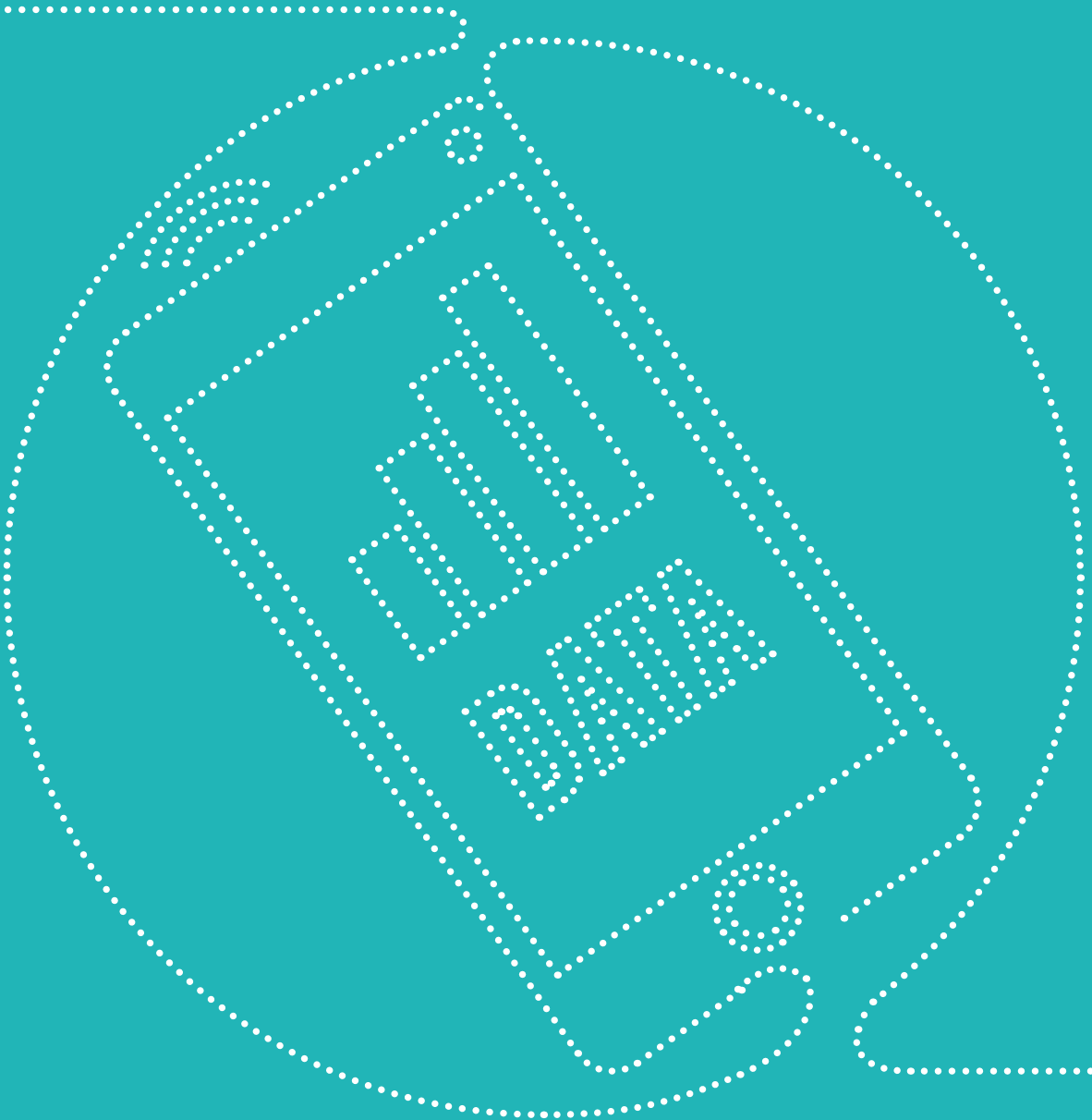


THE IMPACTS OF EMERGING MOBILE DATA SERVICES IN DEVELOPING COUNTRIES

JUNE 2016



RESEARCH BRIEF NO 2:

MOBILE DATA SERVICES: EXPLORING USER EXPERIENCES & PERCEIVED BENEFITS

OVERVIEW

RESEARCH BACKGROUND

Today, approximately half the world is not online; these billions are excluded from the personal and socio-economic benefits of using the Internet. There are a number of reasons so many remain unconnected, with one of the primary barriers to universal access being the high cost of a basic Internet connection. As our 2015-16 Affordability Report shows, Internet access is particularly unaffordable for groups earning less than the national average income, with women and those living in poverty among the hardest hit. There are many components that comprise the total cost for an individual to connect to the Internet, including the cost of a phone or other Internet-enabled device, the costs associated with charging and maintaining the device, and the cost of data needed to connect and effectively use the Internet. In order to address the issue of high costs, a number of mobile network operators (MNOs) have developed services that provide mobile data for free, or at a reduced cost to the consumer. In this paper, we focus specifically on the types of mobile data services actually available to consumers, and the impact of these services on Internet affordability.

