

Findings from the Financial Inclusion Insights Surveys in East Africa: Inequities in Use of Mobile Money

***A report to the Financial Services for the Poor program
at the Bill & Melinda Gates Foundation***

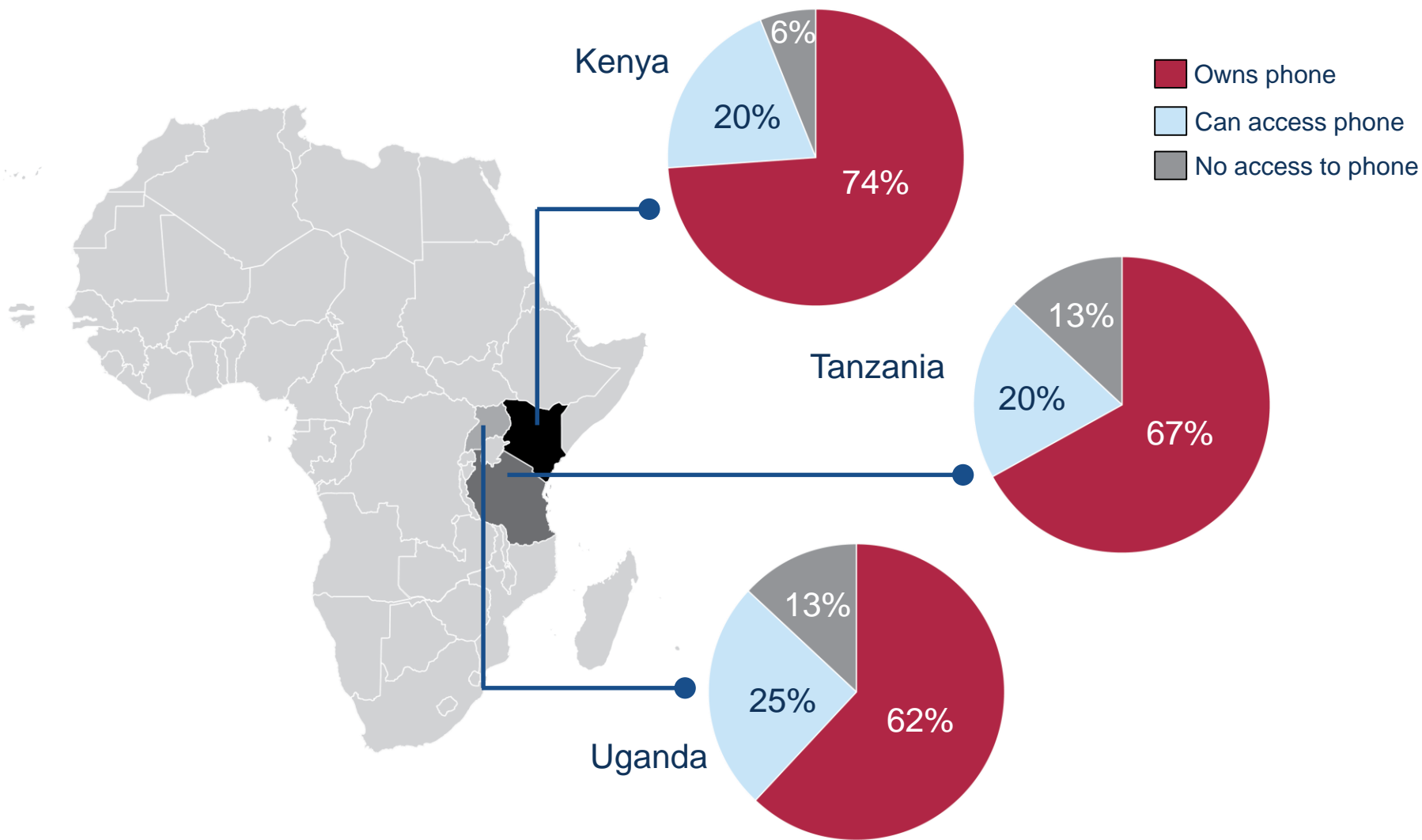
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Motivation

- Millions of poor people around the world lack access to financial services that could help them safely transfer and store their money, weather economic shocks, and take advantage of income-generating opportunities.
- Those who do have access often face large transaction costs in terms of the time required to travel to a bank location, and traditional means of transferring money to family members located elsewhere are insecure, unreliable, and often expensive.
- Mobile money could address many of these challenges, thereby improving well-being and reducing economic inequality.
- But there is also the possibility that the disadvantaged groups might not be served equally by mobile money, further widening the gap between those who are integrated into the formal economy and those living on its margins.
- This study analyzes recent nationally representative data from three East African countries, and sheds new light on the use of mobile money services, particularly among disadvantaged groups including the poor, rural residents, and women.

Due to high levels of access to mobile phones, mobile money could quickly scale up in East Africa



Background

The Financial Inclusion Insights (FII) project has conducted nationally representative surveys in eight countries to better understand demand for mobile money and other digital financial services. The standardized nature of the surveys allows for cross-country comparisons, and as future survey rounds are conducted, comparisons over time will also be of interest. Public use data files and findings from initial analysis of the first survey round are available at <http://finclusion.org>.

This study presents a deeper dive into questions of access to mobile money services using the first survey round of the FII portfolio in three East African countries: Kenya, Tanzania, and Uganda.

All results presented in this report are the authors' calculations based on the FII data. Sampling weights were used so that all percentages can be interpreted as shares of the national population.

Funding for the FII project and this report was provided by the Financial Services for the Poor program at the Bill & Melinda Gates Foundation.

Research Questions: A Focus on Equity

In this report, we focus on three research questions:

- 1. Who uses mobile money?**
- 2. How do they use mobile money?**
- 3. Why do they use mobile money?**

For each question, **we consider differences between the nonpoor population and disadvantaged groups** defined by gender and location.

In supplementary analyses, **we also compare mobile money use among farmers** and test for differences by gender.

Before launching into the analysis, we provide context for the results by describing the characteristics of the surveyed populations in the three countries.

Characteristics of the surveyed populations

Survey Protocol

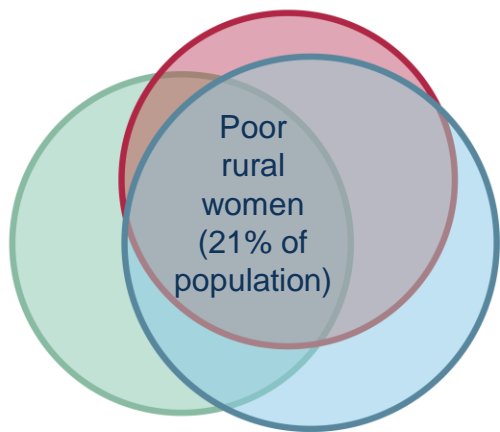
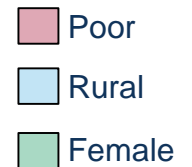
- A **nationally representative sample** of approximately 3,000 adults, aged 15 and older, answered the survey in each country.
- Surveyors **randomly selected households, then randomly selected an adult member within each household** as the respondent.
- Sampling weights are provided to calculate nationally representative statistics.
- Survey modules covered demographics; livelihood of the respondent; literacy and numeracy; a poverty measurement; and access to and use of mobile technology, formal financial institutions, and mobile money.
- For mobile money users, the survey also included modules about the user experience, influencers and drivers of adoption, interoperability, and new product development.
- The survey skip patterns led to missing data for nonusers.
- The InterMedia reports available at <http://finclusion.org> provide further detail about the survey methodology.

Nationally representative FII data reflect predominantly poor and rural populations

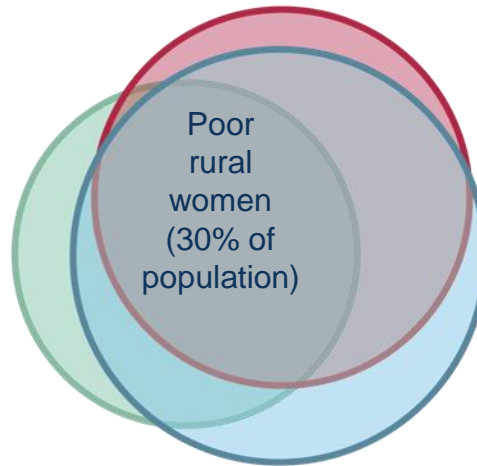
Respondent characteristics	Kenya (percentage)	Tanzania (percentage)	Uganda (percentage)
Poor	50	85	71
Rural	64	70	84
Female	51	51	52
Younger (<25)	36	30	26
Older (>44)	22	24	29
Completed primary education	69	24	36
Literate	77	85	63
Numerate	85	79	83
Employed	64	73	83
Business owner	20	16	14
Has ID	91	66	75
Sample size	3000	2997	3000

Poverty, gender, and location are closely related characteristics

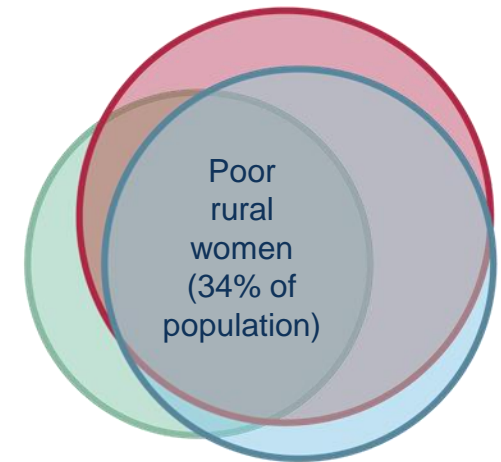
The share of the population that is poor is highest in Tanzania, whereas Uganda's population is the most rural.



