Other	Don't know
AFRICA	Algeria	33%	5%	24%	5%	18%	14%
	Kenya	51%	61%	4%	3%	7%	1%
	Mozambique	47%	23%	9%	10%	16%	9%
	Nigeria	50%	16%	4%	3%	19%	14%
ASIA	Bangladesh	49%	14%	10%	6%	17%	8%
	India	21%	7%	18%	6%	7%	39%
	Pakistan	33%	15%	36%	4%	2%	14%

Question: You said you have the sole or main use of a SIM card but that it isn't registered in your name. Which of the following best describes why this is? Base: All adults aged 18+ using a SIM card that is not registered in their own name, n=90–349 (including those responding "prefer not to answer"). Sample: Nationally representative. Note: SIM card users are defined as those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets. Where an individual presents official IDs during mandatory SIM registration, and these are accepted, the individual now owns a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name. Note: Due to research limitations, a wider variety of barriers could not be examined and warrant further investigation. Here, "Other" may refer to affordability, relevance, awareness, literacy and skills or safety and security. Source: GSMA Consumer Survey 2020.

Reasons why certain demographic and socio-economic groups do not have a SIM card registered in their own name and use someone else's instead

The socio-economic and demographic groups investigated in this study are affected differently by certain barriers to registering a SIM card in their own name. Those aged 65+, women and persons with disabilities experience the most negative impacts (see Table 2).

Table 2

Barriers experienced by certain demographic and socio-economic groups that could account for why they do not have a SIM card registered in their own name and use someone else's instead

Barriers:	I use a SIM registered by a family member/friend	I do not have an offiical ID required for SIM registration	A family member considers it inappropriate for me to register it in my own name	I am unable to travel to the nearest SIM registration point/agent
	Aged 65+** 15 percentage points less likely than those aged 18–24	**Aged 65+*** 16 percentage points more likely than those aged 18–24	**Female*** 5 percentage points more likely than males	**Persons with disabilities*** 6 percentage points more likely than those with no disabilities
	Age 25–34** 12 percentage points less likely than those aged 18–24	**Female** 4 percentage points more likely than males	**Unemployed** 1 percentage point more likely than those who are employed	**Rural** 2 percentage points more likely than those living in urban settings
	Rural* 7 percentage points less likely than those living in urban settings	**Head of household** 3 percentage points less likely than other household members	**Aged 65+** 2 percentage points more likely than those aged 18–24

■ More likely to experience this barrier   ■ Less likely to experience this barrier   *Statistically significant result

Question: You said you have the sole or main use of a SIM card but that it isn't registered in your name. Which of the following best describes why this is? Base: All adults aged 18+ using a SIM card that is not registered in their own name, n=1,078 for all seven countries aggregated. Sample: Nationally representative (Algeria, Bangladesh, India, Kenya, Mozambique, Nigeria and Pakistan). Note: *p<0.05, **p<0.01 and ***p<0.001 indicate the significance level of results. Although they do show an effect (i.e. there is a gap) when other factors are controlled for, results without a star symbol indicate statistically insignificant variables. These regressions include all seven countries and results may differ by country. The marginal effects of the age brackets 25–34 and 65+ are relative to the base category 18–24. All other variables are binary. Results are marginal effects and ascertain the change in the probability of reporting a barrier. Results shown are when other relevant socio-economic and demographic factors are controlled for. Note: Due to research limitations, a wider variety of barriers could not be examined and warrant further investigation. Source: GSMA Consumer Survey 2020.

4

Awareness of and willingness to adopt ID-linked mobile services

Awareness of mobile services that require an ID to use or access them is low. However, many people, especially in Nigeria and Kenya, are willing to adopt these services, which include mobile financial services, health services and government or social benefit payments.

Awareness of and willingness to adopt ID-linked mobile services

This research has shown that ID itself is a barrier (among others) to registering a SIM card and accessing mobile services in one's own name (see Figures 13 and 19). Certain demographic and socio-economic groups are negatively affected by a lack of ID and other barriers that prevent them from being fully empowered to access and use mobile services freely. Due to these barriers, these individuals either cannot access mobile at all or their access to mobile services is arguably limited because they use a SIM card (mobile subscription) registered in someone else's name.