This research brief, “*User Experiences and the Benefits of Mobile Data Services*” is the second in our series on *The Impacts of Emerging Mobile Data Services in Developing Countries*. In our first research brief (“Models of Mobile Data Services in Developing Countries”), we outlined the different types of emerging and traditional data services offered by MNOs in eight countries across the Global South: Colombia, Peru, Ghana, Nigeria, Kenya, India, Bangladesh, and the Philippines. Our review examined over 180 plans in these countries and put forward a typology of four different categories of plans (full cost, service-specific, earned data, and zero-rated) to understand what kinds of services are actually available to users.

THE FOUR TYPES OF MOBILE DATA SERVICE PLANS

1

FULL-COST DATA BUNDLE

The user pays the advertised price for their data (at the relevant prepaid or post-paid tier), which can be used to access any site. These are the standard data packages that MNOs offer. An example is the set of data bundles offered by [Orange Kenya, ranging from 20MB to 5GB](#).

2

SERVICE-SPECIFIC DATA BUNDLE

The user can purchase a data bundle that allows them to use specific apps and access certain sites for a certain period of time (e.g., social media packs, which offer data for use on specific social networking sites). See, for example, [Globe Telecom’s \(Phillipines\) “site bundles.”](#)

3

EARNED DATA

Instead of directly purchasing data, the user receives data in exchange for performing an action (e.g., completing a survey, watching an advertisement, or purchasing a specific service or handset from an operator). Typically, this data can be used to access any site or service. See, for example, the [Wowbox app offered by Grameenphone in Bangladesh](#).

4

ZERO-RATED DATA

Services that make a specific set of content, websites, or applications available at no additional cost to the user. The data used to access the specified site or app does not count toward the user’s data usage. See, for example, [Airtel Ghana’s “Free Facebook” offer](#).



With this framework in place, we then set out to learn which of these services were most commonly being used to connect, and to gain insights into actual user experiences and perspectives on mobile data services in these countries. To do this, we surveyed 1,000 mobile phone Internet users in each of the eight countries that are part of this study — Colombia, Peru, Ghana, Nigeria, Kenya, India, Bangladesh, and the Philippines; the results give us some much-needed empirical data to inform to the ongoing discourse around emerging mobile data services, such as zero-rating.

WHAT DID THE SURVEYS SHOW?

KEY FINDINGS:

1. The type of data service most frequently used to connect to the Internet is the full-cost plan. Approximately 50% of users surveyed use a full-cost plan as their primary means to connect. The second most-used service to connect is public WiFi (21%), followed by service-specific plans (19%), zero-rated plans (4%), and earned data plans (2%).
2. Users typically combine these mobile data services to suit their connectivity needs; zero-rated plan users are more likely than any other type of user to combine their plan with other options (75%).
3. Overall, 10% of users say they have used zero-rated plans at least once. This rate varies significantly by country — use of zero-rating was relatively high in Bangladesh (21%) and the Philippines (20%), but amounted to just 4% in India and less than 1% in Nigeria.
4. Approximately, 88% of people using zero-rating responded that they had used the Internet before using the zero-rated plan. This means that only 12% of zero-rating users surveyed started using the Internet with their zero-rated service.
5. In terms of users shifting from use of a zero-rated service to a paid service, 28% of all zero-rating users no longer use a zero-rating plan and are now paying customers (i.e., they now use a full-cost or service-specific plan). In addition, 35% of all zero-rating users continue to use the zero-rated service and a paid plan.
6. When asked what condition would be most acceptable to get “free data” or zero-rated data, a majority (82%) of users prefer to have the “free plan” valid for a short time or with a data cap, with no restriction on the websites and applications that can be accessed.
7. In some countries (e.g., Peru, the Philippines), WiFi is the main means of using the Internet for more than 30% of users; in other countries (e.g., Ghana, Nigeria), less than 10% of users use WiFi to go online. If we control for several factors, including the respondent’s country, we find that:
 - a. Women are more likely than men to use WiFi (with an approximate 7 percentage point difference between the two);
 - b. Zero-rating users are more likely to use WiFi than non-zero-rating users (with an approximate 10 percentage point difference).

This report explores the above key findings in more detail, analysing our unique survey data to gain deeper insight into the use of these mobile data services. We begin below with an explanation of the methods used in the surveys. Next, we present the results of the surveys according to the four types of data categories mentioned earlier. Finally, we offer our analysis of these findings and point to our next steps in this research project. Together with the survey results, consultations with governments, MNOs and civil society organisations, and inputs from A4AI’s membership, we will put forward a set of guidelines on how mobile data services can improve mobile broadband affordability (i.e., our third and final research brief in this research series).

SCOPE OF RESEARCH & METHODS¹

To collect empirical data around the use of different mobile data services, we surveyed 1,000 mobile phone Internet subscribers in each of the selected countries: Colombia, Peru, Ghana, Nigeria, Kenya, India Bangladesh, and the Philippines². The surveys, which were completed between December 2015 and February 2016, represent a snapshot in time: the mobile data services offered and used are constantly evolving as MNOs change offerings to meet perceived demand.

The survey results also represent use patterns for a particular group within each of these countries: mobile Internet users, who are more likely to be male, better educated, and wealthier than the general population. We chose to focus our survey on mobile phone Internet subscribers because most people in low- and middle-income countries access the Internet via mobile phone. Still, it is important to recognise that in all of these countries, mobile phone Internet subscribers actually represent a minority of the population (as of March 2016; GSMA Intelligence). A survey that specifically targeted other groups in the full population (e.g., low-income or rural groups) might find the use of some data services (e.g., zero-rating) to be higher than was found in this study. Undertaking such a targeted survey was beyond the scope of this study.