Kenya



Tanzania

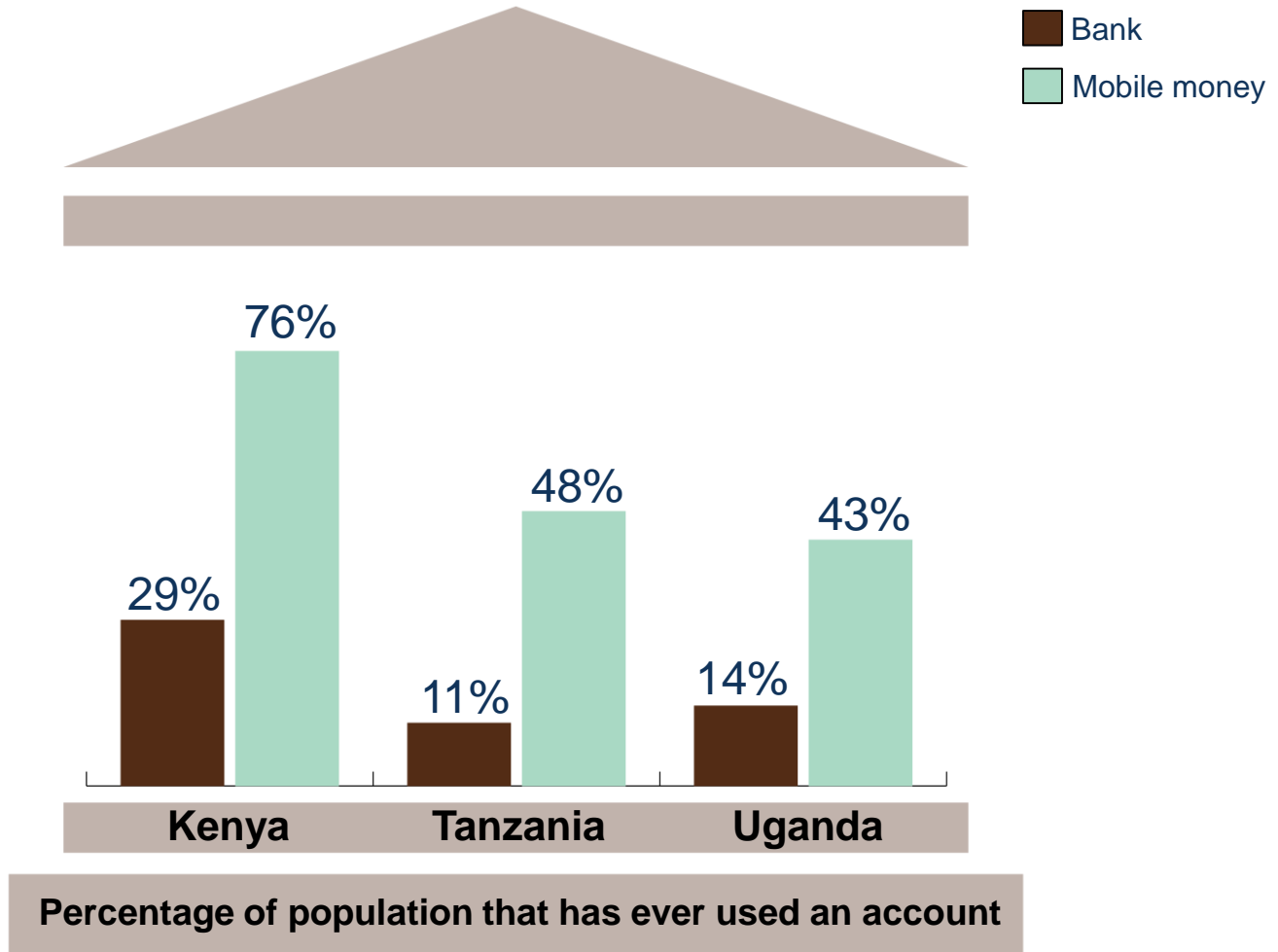


Uganda

Adapted from BioVenn graphing software, ©2007-2014 Tim Hulsen

Who uses mobile money?

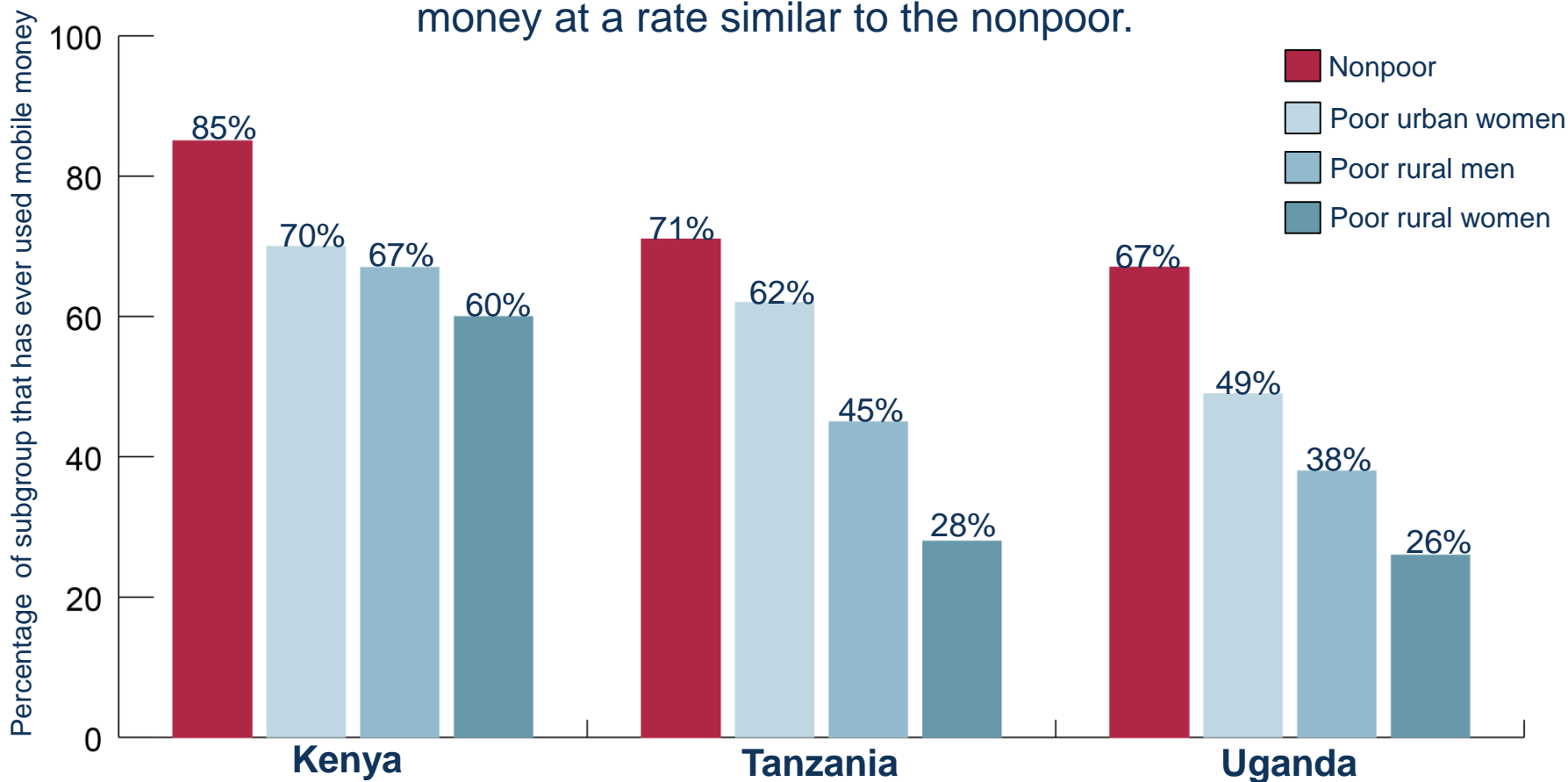
Mobile money serves a much larger share of the population in East Africa than do traditional banks



Women and rural residents are less likely to have ever used mobile money

The disparity in adoption is steeper in Tanzania and Uganda than in Kenya.

We do not focus on poor urban men in this report because they adopt mobile money at a rate similar to the nonpoor.