Mobile services that require proof of identity can be life enhancing. MNOs are keen to invest in improving SIM registration and KYC registration processes to ensure smoother, barrier-free on-boarding and service access for customers and potential customers,[49] and they are also investing in new ID-linked mobile services. Moreover, progressive governments, through conducive policies enacted during the COVID-19 pandemic, have relaxed on-boarding criteria for SIM cards and mobile (SIM registration and KYC). This has helped to register more customers to mobile accounts, many of whom were previously unable to access mobile because they lacked the requisite ID or faced other socio-economic barriers.[50]

This research has revealed that in the seven survey countries, awareness of mobile services that require an ID to access or use the service is low, ranging from only 20 to 31 per cent of respondents (see Figure 21). These numbers may well be higher in India and Algeria where identity might be a contentious issue, given that eight to 19 per cent preferred not to answer this question.

Despite this, willingness to adopt mobile services that require an MNO to verify their ID is high among those aware of such services, with 72 to 95 per cent of respondents saying they were "very likely" or "fairly likely" to adopt these services (see Figure 22). This suggests there may be a high level of trust in MNOs among consumers in these countries, with Nigerians expressing the most positive responses and Pakistanis the least.

During the COVID-19 pandemic there was a significant increase in government and social benefit payments, many of which were disbursed via mobile.[51] This research shows a small proportion (six to 20 per cent) received such benefits, with up to two per cent reporting they received them via mobile money (see Figure 23). The number of beneficiaries might be higher, however, given that up to 23 per cent preferred not to answer.

Among those who have received benefits, many (22 to 86 per cent) would prefer to receive them via mobile if their MNO could verify their identity digitally rather than in person (see Figure 23). This question was also asked of those who do not receive benefits, and 23 to 86 per cent said that if they were a beneficiary they would also prefer to receive them via mobile, suggesting there is confidence in using mobile for benefit payments.

Overall, there appears to be a need to more heavily promote the benefits, safety and security of mobile services since they are linked to one's identity and personal details (e.g. for SIM registration, KYC or app registration). Considering the willingness to adopt ID-linked mobile services, MNOs appear to be trusted and well placed to promote the benefits of digital inclusion in partnership with government and others in the development community.

49   Lowe, C. and Theodorou, Y. (2021). Commercially sustainable roles for mobile operators in digital ID ecosystems. GSMA.
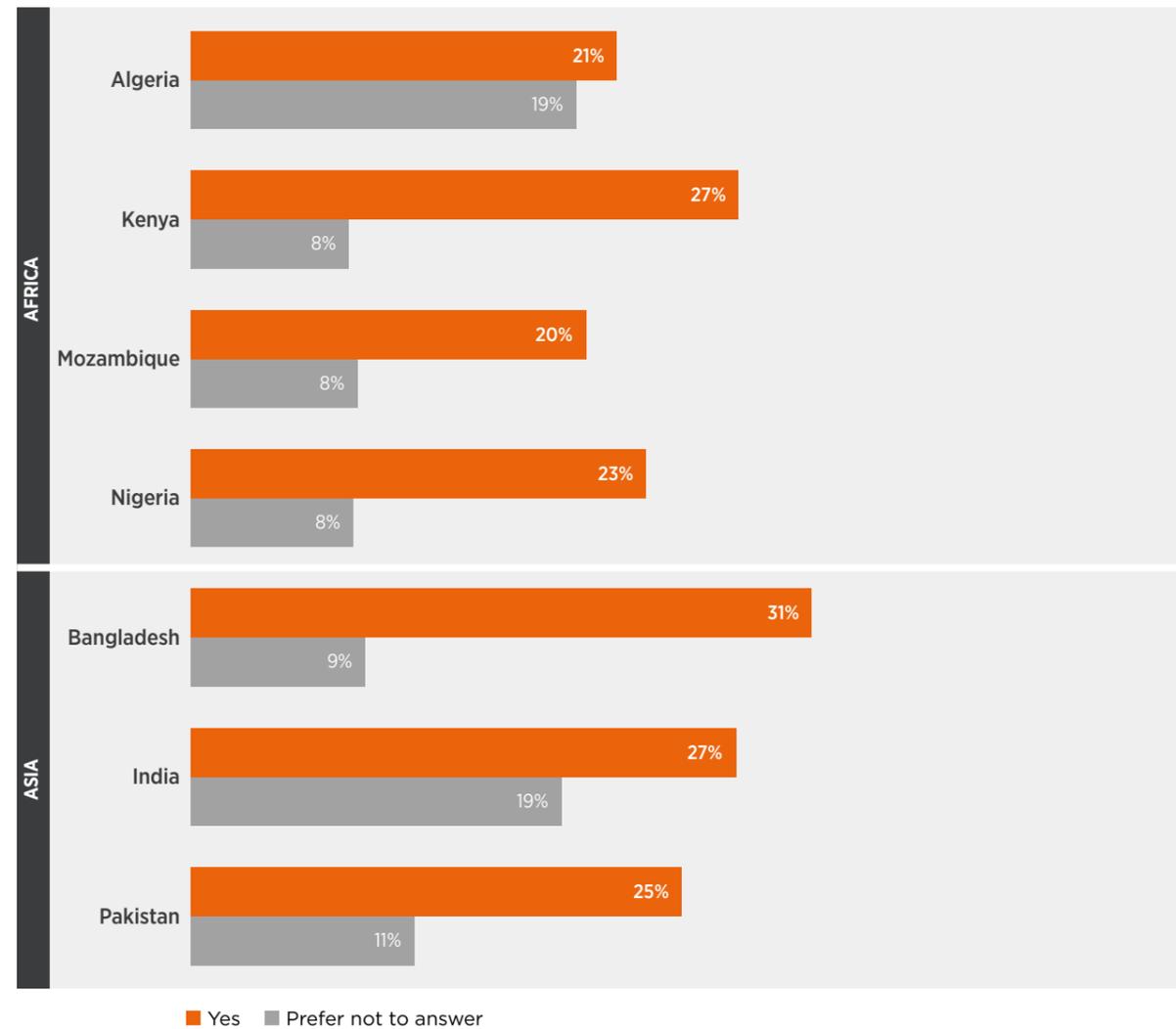50   Lowe, C. et al. (2021). Digital identity: accelerating financial inclusion during a crisis. GSMA.
51   GSMA. (2021). State of the industry report on mobile money 2021.