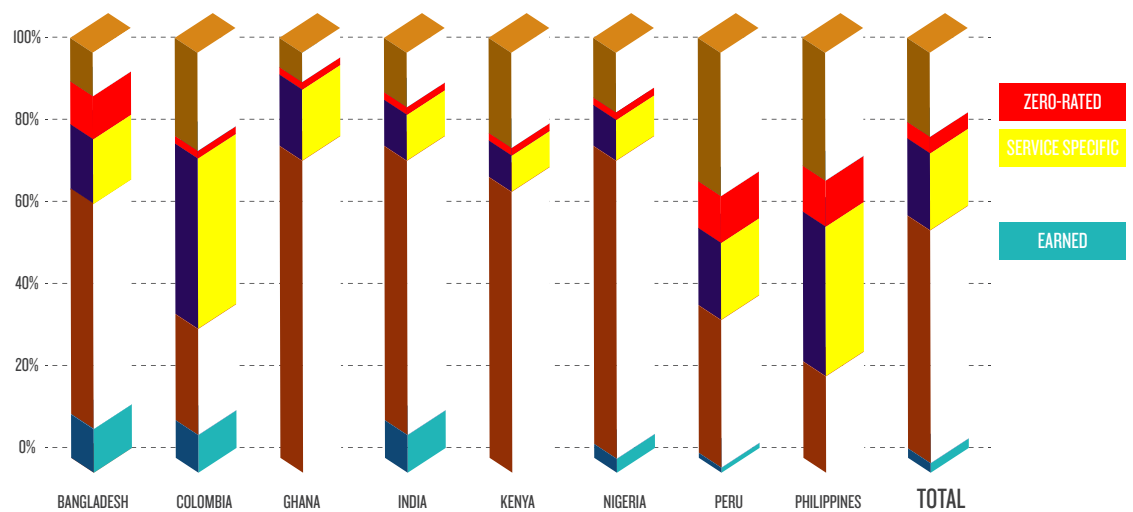
Survey questions were distributed via mobile phone to a representative sample of 1,000 users in each country studied. The survey asked respondents to supply basic demographic data, and to answer questions regarding:

- **The types of data plans they use (with an additional option for public WiFi);**
- **The perceived benefits of these plans;**
- **Their use of and attitude towards “free” data services;**
- **How they use the Internet once connected; and**
- **How much they spend each week on mobile data.**

EXPLORING THE SURVEY RESULTS

What did the survey show to be the most frequently used type of mobile data service in each country?

FIGURE 1 – TYPE OF DATA SERVICE MOST FREQUENTLY USED TO CONNECT TO THE INTERNET (INCLUDING PUBLIC WI-FI), BY COUNTRY



1. See Annex for more details.
 2. Please refer to our first research brief (“Models of Mobile Data Services in Developing Countries”) for an explanation of how we selected these countries.



Overall, 50% of respondents said they used a full-cost plan most often to connect to the Internet. This was followed by public WiFi (21%), service-specific plans (19%), zero-rated plans (4%), and earned data plans (2%). The survey also showed that many users combine different kinds of data connection options for their online activities. Approximately 34% of full-cost plan users combine that plan with at least one of the other four data service options surveyed here; 53% of service-specific users also use at least one of the other connection options; zero-rating users are more likely (75%) than any other type of user to combine their plan with other options.

This data shows that while users tend to rely on one of the five connectivity options as their primary means of accessing the Internet, they frequently combine this plan with the use of other mobile data services, depending on their specific online needs. Users that rely on a specific type of mobile data service can be examined as a unique type of user and in the next three sections we do just that, starting with those who say the full cost data plan is their primary means of using the Internet.

I. FULL-COST DATA USERS

As Figure 1 shows, a majority of respondents in five out of the eight countries surveyed said that they used a full-cost plan as their primary service for accessing the Internet. The exceptions to this finding were Colombia, Peru, and the Philippines. However, even in those countries full-cost users accounted for a significant minority of all users (15%-30%).