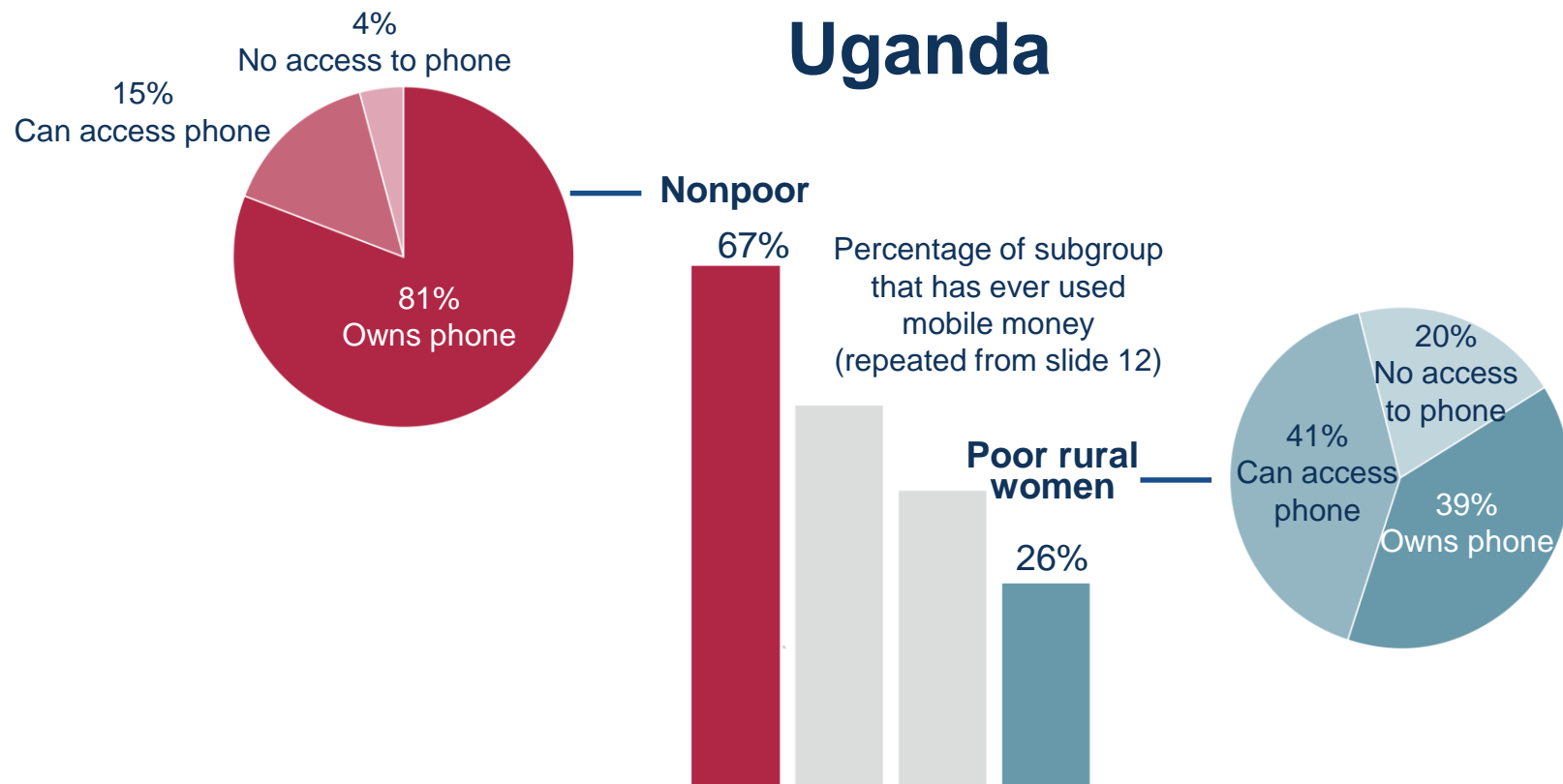


There are many reasons why disadvantaged groups might have lower adoption of mobile money than the nonpoor

- Members of disadvantaged groups might share other characteristics that differ from the nonpoor and help explain lower adoption of mobile money.
- We first present two factors—owning a phone and completion of primary education—as examples that may underpin the observed lower adoption.
- However, considering these factors in isolation portrays a narrow view as other characteristics may also be correlated with these factors and mobile money use.
- To portray a fuller picture, we use a multivariate regression approach that accounts for differences in multiple characteristics simultaneously, and helps identify the select few that are important predictors of adoption of mobile money.

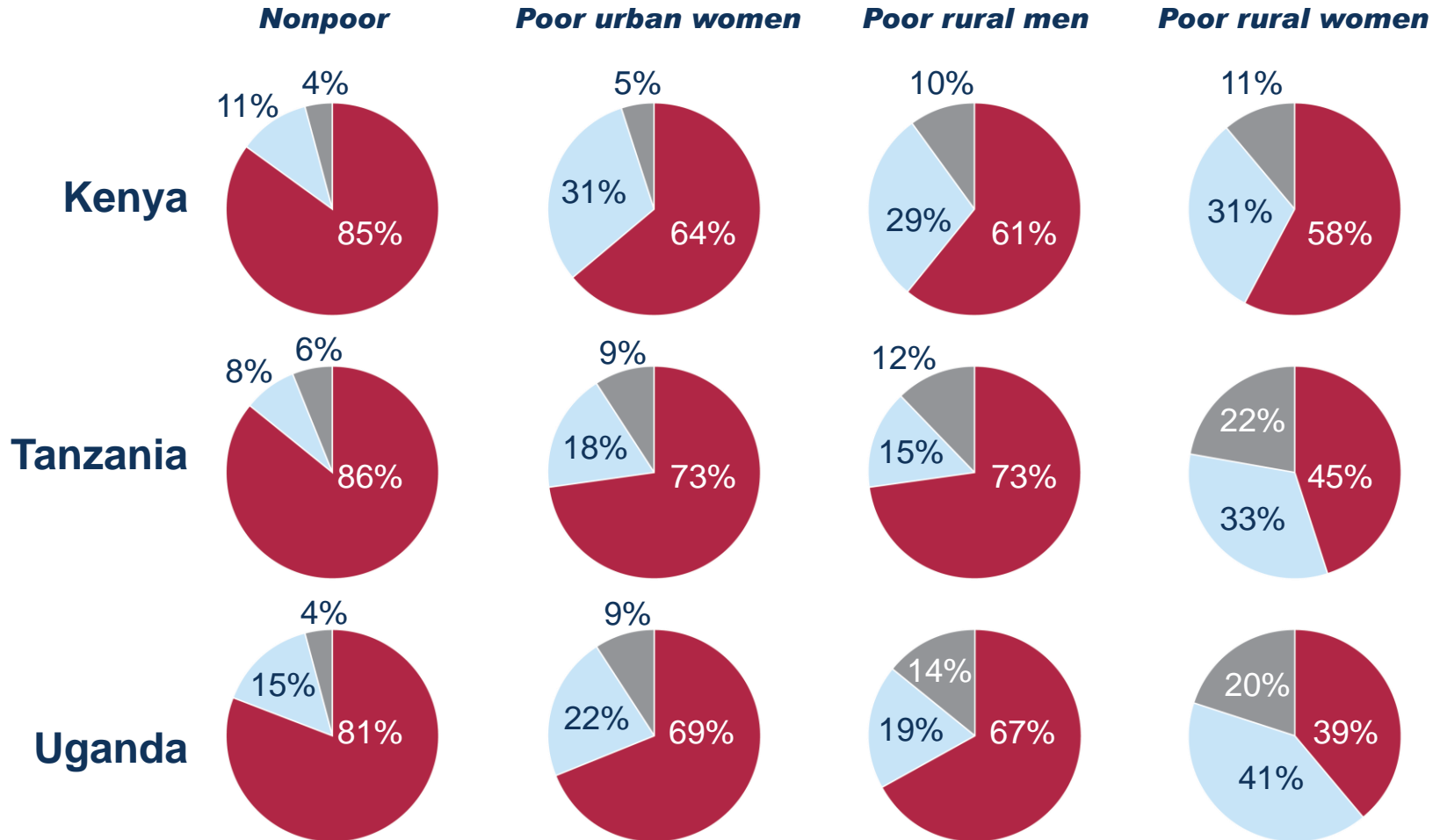
Factor # 1 in isolation—owning a phone: Members of disadvantaged groups are less likely to own a phone than the nonpoor

The disparity in access to mobile technology is greatest in Uganda, with half as many poor rural women owning a phone compared to the nonpoor.