Awareness of ID-linked mobile services remains low in all countries

Awareness of mobile services[52] that require an ID to use or access the service, by country

Percentage of total adult population

■ Yes ■ Prefer not to answer

Question: Are you aware of any services, such as some health care and banking services, that require proof of identity when using or accessing the service on a mobile phone? Base: All respondents aged 18+, n=1,000–2,000 (including those responding "no"). Sample: Nationally representative.
Source: GSMA Consumer Survey 2020

Willingness to adopt ID-linked mobile services is consistently high

Willingness to adopt mobile services[53] that require ID verification by one's MNO, by country

Percentage of total adult population who are aware of mobile services that require proof of ID when using or accessing the service

■ Very likely ■ Fairly likely ■ Neither likely nor unlikely ■ Fairly unlikely ■ Very unlikely ■ Don't know
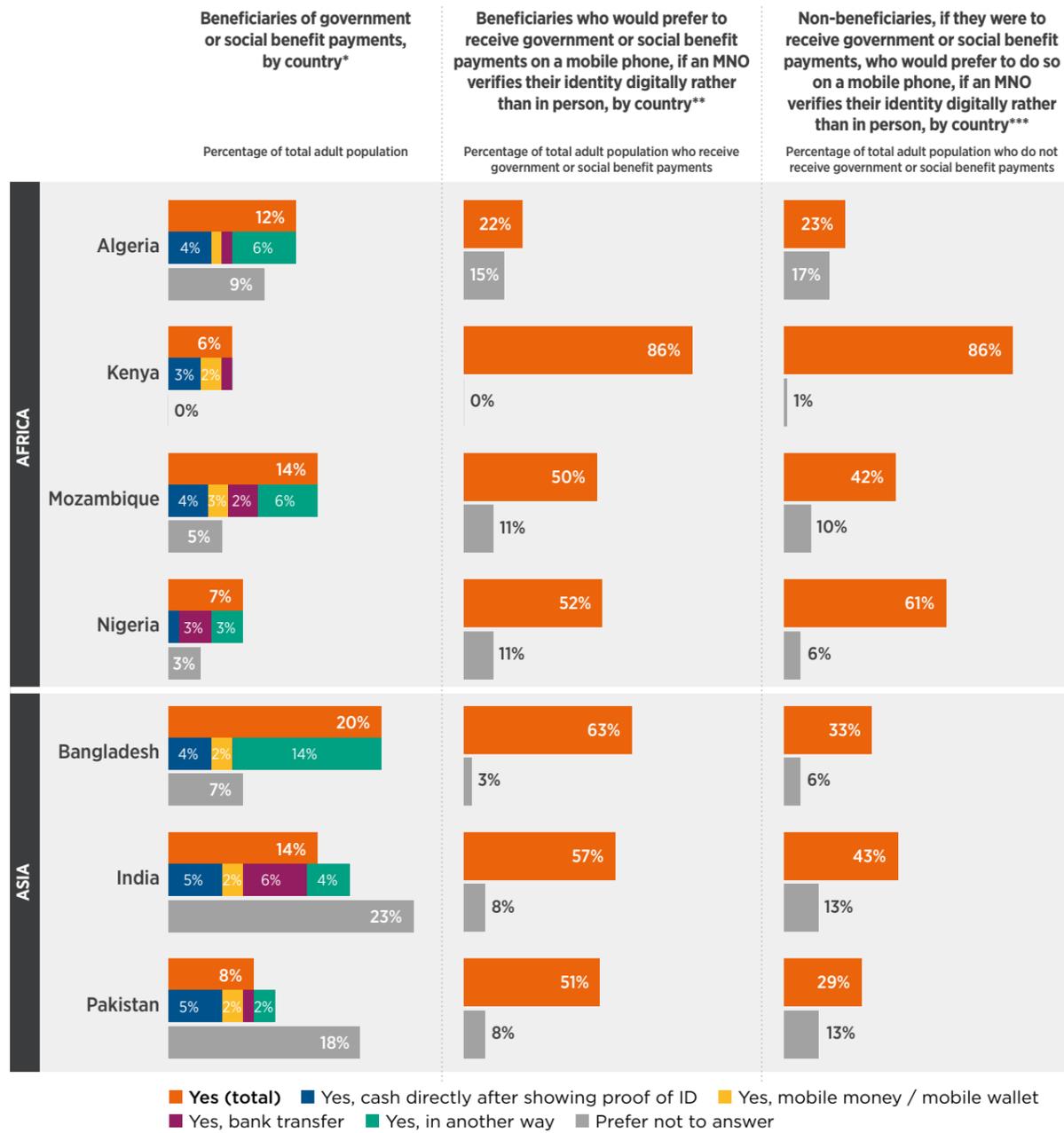
Question: If your mobile operator could verify who you are (from your mobile number and SIM registration data), how likely would you be to use your mobile phone to identify yourself to access those services? Base: All respondents aged 18+ who are aware of mobile services that require proof of ID when using or accessing the service, n=198–546. Sample: Nationally representative. Source: GSMA Consumer Survey 2020