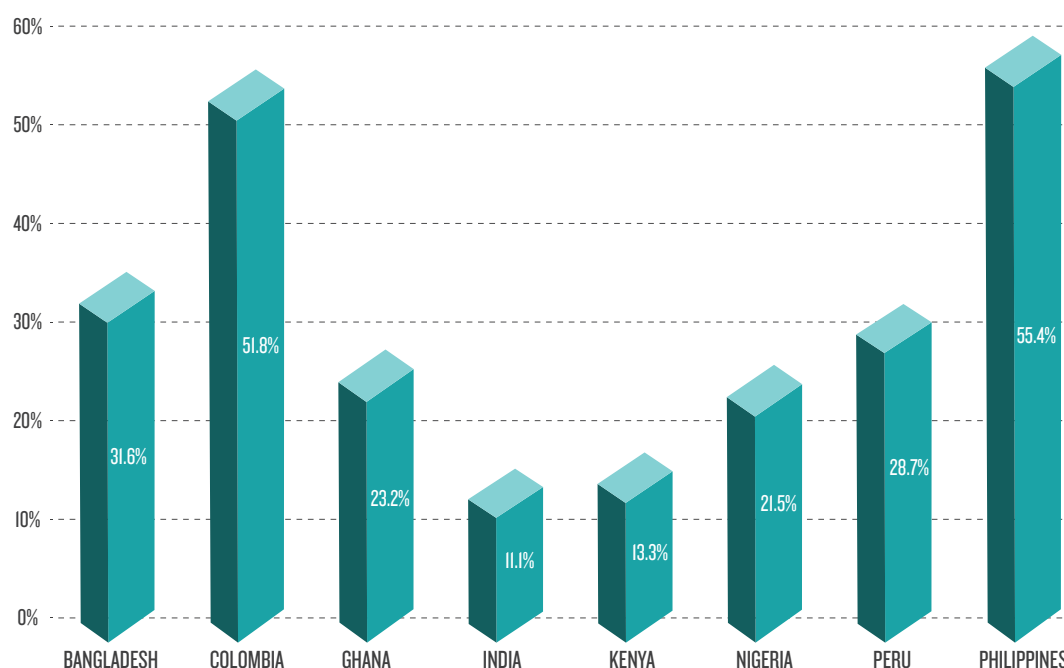
There are few shared characteristics of full-cost data users that distinguish them from other types of users. Our survey results show that full-cost users generally used the Internet for a wider range of activities (including entertainment, social networking, and socio-economic purposes) than any other type of user, and also showed them to undertake these activities online more frequently. This is somewhat unsurprising given that full-cost plans (by definition) do not restrict the user in terms of what they can do with their purchased data, while most other mobile data plans do (with the exception of the seldom-observed earned data plan). A corollary of this observation is that full-cost data users also tend to spend more per week on their mobile data plans than other kinds of users.

2. SERVICE-SPECIFIC & EARNED DATA USERS

As noted above, Colombia, Peru, and the Philippines differed from the five other countries studied, both in that they reported lower proportions of full-cost users, and a higher incidence in the use of service-specific plans and public WiFi to connect.

In Figure 2 we can see the proportion of people that have used a service-specific plan at least once, including those who say it's their primary option for using the Internet. Here, the levels are higher, especially for Colombia and the Philippines—52% of Colombians reported having used a service-specific plan, and approximately 35% said that a service-specific plan was their primary option for using the Internet. MNOs in these countries were more likely to offer service-specific plans than in other countries, which can partially explain the popularity of these plans there.

FIGURE 2 – PROPORTION OF MOBILE INTERNET USERS THAT HAVE USED A SERVICE-SPECIFIC PLAN, BY COUNTRY



In general, service-specific users did not use the Internet as frequently as full-cost users, although they did also use it for a wide variety of activities online. Many service-specific plans offer social media/networking data bundles and, as a result, the survey results showed that service-specific users tend to use social networking sites more frequently than other types of users.

Earned data plans comprised just 3% of the total plans surveyed in our first research brief, so it is perhaps unsurprising that our survey showed use of these plans to be rare. This finding was likely made stronger by the fact that some of the more widely known earned data models, like [Gigato](#) and [mCent](#), are offered independent of MNOs and were not covered in our survey. Users in Colombia and Bangladesh both reported slightly higher use of earned data plans — in Bangladesh approximately 18% of users said they had used an earned data plan at least once; the most popular option used was [Wowbox](#), an app offered by Grameenphone.