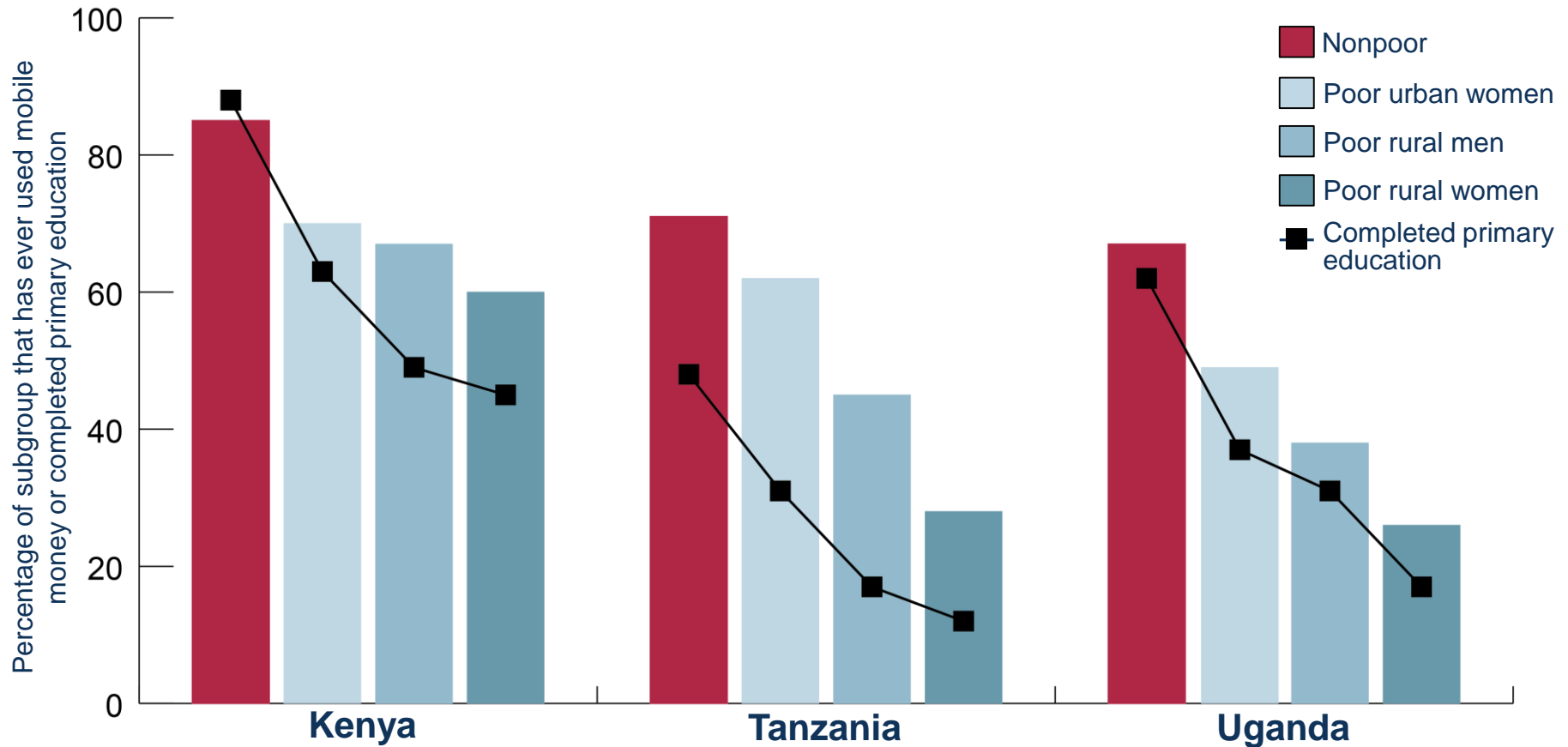
Phone ownership rates are lower among disadvantaged groups in all three countries relative to the nonpoor, and are the lowest among poor rural women in Uganda

■ Owns phone
 ■ Can access phone
 ■ No access to phone

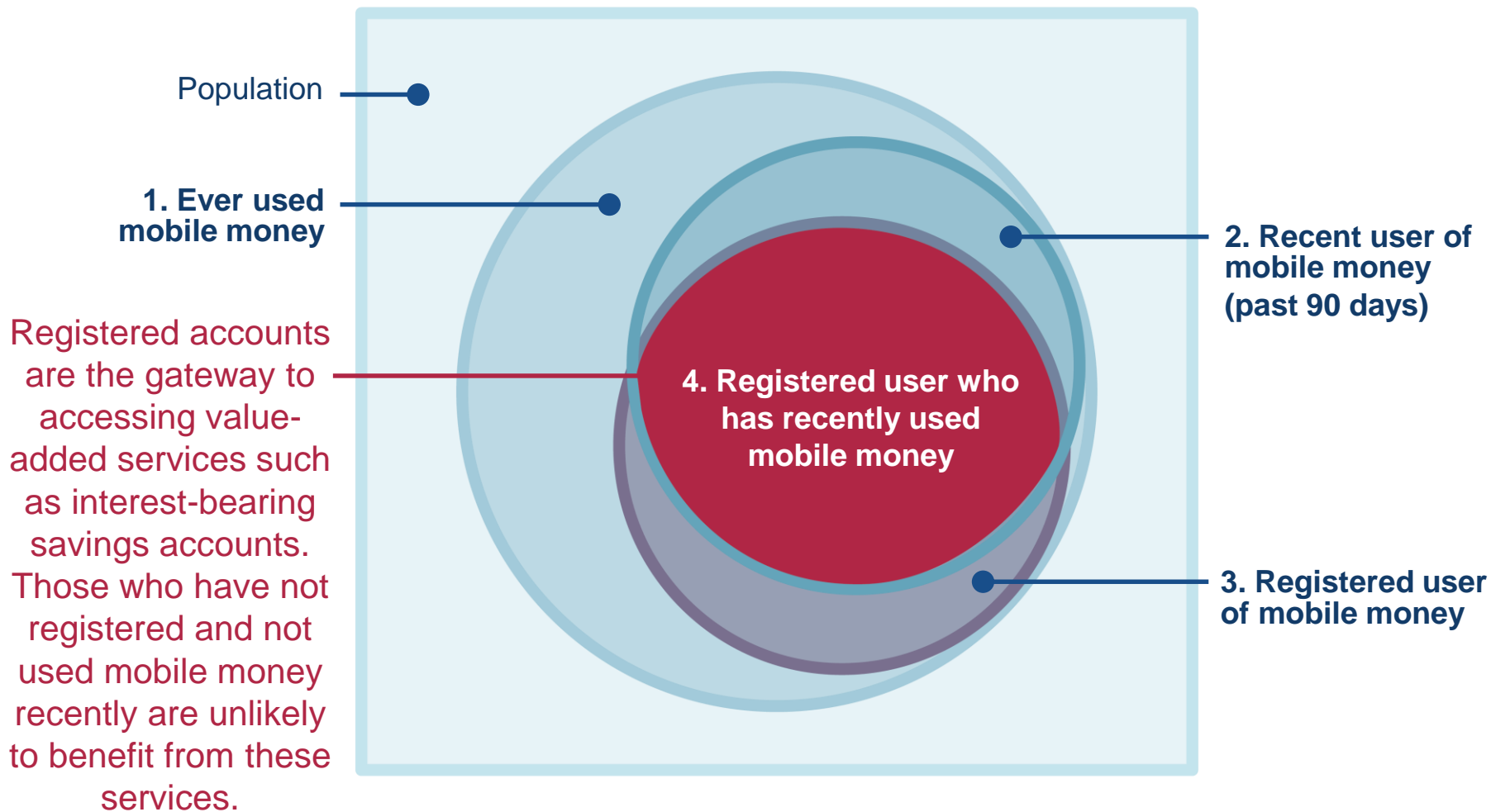


Factor # 2 in isolation—primary education: Members of disadvantaged groups are less likely to have completed primary education (literacy and numeracy skills make mobile money easier to use)

The rate of primary education completion among poor rural women in Tanzania and Uganda is less than one third the rate for the nonpoor.