52 Mobile services that require verification of ID by one's MNO include, for example, mobile money, microcredit, insurance, health services, education services, e-government services and social or government benefit payments.

53 Ibid.

While a minority receive government or social benefit payments, with even fewer doing so via mobile money, many current and potential beneficiaries would prefer to receive these benefits via mobile

Figure 23

	Beneficiaries of government or social benefit payments, by country* (Percentage of total adult population)	Beneficiaries who would prefer to receive government or social benefit payments on a mobile phone, if an MNO verifies their identity digitally rather than in person, by country** (Percentage of total adult population who receive government or social benefit payments)	Non-beneficiaries, if they were to receive government or social benefit payments, who would prefer to do so on a mobile phone, if an MNO verifies their identity digitally rather than in person, by country*** (Percentage of total adult population who do not receive government or social benefit payments)
AFRICA			
Algeria	12% · 4% · 6%; 9%	22%; 15%	23%; 17%
Kenya	6% · 3% · 2%; 0%	86%; 0%	86%; 1%
Mozambique	14% · 4% · 3% · 2% · 6%; 5%	50%; 11%	42%; 10%
Nigeria	7% · 3% · 3%; 3%	52%; 11%	61%; 6%
ASIA			
Bangladesh	20% · 4% · 2% · 14%; 7%	63%; 3%	33%; 6%
India	14% · 5% · 2% · 6% · 4%; 23%	57%; 8%	43%; 13%
Pakistan	8% · 5% · 2% · 2%; 18%	51%; 8%	29%; 13%

Legend: ■ Yes (total)　■ Yes, cash directly after showing proof of ID　■ Yes, mobile money / mobile wallet　■ Yes, bank transfer　■ Yes, in another way　■ Prefer not to answer

* Question: Do you personally receive any government or social benefit payments? Base: All respondents aged 18+, n=1,000–2000 (including those responding "no"). Sample: Nationally representative. ** Question: Would you prefer to receive government or social benefit payments on a mobile phone, if a mobile operator digitally verified your identity without you having to physically go somewhere? Base: All respondents aged 18+ who receive government or social benefit payments, n=35–234 (including those responding "no"). Sample: Nationally representative. ***Question: If you were to receive government or social benefit payments, would you prefer to receive payments on a mobile phone, if a mobile operator digitally verified your identity without you having to physically go somewhere? Base: All respondents aged 18+ who do not receive government or social benefit payments, n=803–1,717 (including those responding "no"). Sample: Nationally representative. Source: GSMA Consumer Survey 2020.