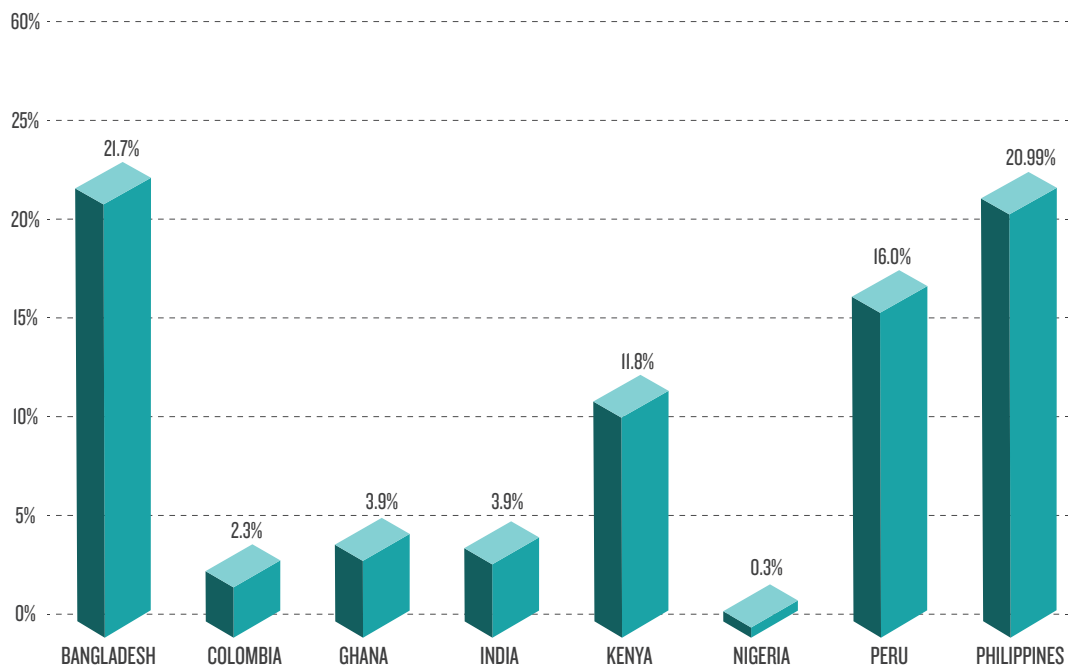
3. ZERO-RATING USERS

The emergence of a number of new zero-rated data initiatives has resulted in a great deal of debate around the practice, while hard data on the availability and use of these plans has remained limited. As noted earlier, part of our aim in this project is to fill the gap in empirical evidence surrounding the use and potential benefits of mobile data services, including zero-rated services, as well as their impact on affordability. We first need to recognise the variety of zero-rated plans that we observed being offered in the selected countries. This includes programmes like Wikipedia Zero, Facebook Zero, Free Basics (Facebook), Twitter Access, zero-rated WhatsApp, and other operator-provided services. Content providers often have different stated motivations for partnering with MNOs to zero-rate their services, from bringing more users onto their platforms, increasing local content generation, or improving online access in the country.

Overall 4% of survey respondents reported using a zero-rated service as their primary means of accessing the Internet. A slightly larger proportion of users (10%) say they have used zero-rated services at least once (see Figure 3). This number varies significantly by country, with as many as 21% of users in the Philippines and 22% of users in Bangladesh reporting having used zero-rating, to just 4% in India, and less than 1% in Nigeria.



FIGURE 3 – PROPORTION OF MOBILE INTERNET USERS WHO HAVE USED ZERO-RATING, BY COUNTRY



WHO IS USING ZERO-RATING?

This group was overall twice as likely to have little to no primary school education, compared to users of other mobile data services; however, 42% of these users reported having at least some college education. Our survey also showed no difference in the likelihood of males or females having ever used a zero-rated service, or using zero-rating as their primary means of accessing the Internet. Finally, and somewhat unsurprisingly, this group also spent the least on weekly data purchases — 38% of respondents who reported using zero-rated services as their primary means of accessing the Internet spent less than US\$2/week on data, the lowest among all types of users.

DOES ZERO-RATING BRING NEW USERS ONLINE?

One of the primary implications of the high cost of data is that it prevents people from being able to afford Internet access. Zero-rated services can arguably address that challenge by removing most, but not all, of the cost element. Even with a zero-rated service, the user must still have a device and an active account with the operator that offers the zero-rated service. This raises the question of whether zero-rated services can bring people online who had not previously used the Internet. **In all, 88% of users report that they had already used the Internet before using a zero-rated plan. This result is similar in each of the eight countries, with slightly higher percentages of zero-rating users coming online for the first time via a zero-rated service in India (15%) and Peru (22%).** Other anecdotal evidence similarly suggests that for many zero-rating users, these plans allow them to remain online, rather than to get online for the first time.

DO ZERO-RATING USERS EVENTUALLY PAY FOR SERVICES?

The potential of zero-rating to encourage users to become paying customers is an incentive often presented to participating MNOs. How many users actually make this transition? Our survey results show that approximately 28% of all zero-rating users no longer use a zero-rating plan and are now paying customers (i.e., they now use a full-cost or service-specific plan). However, 35% of all zero-rating users continue to use the zero-rated service and a paid plan. In other words, 63% of all zero-rating users are now using a paid plan, although not exclusively. A smaller proportion (37%) continue to use only their zero-rated service or a public WiFi option.

Why did these users switch from using a zero-rated plan to using a paid plan? In Figure 4, we summarise reasons respondents provided for starting a paid plan after using a zero-rated service. The most frequently (34%) reported reason was to gain access to sites or apps that were not available as part of the zero-rated service.

Almost 15% of respondents noted that they switched to a paid plan because the zero-rated service was “too difficult to use.” This finding has been reflected in other research; interviews with zero-rating users in Ghana highlighted a lack of understanding — both around how to use zero-rated services and around how the operator would ensure the user would not be charged for use — as a barrier to use³. Similarly, interviews with mobile Internet users in India found that some were unclear and sometimes sceptical about the billing mechanisms used for zero-rated services⁴.

FIGURE 4 – MAIN REASON FOR USING A PAID PLAN (AFTER USING A ZERO-RATED SERVICE)



3. Gebhart, G. (Forthcoming). Zero-rating in emerging mobile markets: Free Basics and Wikipedia Zero in Ghana. Paper accepted for presentation at the 2016 International Conference on Information & Communication Technologies and Development, June 3-6, Michigan, USA.

4. Kak, A. (2015) The Internet un-bundled: Locating the user’s voice in the debate on zero-rating. MSc Dissertation. Oxford Internet Institute. [See a summary from LIRNEAsia here.](#)



REPORTED BENEFITS OF ZERO-RATING

The benefits of Internet access and use are numerous and well-known. One frequent criticism of zero-rated services is the ability to access only limited websites and apps. Through our survey, we sought to hear from users of zero-rated services what they perceive as the benefits of using such services. **The most frequently reported benefits of using zero-rated services were: (1) supporting education (17% of all zero-rating users surveyed); (2) health (15%); and (3) accessing content about the community (15%). These benefits were also the most frequent responses among all mobile Internet users surveyed.**

When we examine the benefits of zero-rating according to the type of zero-rated platform used, health and education appear to be important for all types, while more specific benefits are associated with the unique nature of each platform used. For example, an important benefit reported by Wikipedia Zero users was accessing local community content (in many countries, Wikipedia has local or country user groups). For users of Facebook's Free Basics zero-rated service, ability to access content about the local community and in local languages was an important benefit; Twitter Access users mentioned government services and supporting a political party; Whatsapp users noted that local language content and supporting a political party were important benefits.