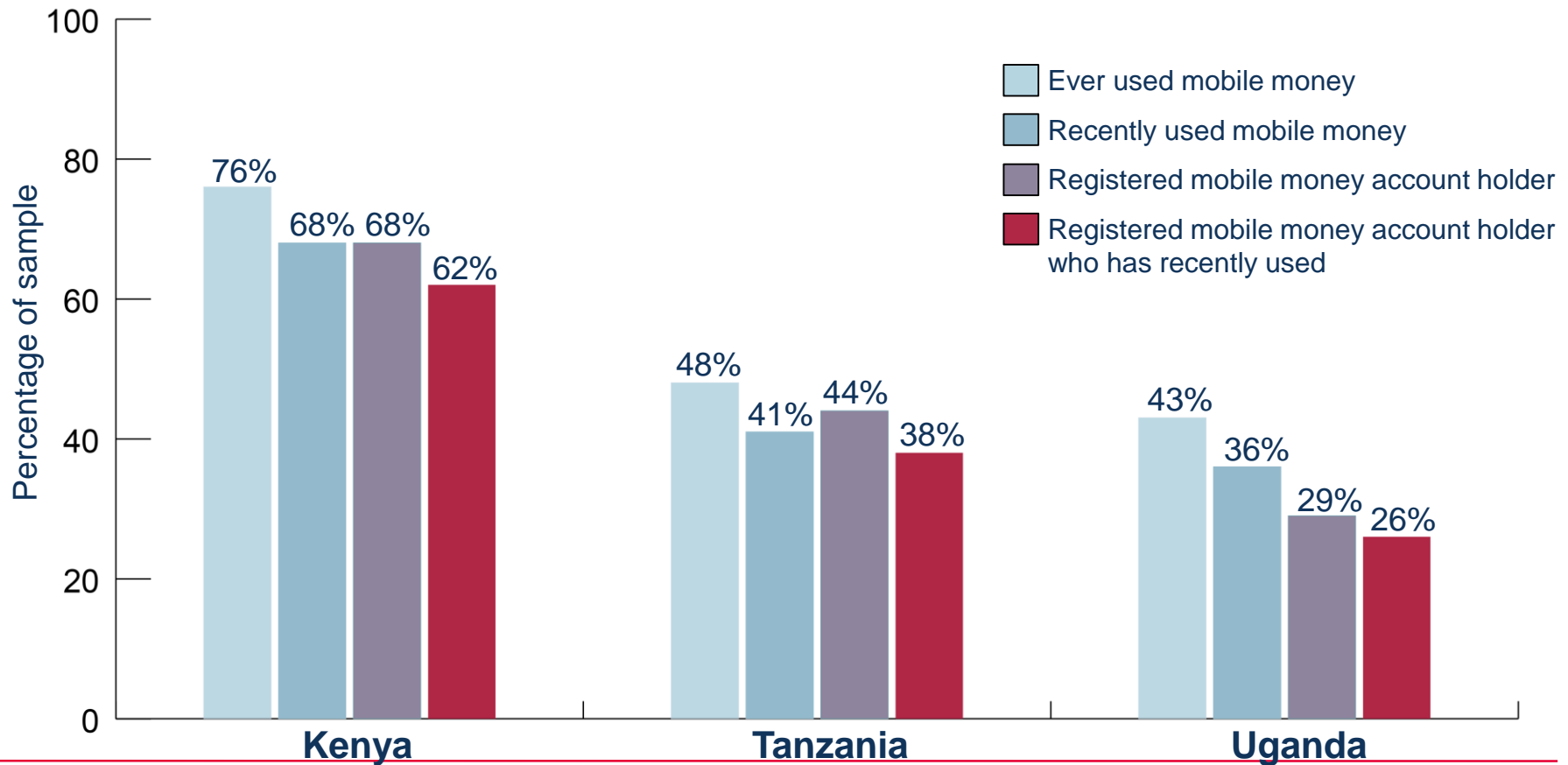


To explore characteristics of users of mobile money services, we define four levels of adoption



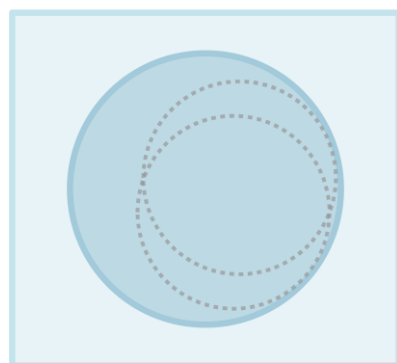
Adoption is highest in Kenya, and Uganda has the steepest drop-off between the four levels of adoption

80% of those who have ever used mobile money in Kenya and Tanzania have reached the goal of owning and regularly using their own account. Only 60% of Ugandans who have ever used mobile money reached that same goal.

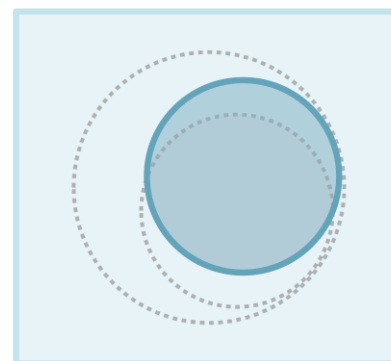


In our analysis, we contrast users at each of the four levels of adoption against the relevant comparison group

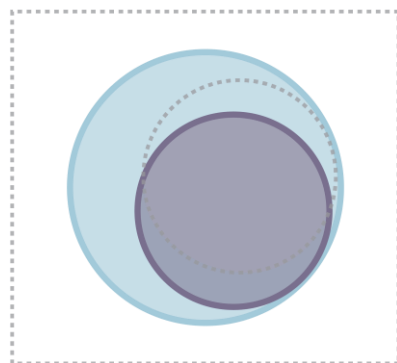
We ran four multivariate regressions (explained more on the next slide) where the outcome was an indicator for having reached a given level of adoption, and the sample was restricted to the relevant comparison group as depicted below.



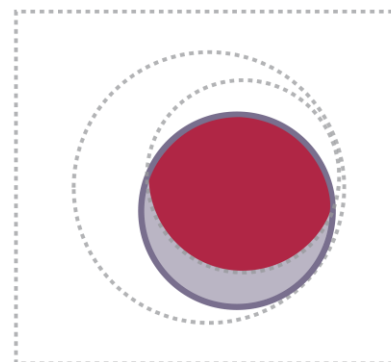
Ever used mobile money
(among **Population**)



Recent user of mobile money
(among **Population**)



Registered user of mobile money
(among **Ever used mobile money**)

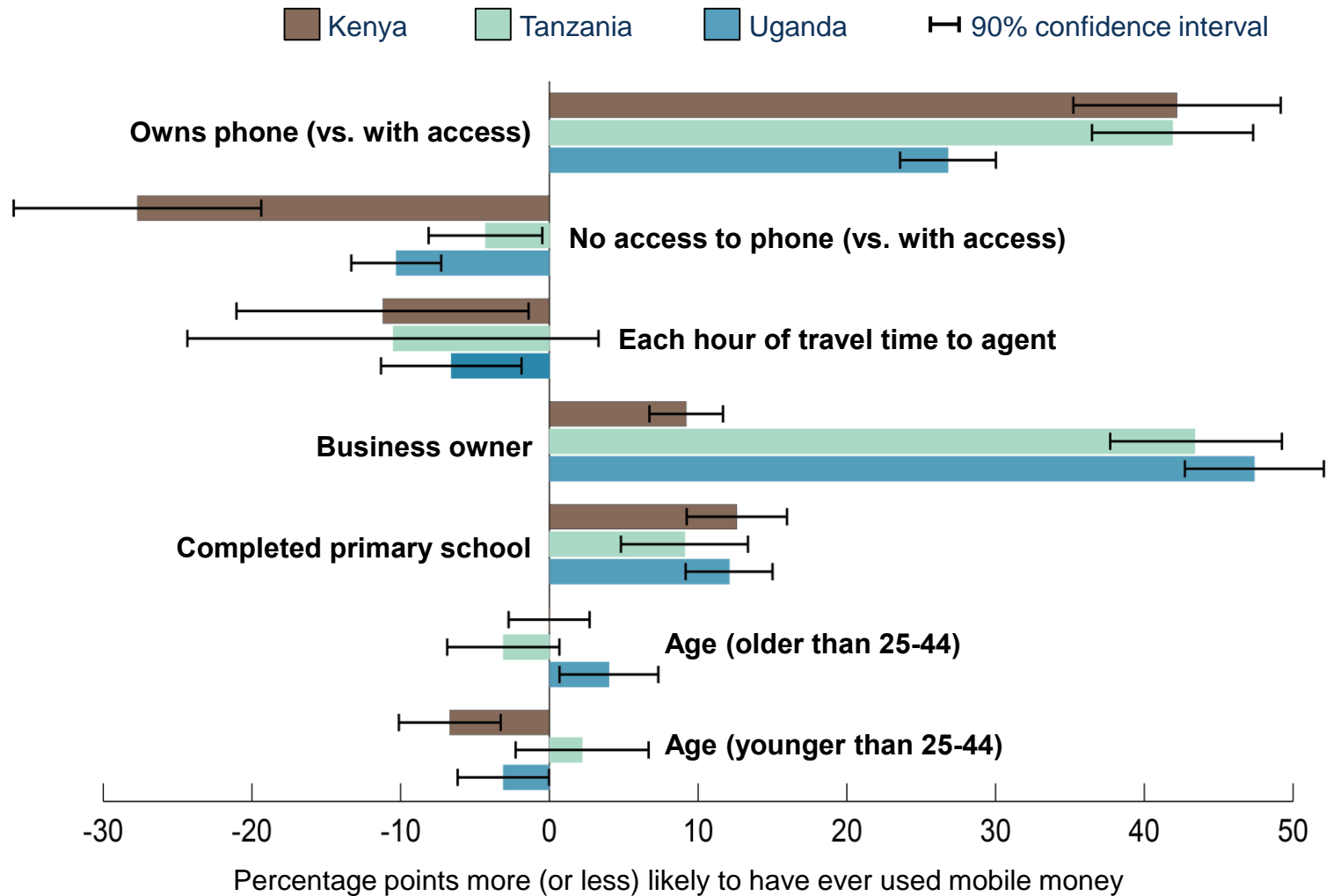


Recent user of mobile money
(among **Registered users of mobile money**)

Methodological notes: Multivariate regression models used to identify characteristics associated with adoption

- We estimated four regressions—one for each level of use as the outcome—with the relevant sample restrictions to limit to the appropriate comparison group as depicted on the previous slide.
- We used the ordinary least squares method to estimate the regression models, and each regression model accounted for the following characteristics:
 - Demographic characteristics: An indicator for each combination of rural/urban and gender among the poor (so that the nonpoor are the excluded category), age groups (with age 25-44 as the excluded category), marital/family status
 - Livelihood: owning a business, being employed, being a farmer
 - Education: Primary school completion, literacy, numeracy
 - Access to technology and services: Owning/not having access to a mobile phone (with the group having access but not owning as the excluded category), local distance to a mobile money agent, an indicator for missing distance data, having the form of ID required to register a mobile money account
- Estimated standard errors are adjusted for clustering by local geographic areas identified by rural-urban status, and county/region/district, respectively, in Kenya, Tanzania, and Uganda.
- We used population weights to calculate nationally representative estimates.