5

Conclusion and recommendations

Conclusion

In 157 countries, prospective mobile customers must provide an official form of ID to register a SIM card (mobile subscription) in their own name. If they do not, they could be excluded from accessing mobile or may have to resort to using someone else's with limited accessibility.

However, during the COVID-19 pandemic, some progressive governments temporarily relaxed ID and on-boarding requirements to enable underserved groups to access mobile services at a time of great need.

Most respondents to the nationally representative GSMA Consumer Survey, which represented 2.1 billion people in seven populous LMICs, use a SIM card. However, among these SIM card users, around one in five do not have a SIM card registered in their own name (i.e. do not have their own mobile subscription) and use someone else's instead. This is estimated to impact 285 million people. Compounding the issue, one in four respondents also say that other adults in their household use someone else's SIM card. All of these users are likely being excluded or limited from accessing many empowering mobile services.

Econometric analysis highlights that, when all other variables are controlled for (i.e. made equal), a head of household is more likely to have a SIM card registered in their own name while women, those with only a primary education, persons with disabilities and those who are unemployed are less likely. These results are highly statistically significant.

Those who use other people's SIM cards do not have one registered in their own name because they face various barriers. The reasons respondents cited include using a SIM card registered by a family member or friend, not having an official ID required for SIM registration and a family member deems it inappropriate for them to register a SIM card in their own name. Some are affected by an inability to travel to the nearest SIM registration point. Interestingly, around one in five respondents, particularly in India, say they do not know why they do not own a SIM card registered in their own name.

Econometric analysis also reveals that those aged 65+ and women are significantly more affected by cultural and family-related barriers, while persons with disabilities are significantly more impacted by their inability to travel to register a SIM card. These results are also highly statistically significant.

Lack of ID is a barrier, among others, to owning a SIM card (mobile subscription) registered in one's own name and being able to access mobile services. Survey results show that there is a gap in ID ownership between those who have a SIM card registered in their own name and those who do not (and use someone else's). The gap is significant, particularly in Bangladesh, India, Kenya and Pakistan. Econometric analysis emphasises this gap by revealing, to a high degree of statistical significance, that those with a national ID card are significantly more likely to have a SIM card registered in their own name than those without one. However, women, those who only have primary education, and those who have no literacy skills are significantly less likely to have a national ID card in the first place.

Supporting the data on those who use someone else's SIM card is generally low awareness of mobile services that require ID to access and use them. This suggests there is an opportunity for policymakers, MNOs and the development community to better promote the link between ID and access to mobile services, especially since this survey reveals that most respondents who are aware of ID-linked mobile services are willing to adopt them. This suggests respondents may trust mobile operators with their personal information in future scenarios. This willingness to adopt also extends to beneficiaries of government or social benefit payments, with many saying they would prefer to receive benefits via mobile if their MNO verified their identity digitally and remotely.

Recommendations

When considering interventions across the seven survey countries, we recommend focusing on the following underserved groups:

Statistically significantly less likely to have proof of identity (ID)

> Primary education only   No literacy skills
> Women   Rural   65+

Statistically significantly less likely to have a SIM card (mobile subscription) registered in their own name (and use someone else's instead)

> Primary education only   Women
> Unemployed   Persons with disabilities

MNOs

1 **Invest in digital SIM registration and mobile money KYC processes** to improve the robustness and ease of on-boarding new customers to mobile. Also include offline options to capture underserved communities, for example, where there is no connectivity coverage.

2 **Consider remote on-boarding**, for example, customer self-registration options for all mobile phone types, including USSD, to ease on-boarding to mobile for underserved groups who are unable to travel to SIM registration points and agents, particularly persons with disabilities, rural residents and those aged 65+.

3 **Consider developing and promoting new personalised ID-linked mobile services to capture and incentivise the one in five people** who do not have a SIM card (mobile subscription) in their own name and use someone else's instead, particularly women, persons with disabilities, and those who are unemployed, have primary education only and aged 65+. This is relevant because awareness of these services is still low, but willingness to adopt them is high, suggesting that consumers trust MNOs to use their data for personalised service provision.

4 **Ensure new ID-linked mobile services are accessible and relevant** for those with lower literacy levels, digital skills and awareness and understanding of the internet (i.e. they can overcome existing barriers to access and use).

5 **Improve customers' digital skills and literacy** through targeted campaigns and relevant content.

6 **Consider influencing heads of household to facilitate registration** among their household members, and particularly women, of SIM cards (mobile subscriptions) in their own names, rather than in the head of household's name.