WHAT KIND OF RESTRICTIONS ARE USERS WILLING TO ACCEPT IN EXCHANGE FOR "FREE" DATA?

"Free" data is not really free. In addition to the costs to maintain a device and an active account, users of zero-rated services also have to be willing to accept certain limitations on their data use in exchange for the free data. This can include which sites/apps may be accessed, the data validity period, or a cap on the amount of data used. In order to better understand user preferences for these different kinds of restrictions, we asked all users (not just those using a zero-rated service) a hypothetical question about what kind of restriction would be most preferred in order to receive a "free" data plan:

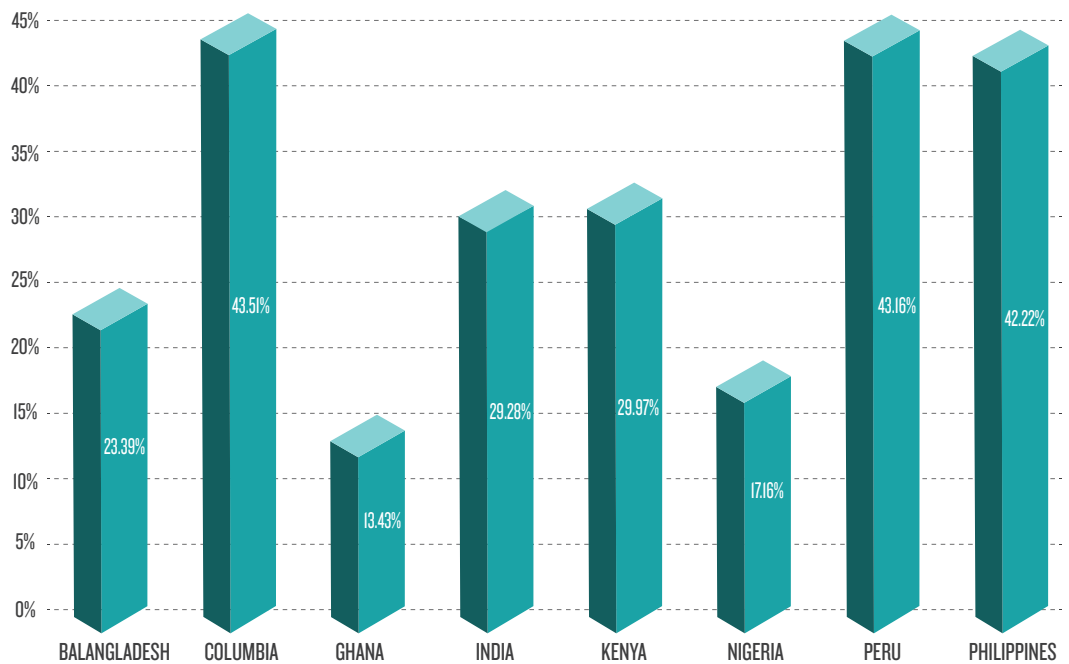
- **Unlimited data valid for a limited time (e.g., 1 day);**
- **Unlimited data valid for a limited number of websites or apps; or**
- **Limited data (e.g., 50MB) for use on any website or app.**

Approximately half (48%) of all users said that the restriction they most preferred was a limitation on time (i.e., the free plan would be only be valid for a short time, with no restriction on the websites/apps that could be accessed). One-third of respondents said they would prefer access to all websites/apps, with a restriction on the amount of data that could be used. A minority of users (18%) preferred having unlimited data for accessing a limited number of sites (i.e., the way in which most zero-rated services are currently implemented). **In sum, when faced with a restriction in exchange for "free" data, a majority (82%) of users prefer access to the full Internet, even if that access is limited in terms of time or by a data cap.**

4. PUBLIC WIFI USERS

Public WiFi is another potentially low-cost means of getting online. For our purposes, this refers to publicly accessible WiFi hotspots (both commercial and free) not available through the respondent’s MNO. As our results show, this is one of the most popular services for users to access and use the Internet, with 21% of survey respondents selecting public WiFi as their primary method of connection. Nearly 40% of users surveyed in Peru, and 34% of users surveyed in the Philippines, reported using public WiFi as their main way to connect. If we consider those that have used WiFi generally (and not only as their main means of getting online) then the numbers are even higher (see Figure 5).