Owning a phone or a business are the strongest predictors of having ever used mobile money



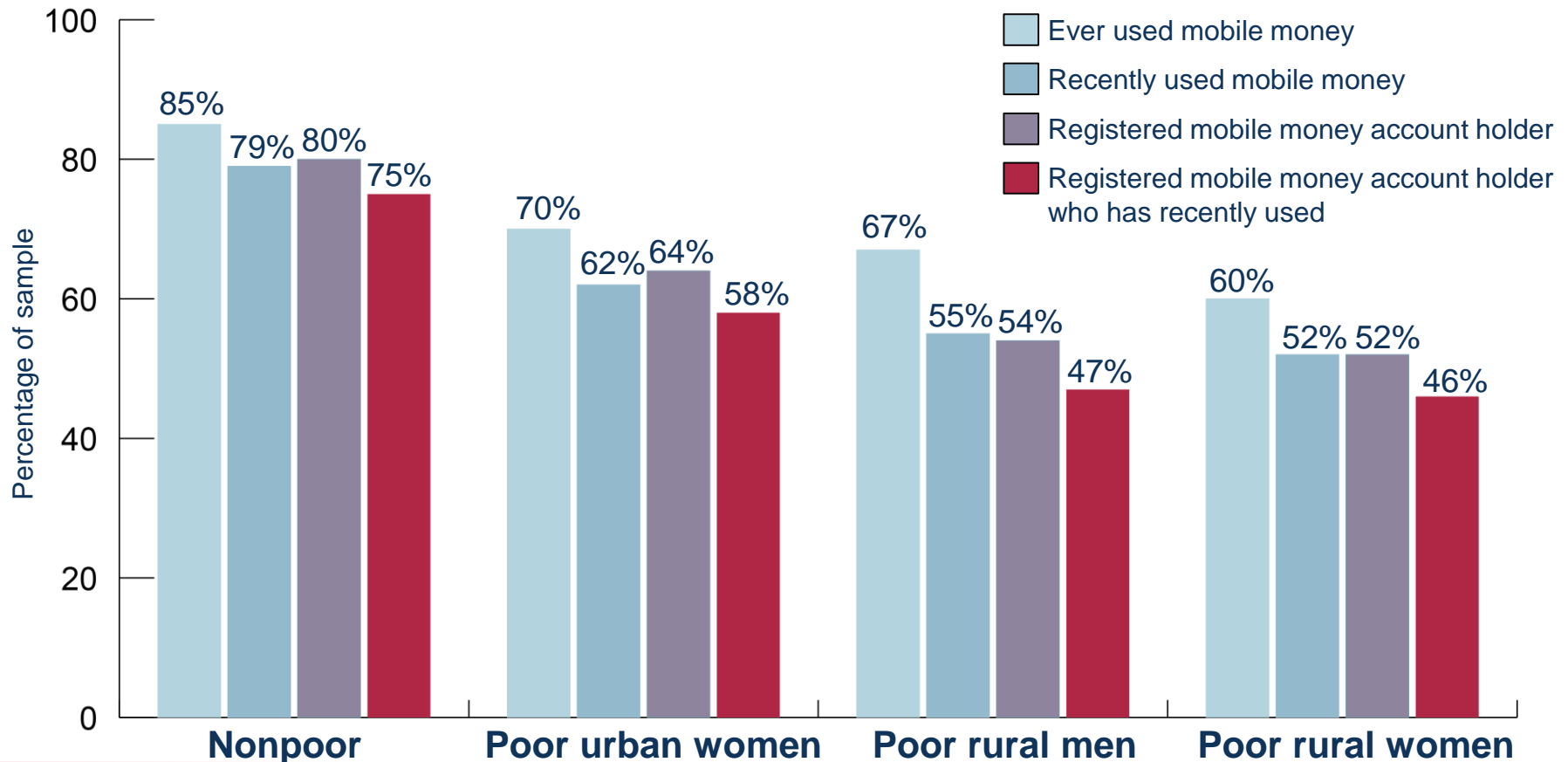
The decision to register an account appears to be idiosyncratic

- The same set of characteristics that predicts having ever used mobile money also predicts recent use of mobile money (in the past 90 days). These are:
 - Ownership of and access to a phone
 - Travel time to a mobile money agent
 - Being a business owner
 - Completion of primary school
 - Age
- However, among ever mobile money service users, when we compared those with a registered mobile money account to those who borrow someone else's account, there is no statistically significant predictor of the decision to register.
- Similarly, when comparing registered users who have recently used their accounts to those who have not, we also do not find any significant predictors.

Next, we consider how adoption at each of the four levels varies across disadvantaged groups. Although we conducted the same analysis to identify correlates of adoption for each subgroup separately, we did not find consistent trends of differential impacts.

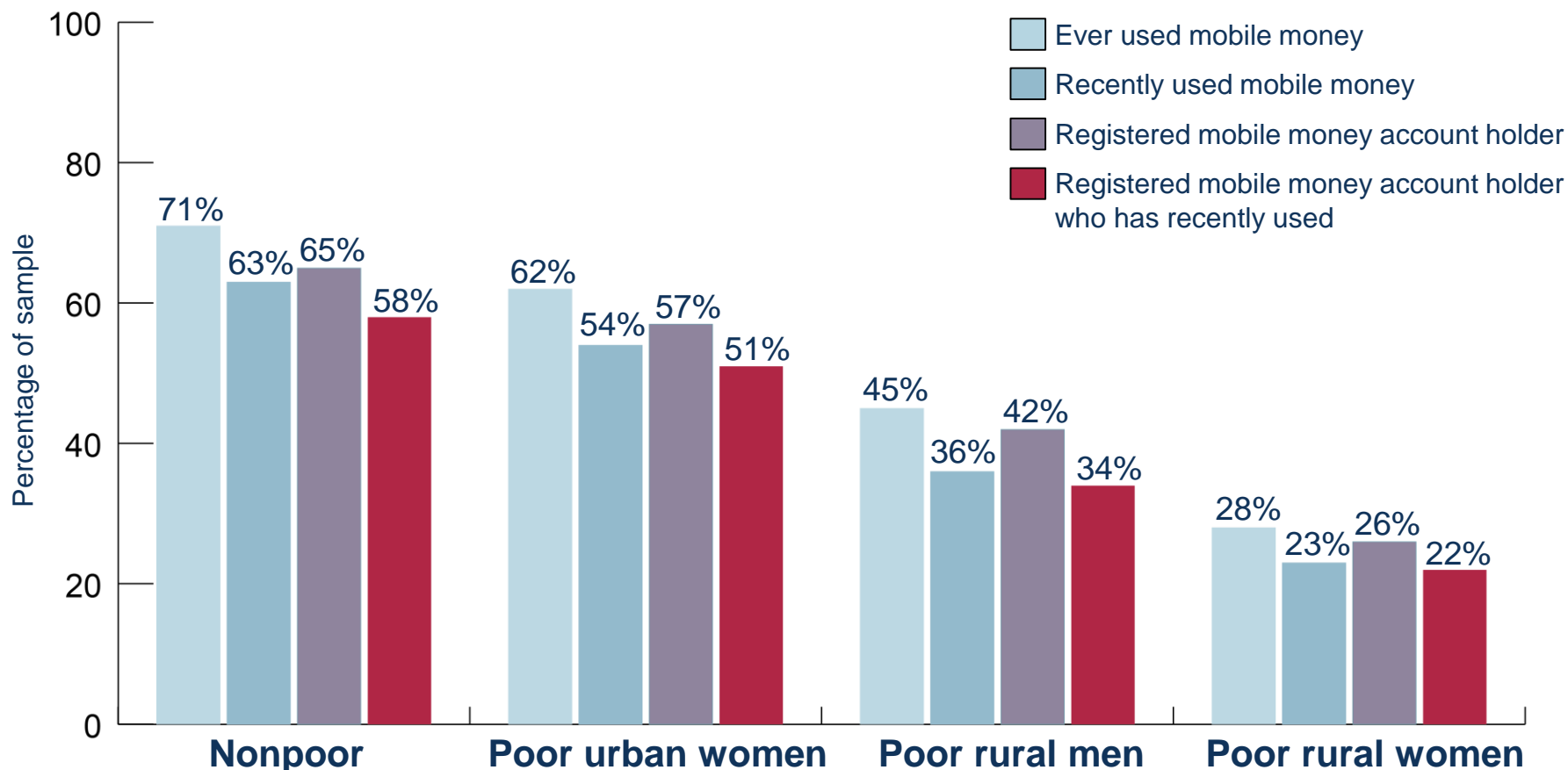
In Kenya, the country-level average masks inequities in adoption by disadvantaged groups

Poor rural residents have lower adoption than their urban counterparts, who also have lower adoption rates than the nonpoor.