Policymakers and government

1 **When rolling out or expanding foundational national ID systems, consider leveraging other forms of ID** (functional or foundational) as source documents to accelerate enrolment, particularly for those most likely to lack access to official ID: those with no literacy skills, those with only primary education, rural residents, women and those aged 65+.

2 **Consult with organisations that have endorsed the World Bank's Ten Principles on Identification for Sustainable Development** to help achieve UN Sustainable Development Goal (SDG) 16.9 to build a sustainable and inclusive roadmap for ID dissemination and digital and financial inclusion of citizens.

3 **Establish inclusive (digital) ID ecosystems based on internationally accepted principles,** empowering all individuals within their jurisdiction to access an official or recognised form of identification in line with SDG 16.9. **Consider (for example, while COVID-19-related restrictions remain in place) temporarily relaxing proof-of-identity requirements for SIM registration** and promoting electronic/remote ID verification where this capability can be easily developed or offered to MNOs. This is important to consider because those without a national ID are statistically highly unlikely to be able to register for a SIM card (mobile subscription). Relaxations may also aid the 18–24 age group who statistically tend to be less likely to have an official form of ID and are therefore less able to register for a SIM card in their own name.

4 **Consider regulation (SIM registration, KYC) that strikes a balance between risk (CFT, AML) and inclusion (ease of consumer access to mobile).** Also consider (see point 3 above) the regulatory relaxations implemented by progressive governments during the COVID-19 pandemic that increased the number of identified customers/citizens and provided them with access to basic mobile money accounts (wallets).

5 **Seek opportunities to work in partnership with MNOs, leveraging their assets to address public policy objectives.** For example, partnering to accelerate national ID enrolment efforts, developing simplified and digital on-boarding processes for SIM registration and KYC or creating demand for e-government services by supporting mobile-linked ID verification solutions to unlock access to civic participation (tax, voting, education, etc.). Many survey respondents (who are aware of such services) were willing to adopt ID-linked mobile services, including social or government benefit payments via mobile.

6 **Invest in public education and digital literacy initiatives** that increase mobile digital literacy and confidence among underserved groups.

7 **Ensure online government services** are developed that consider the needs and capabilities of underserved groups.

8 **Encourage the development of an ecosystem of apps/services** tailored to underserved groups.

9 **Enact or strengthen privacy and data protection frameworks** that foster trust in digital ecosystems.

Development community

1 **Partner with, and support, the mobile ecosystem, on projects that promote digital and financial inclusion.**

2 **Work to address the negative influence of social norms,** especially among women and those aged 65+.

3 **Fund and/or facilitate mobile-based social cash transfers and innovative and flexible mobile-based ID verification for underserved groups,** particularly displaced populations and refugees, persons with disabilities and those who lack an officially recognised form of ID.

4 **Raise awareness of the barriers** preventing underserved groups from accessing a SIM card and mobile services in their own name.

5 **Develop and support initiatives** to increase underserved groups' access to a SIM card registered in their own name and use of mobile services in their own name.

6 **Raise awareness of the barriers to women's mobile ownership and use,** and advocate for stakeholders to take steps to address the mobile gender gap.

6

Appendices

Appendices

Methodology

Consumer insights presented in this report are based on a nationally representative survey conducted in seven LMICs (Algeria, Bangladesh, India, Kenya, Mozambique, Nigeria and Pakistan) that were part of the broader Consumer Insights Survey conducted annually by the GSMA. Fieldwork was conducted between Q4 2020 and Q1 2021. In all countries, a nationally representative sample of the adult population aged 18 and over was selected. At least 1,000 face-to-face interviews were conducted in each

country surveyed, with 2,000 interviews conducted in India. This research aimed to unpack consumer usage of, and attitudes towards, official identity, digital identity, SIM cards registered in one's own name, MNO-provided ID verification and mobile services and ID-linked mobile-enabled benefit transfers. Results may differ marginally from those in earlier reports due to additions to the final respondent base and subsequent recalculations.

Sampling and fieldwork

In all countries, a nationally representative sample of the adult population aged 18 and over was surveyed. A minimum of 1,000 interviews were conducted in each country, with 2,000 interviews undertaken in India.

To achieve a nationally representative sample, quotas were applied in line with census data (or other appropriate sources) on the following metrics:

- Age category by gender;
- Urban and rural distribution by gender;
- Region/state; and
- Socio-economic class (SEC) to ensure a representative segment of lower income respondents (no such quota was applied in Mozambique in the absence of reliable SEC profiling data).