FIGURE 5 – PROPORTION OF MOBILE INTERNET USERS WHO HAVE USED PUBLIC WIFI (BY COUNTRY)



This suggests that users are managing how they use their mobile data in combination with sources such as WiFi. This use of public WiFi varies across countries — likely a function of the availability of these networks to users. While our research did not focus specifically on the availability of different kinds of public WiFi networks across countries, further analysis of the survey data provides more insight into who uses these networks. While controlling for factors such as age, education, type of device, amount spent on data per week, frequency of use, and country we can state that:

- 1. Zero-rating users are more likely to use WiFi than non-zero-rating users (39% of zero-rating users compared with 29% of non-zero-rating users).**
- 2. Women are more likely than men to use WiFi (34% of women compared to 27% of men).**

The fact that women are more likely to use public WiFi is particularly interesting and remains the case even when we look at country level data — with Colombia the exception to this trend (note this is also one of the countries in the study where gender equality in access is highest). While we might speculate the relationship between public WiFi and gender to be a function of the ubiquitous gender wage gap (particular where such WiFi is offered for free or at a low cost), there are other factors at play worthy of further study, such the nature of gender inequality in each country.



PIECING IT ALL TOGETHER: IMPLICATIONS FOR A MORE AFFORDABLE INTERNET

Based on our survey analysis, we can conclude that the most frequently used option to access the Internet in our countries of study is the full-cost data plan. Public WiFi and service-specific plans are the next most commonly used. Although users identified different kinds of data services that they used most frequently to get online, we also noted that they often combined use of a number of these services. This varied by type of user — 34% of full-cost users combined that plan with at least one of the other four options, while 75% of zero-rating users combined their plan with another option. We argue that the ways in which users combine these services for their specific needs is important in understanding how they negotiate the affordability challenge. For example, based on the survey results we can see that a majority (63%) of zero-rating users are now using a paid plan; however, more than half of these people are still using their zero-rated service. Indeed, patterns such as these should be an important part of trying to assess whether zero-rating is effective.

In our first research brief, we highlighted the lack of empirical evidence to inform current debates on zero-rated services. Our concern here is whether zero-rating has the potential to be a more affordable connection option for those that cannot afford other mobile data service plans. Our first research brief found that zero-rating plans accounted for just 13% of all plans on offer in our eight countries of study; perhaps unsurprisingly, our surveys found the actual proportion of zero-rating users overall to be quite low — just 10% of users.

In terms of understanding what kind of restrictions users are willing to accept in exchange for “free” data we found that the majority of respondents preferred to have restrictions in terms of either data-caps or validity periods, but not on what sites/apps they can use. This points to the kinds of zero-rating service options that users prefer and further analysis can explore country-specific differences in this pattern.

Finally, we also examined the use of public WiFi as a means to supplement or substitute operator data plans. Interestingly, we found that WiFi was more popular among women than men, and zero-rating users more likely to use WiFi than non-zero-rating users. In the [2015-16 Affordability Report](#), we discussed the importance of public access facilities, many of which can offer WiFi, as a means of addressing the affordability gap for groups less likely to be online, such as women and low-income populations. The findings here support the potential of WiFi solutions in public access facilities (such as libraries or community centres) as a way of supporting women and low-income populations with their connectivity needs.

NEXT STEPS

A4AI advocates for policies that can help make Internet access more affordable for all. We do this by supporting the work of national partners who propose and implements policies relevant for their countries. A goal for this project then is to outline a clear set of guidelines on mobile data services that can support the work of these local coalitions, as well as work toward affordable Internet being undertaken in other countries in the Global South.

The survey results will help inform those guidelines; however, we are also conducting interviews with governments, MNOs, and civil society organisations in each of the eight countries. The third and final research brief of this series will further analyse this data and, with inputs from the A4AI membership, will put forward a set of guidelines on how mobile data services can improve mobile broadband affordability.

We offer this analysis as an empirical contribution to the ongoing discussions around different kinds of mobile data services including zero-rating. Note that the entire eight country survey dataset is also available online a4ai.org/mobile-data-services-survey-data for anyone to examine and share additional findings – particularly at the country level.



ABOUT A4AI

The Alliance for Affordable Internet (A4AI) is the world's broadest technology sector coalition. Initiated by the World Wide Web Foundation in 2013, the Alliance today comprises over 80 member organisations from across the private, public, and not-for-profit sectors. These diverse actors have come together to advance the shared aim of affordable, universal access to both mobile and fixed-line Internet in developing countries, primarily through policy and regulatory change. A4AI's global sponsors include Google and USAID. For more, please visit: a4ai.org



APPENDIX: SURVEY METHODS

The survey sample in each country was drawn from a respondent panel that was constructed for this survey, and which used the criterion that participants be mobile phone Internet users. Although typically there are more male than female Internet users in these countries, to avoid an overrepresentation of male users we employed gender-based quotas in the sampling process. To do this, we drew from estimates on existing Internet use by gender from the Web Foundation and the ITU.

In addition, the results were weighted (using post-stratification weights) by mobile network operator (MNO) market share so as to reduce selection bias. Data for existing MNO market share was sourced from GSMA Intelligence (at the end of 2015). Post-stratification weighting by operator market share was particularly important given that a respondent's selection of mobile data plans (a major part of the survey) is dependent on their chosen MNO. In this way, the sample was a more accurate representation of mobile phone Internet users in each country.