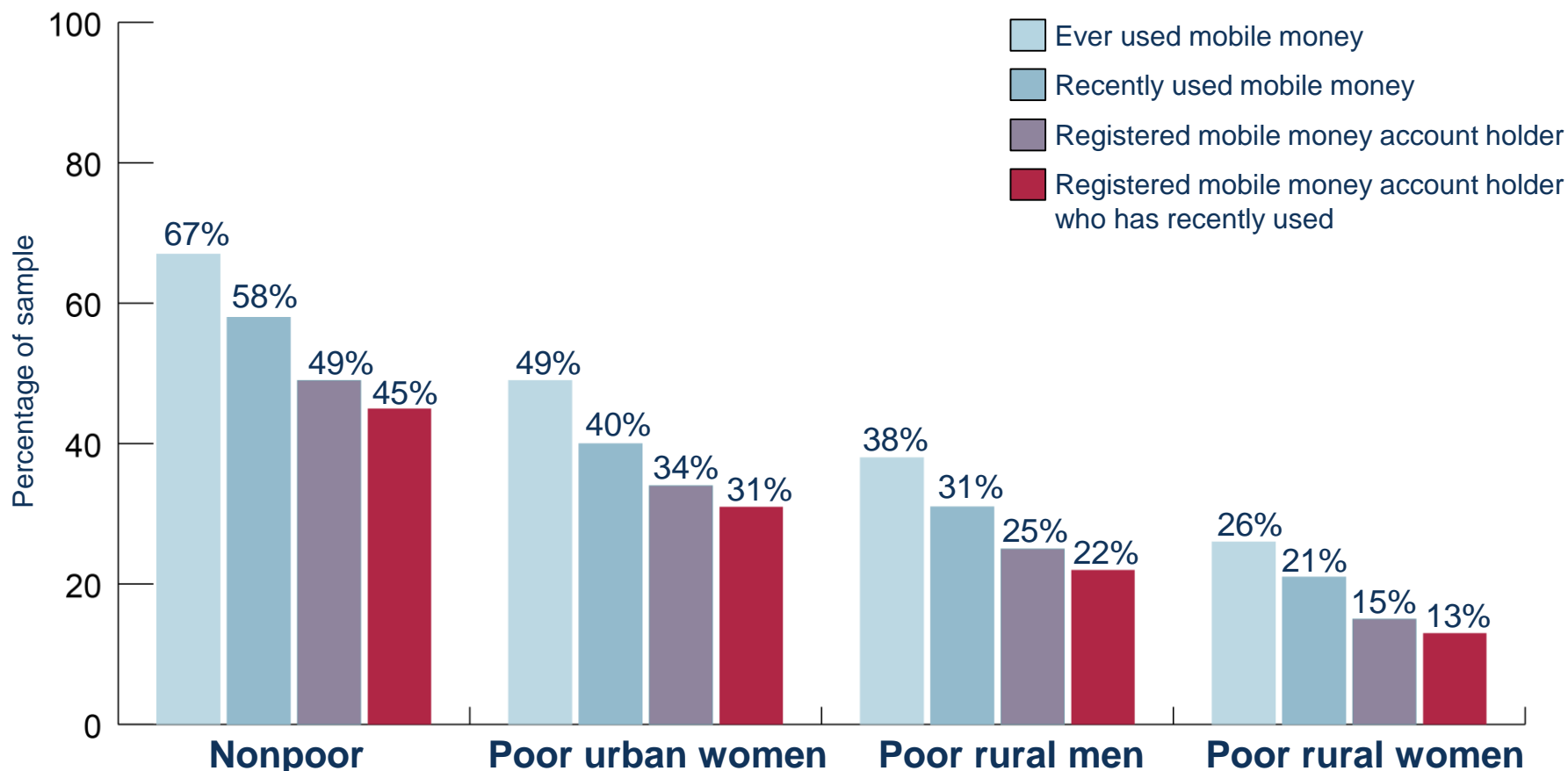
In Tanzania, fewer members of disadvantaged groups have ever used mobile money

But a relatively high share of those who have ever used mobile money achieve the goal of recently using their own registered accounts.



In Uganda, we observe the steepest gradient of adoption across disadvantaged groups

Adoption among poor rural women is almost a third the rate for the nonpoor at each level of use.

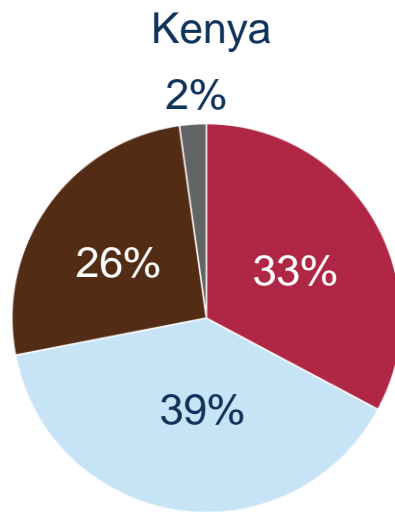


How is mobile money used?

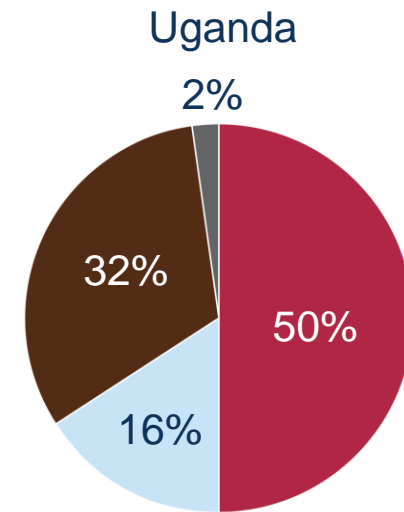
Accessing mobile money services: Non-registered mobile money users borrow accounts from agents, household members, and other family/friends

Sample sizes of nonregistered users are too small to do any subgroup analysis, but qualitatively there are no major differences.

- Over the counter or through an agent's account
- Through the account of a family member in respondent's household
- Through the account of a friend or family member not in respondent's household
- Another means

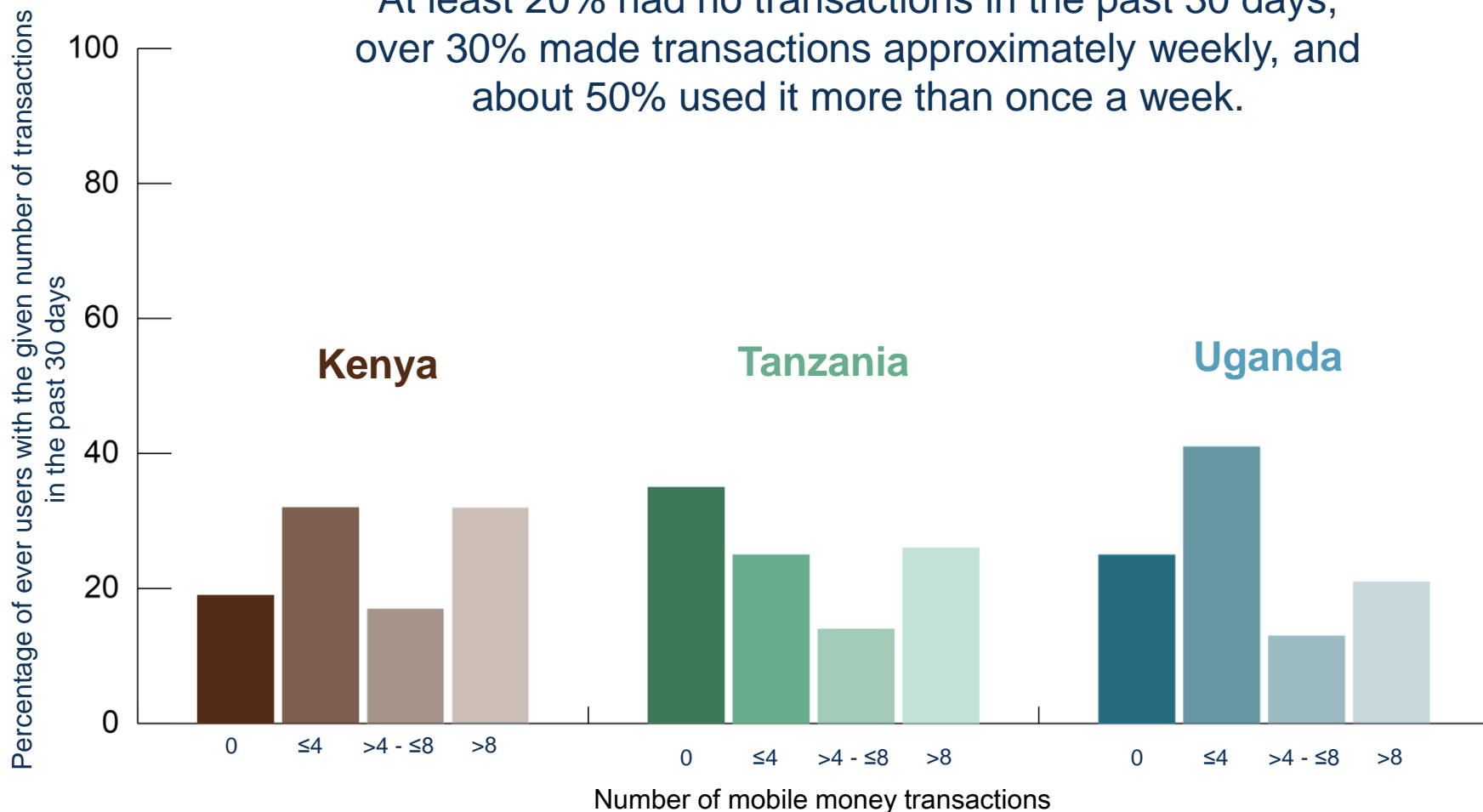


The Tanzania dataset does not include the data for this comparison.