While a quota was not applied to education (other than where it contributed to SEC classification), it was tracked regionally and nationally during and after the fieldwork as an important indicator of a representative sample.

Sampling points where interviews were conducted were distributed proportionately between urban and rural areas in accordance with census data and national statistics offices. To achieve wide geographical coverage and reduce the effects of clustering, a minimum of 100 sampling points were used in each country (200 in India).

This research used a mix of purposive and random sampling approaches. Depending on the country, sampling points were either randomly distributed – with an administrative area's probability of selection proportionate to the size of its population (random sampling) – or selected to reflect the linguistic, cultural and economic variations of each country (purposive sampling). Local experts and national statistics offices checked the sampling frames to ensure they were valid and representative.

The survey was delivered via interviewer-administered, computer-assisted personal interviewing (CAPI). Survey interviews were conducted in the local language(s) by both female and male interviewers. Interviews were conducted at respondents' homes. Within sampling points, systematic random routes were used for residence selection.

Weights were applied to the data using a random iterative method (RIM) whereby several non-interlocking quotas were applied in an iterative sequence and repeated as many times as needed for the quotas to converge. This corrected any imbalances in the profiles, although weightings (and the resulting impact on effective sample sizes) were minimised as much as possible by controlling key quota variables over the course of the fieldwork.

The sampling approach was designed to achieve full national representativeness where practical; however, some more remote rural areas or regions with on-going unrest or security concerns were excluded from sampling. This may have had an impact on results, especially since mobile phone coverage, access and use will be different, and likely most limited, in these areas, particularly for women.

As a consequence of the COVID-19 pandemic, no interviewing was conducted inside a home, with interviewing instead taking place on the doorstep or other appropriate location. All necessary precautions were taken to ensure the safety of interviewers and respondents to comply with guidelines issued (e.g. sanitising of materials and use of PPE).

As with all survey data, the results are subject to sampling error (typically +/- 2–3 per cent), as well as other potential sources of error. It is also important to recognise that fieldwork took place during the COVID-19 pandemic and this created challenges in accessing some areas, leading to extended fieldwork periods.

Analysis of the research

Calculating adoption and usage gaps

A primary objective of the study was to understand the extent of the adoption and gaps around official ID and SIM cards registered in one's own name, as well as usage and attitudes of MNO-provided ID verification and mobile services. To calculate an accurate representation of the size of the gap between different demographic and socio-economic groups in each country, the following formula was applied:

$$\frac{\% \text{ Group 1 ownership/usage} - \% \text{ Group 2 ownership/usage}}{\% \text{ Group 1 ownership/usage}}$$

This shows the gap in ownership or usage relative to ownership or usage in a comparison group.[54]

Regression analysis

Observed rates of technology ownership, digital identity adoption and usage of services on mobile phones provide a picture of access and adoption according to different demographic and socio-economic factors. The degree to which these factors (such as age, income, education, geography, etc.) explain the access gaps is best explored through regression analysis, which can be used to analyse the data from the seven countries included in the 2020 survey.[55]

These dependent variables are binary and are defined as:

$$y_i \begin{cases} 1 \text{ if the } i\text{th individual has use or access to the technology/service} \\ 0 \text{ if the } i\text{th individual does not have use or access to the technology/service} \end{cases}$$

These regressions assess the key drivers of adoption of official ID and SIM cards registered in one's own name, as well as usage and attitudes of MNO-provided ID verification and mobile services based on a combination of socio-economic and demographic characteristics. By using this suite of variables for the observable drivers of mobile adoption (e.g. education levels, age, employment, rural-urban location), the coefficient for each variable should represent the effect of that factor while the other socio-economic and demographic factors are controlled for. The "marginal effect" associated with the coefficient for each variable quantifies the effects as a percentage impact of each factor on the probability of adoption of official ID and SIM cards registered in one's own name, as well as usage and attitudes of MNO-provided ID verification and mobile services.

Other forms of official ID, by country

Algeria

Driving licence, Passport

Bangladesh

Smart NID (Smart NID/e-ID is the updated digital version of the previous national ID. It is possible respondents considered both national ID and smart NID/e-ID when answering "National ID card")

India

Passport, Voter card, PAN card, Ration card

Kenya

Passport, Alien ID (particularly in the coastal region), Military ID (less frequent)

Mozambique

Passport, Voter card / Cartao do eleitor, Personal ID card / Cedula pessoal

Nigeria

Passport, Visa, Voter card (PVC), Driving licence

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54   In reporting observed statistics, the analysis adheres to subgroups with a minimum sample size of n=30.
55   Further details on the econometric framework can be found in the following paper on disaggregating the drivers of mobile technology adoption: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3748717

Glossary

Digital ID verification – A process of checking the validity of, for example, a new customer's legal proof of identity/credential and ensuring they are who they say they are. This may involve a variety of digital methods, such as verification of digital ID cards by an MNO agent and using biometric readers or mobile phones and devices to check against civil registries/databases or check against tokens stored on a smartcard.