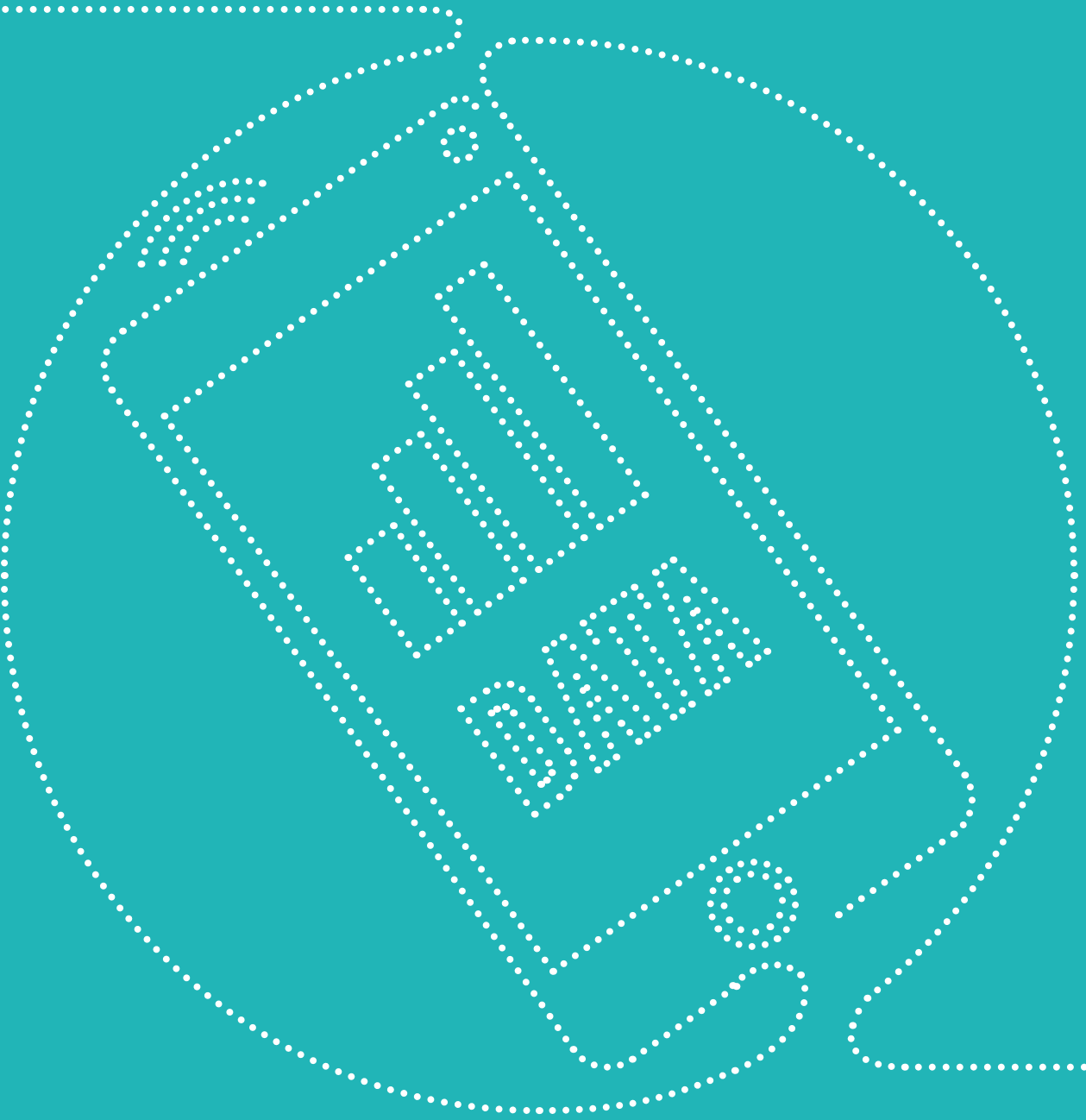
The demographic profile from the sample is consistent with Internet user populations in the selected countries. That is, overall there were more male than female users (approximately 60% males compared to 40% females⁵). This varied by the specific gender equality context of each country; for example, Colombia had an almost even distribution, whereas in Bangladesh approximately 70% of respondents were male and just 30% female.

In terms of age, about half (53%) of survey respondents were between 16 and 24 years of age across all countries. Respondents between the ages of 16 and 34 accounted for approximately 80% of the sample, which is the typical age range of Internet users in these countries. On average, 38% of respondents across the 8 countries reported that their highest level of education was some college or university, while 25% said they had the equivalent of a bachelor's degree. Finally, in terms of mobile devices, Android was the most common operating system (approximately 79% of all devices, followed by iOS (17%, although many of these were older iPhones).

In sum, the demographic results are generally reflective of mobile Internet user populations in the selected countries (and not the general population), which was the goal of the sampling approach. That is, mobile Internet users tend to be male, younger, and more educated than the general population.

The survey itself was designed between September and October 2015 and was piloted in India in November 2015. It was administered between November 2015 to February 2016. It consisted of 20 items including questions on which mobile data plans were used (the respondent was presented with all available plans based on their country and chosen MNO), the perceived benefits of these plans, use and attitudes towards "free" data services, their online activities, weekly expenditure on mobile data, and demographic questions. The survey was browser-based, translated where necessary, and completed on the respondent's mobile device. All respondents were provided compensation in the form of airtime.

5. See for example, USAID (2013) *The Digital Divide in Ghana: Analysis and Recommendations*; and Web Foundation (2015) "Women's Rights Online: Translating Access into Empowerment".



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