Government/social benefit payments – For humanitarian reasons and in response to shocks, governments (and often donors and NGOs) provide cash to beneficiaries in need. The payments can be provided as cash or in-kind and may take various forms, such as physical cash, vouchers or, more recently, digital transfers via the internet or to one's mobile phone via mobile money to a mobile wallet.

Head of household – The head of household is someone who would typically make decisions for the household and may also be the chief wage earner from paid work or any other form of income.

ID (identity, identification, proof of identity) – A document, object or data structure that vouches for the identity of a person through some method of trust and authentication. Common types of identity credentials include, but are not limited to, ID cards, certificates, numbers, passwords or SIM cards. A biometric identifier can also be used as a credential once it has been registered with the identity provider.

Know Your Customer (KYC) – In a financial services context, a process that requires organisations, to varying degrees, to verify the identity, suitability and risk of new customers applying for an account or mobile wallet. This is a mandatory regulatory requirement in many countries that falls under AML/CFT regulation set by central banks and the Financial Action Task Force (FATF).

Mobile money – A service is considered a mobile money service if it meets the following criteria:

- The service includes transferring money and making and receiving payments using a mobile phone.

- The service must be available to the unbanked, for example, people who do not have access to a formal account at a financial institution.

- The service must offer a network of physical transactional points, which can include agents, outside of bank branches and ATMs, that make the service widely accessible to everyone.

- Mobile banking or payment services (such as Apple Pay and Google Wallet) that offer the mobile phone as just another channel to access a traditional banking product are not included.

- Payment services linked to a traditional banking product or credit card, such as Apple Pay and Google Wallet, are not included.

Mobile money account/wallet – An e-money account that is accessed primarily using a mobile phone and that is held with the e-money issuer. In some jurisdictions, e-money accounts may resemble conventional bank accounts, but are treated differently under the regulatory framework because they are used for different purposes (for example, as a surrogate for cash or a stored value used to facilitate transactional services). An active mobile money account is a mobile money account that has been used to conduct at least one transaction during a certain period (usually 90 days or 30 days).

Mobile services requiring proof of identity (ID-linked mobile services) – Services that are accessible via a mobile phone that require digital verification of one's identity. For ease and speed of access to mobile services, identity verification could, for example, be completed using details/tokens captured during SIM registration or mobile money KYC. Mobile services could include e-government services, health services, access to medical records, voting, insurance, loans, social cash transfers or industry-specific services for smallholder farmers.

Official form of ID – Government-recognised or government-issued IDs that prove who you are, such as birth certificates, national ID cards, or another form of official ID.

Other forms of official ID – Any other government-recognised or government-issued ID aside from a national ID card and a birth certificate. This may include a passport, driving licence or voter card, among others.

Persons with disabilities – Those who report any acute difficulty ("a lot of difficulty") or complete inability ("cannot do at all") to perform one or more of the functional domains of the Washington Group Short Set of Disability Questions.

SIM card – A Subscriber Identity Module (SIM) is a removable smart card for mobile phones. SIM cards store the required information to identify a mobile device. The customer's ID (and personal number) is tied to the SIM card, not to a mobile phone.

SIM card registered in one's own name – A sub-category of "SIM card user" (see below). When an individual presents official IDs during mandatory SIM registration and the documents are accepted, they own a SIM card registered in their own name. This is different from using a SIM card registered in someone else's name.

SIM card user – Those who have a SIM card (i.e. mobile phone number) that they use at least once a month, in a handset that they have sole or main use of or in other people's handsets.

SIM registration – The process of acquiring, registering and activating a SIM card. In countries with mandatory regulation, this may involve providing forms of officially recognised ID. Many governments have introduced mandatory registration for prepaid SIM card users, primarily as a tool to counter terrorism and money laundering and support law enforcement. The regulation is often set by telecommunications regulatory authorities.

Washington Group Short Set of Questions – A set of questions designed to identify persons with disabilities in a survey or census. Respondents answer questions and report difficulties experienced in six core functional domains: seeing, hearing, walking, cognition, self-care and communication.