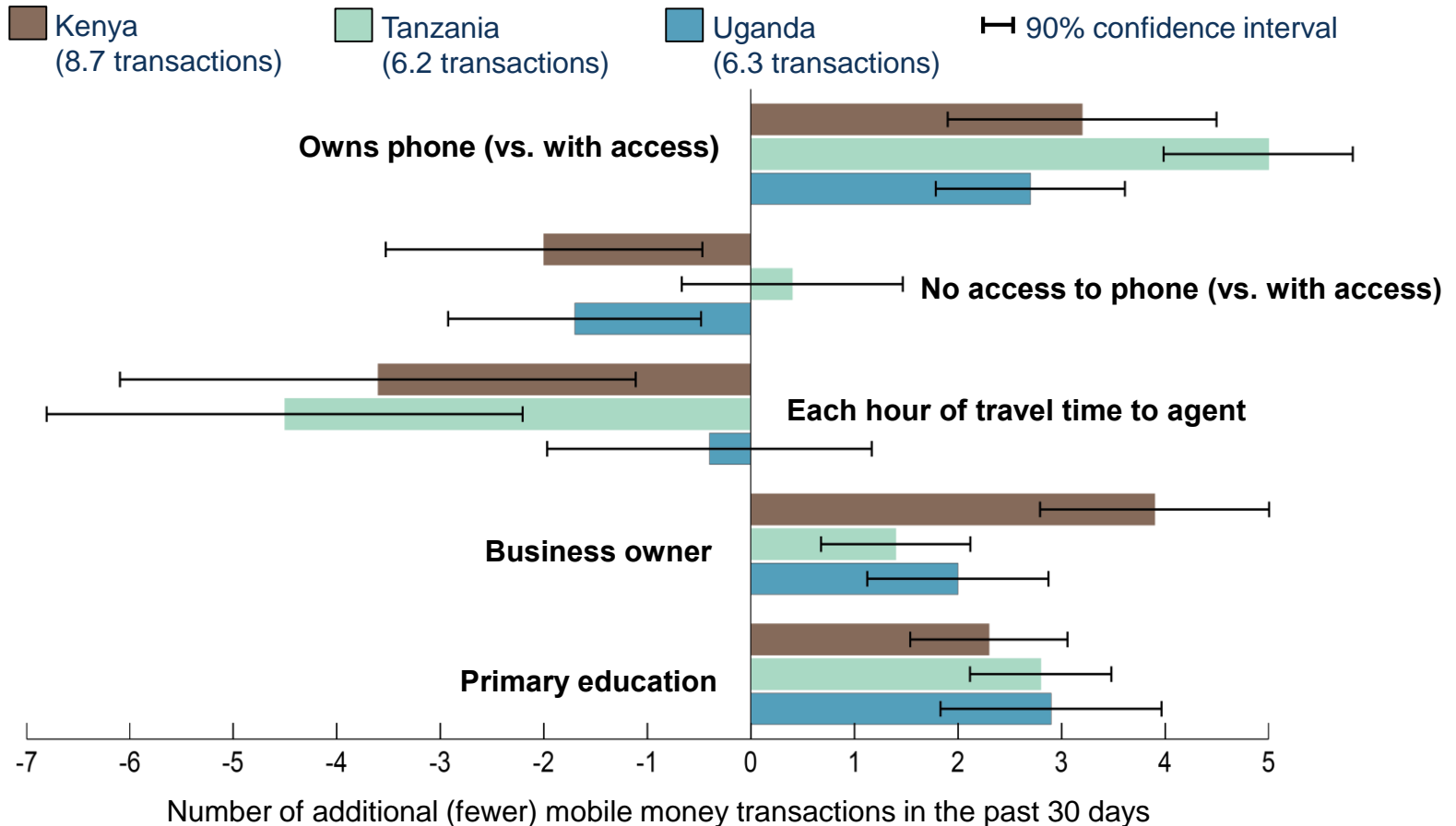
Number of mobile money transactions

Among those who have ever used mobile money:
At least 20% had no transactions in the past 30 days,
over 30% made transactions approximately weekly, and
about 50% used it more than once a week.



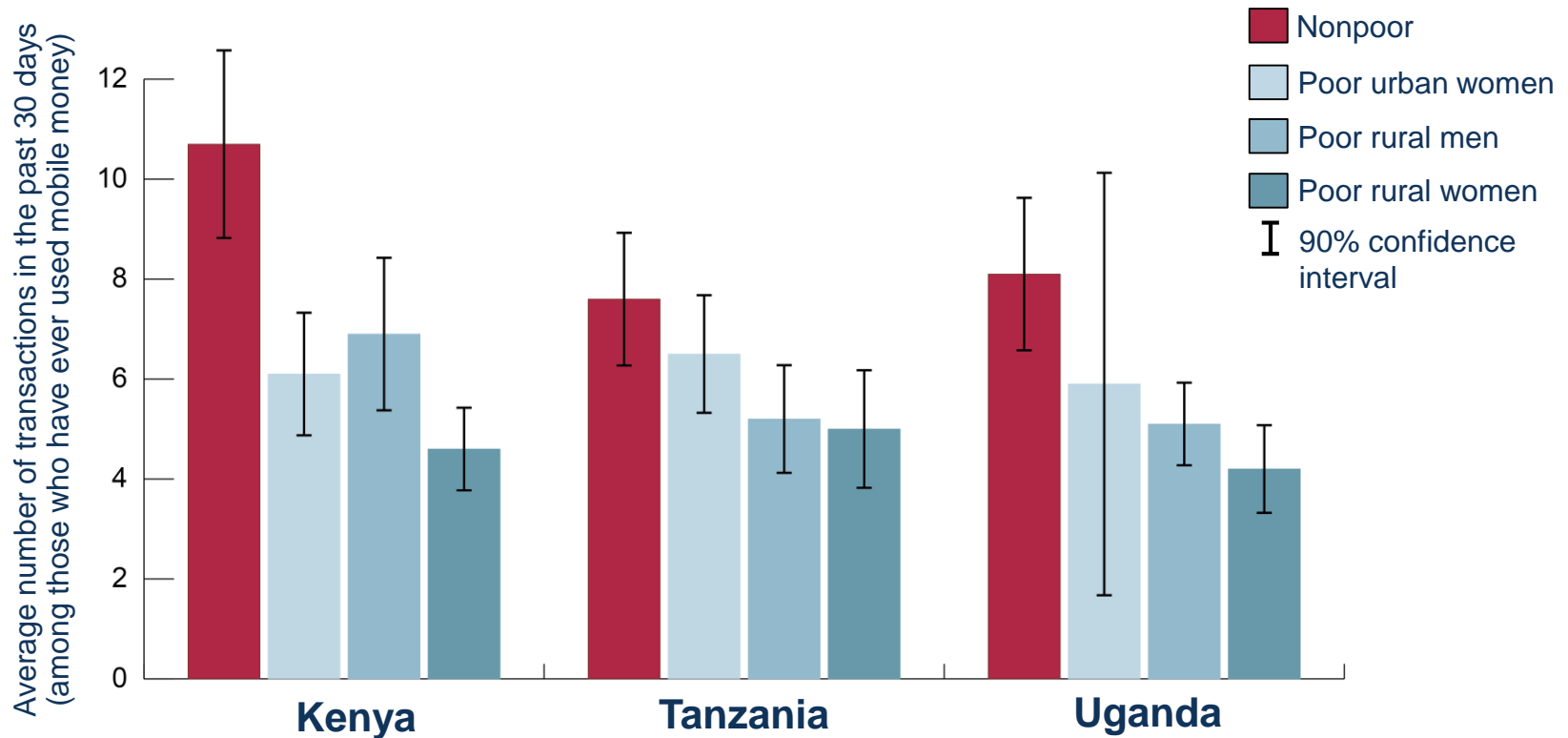
Several characteristics are associated with the number of transactions in the past 30 days among those who have ever used mobile money

With the exception of age, these are the same characteristics that predict having ever used mobile money. Relative to the average number of transactions (shown in parentheses after the country names in the legend), these are very large effects.



Disadvantaged groups make fewer transactions than the nonpoor

Although Kenya has the least disparity in adoption across disadvantaged groups, it has the greatest inequity in number of transactions.



Mobile money is used primarily to store money or transfer to/from another person

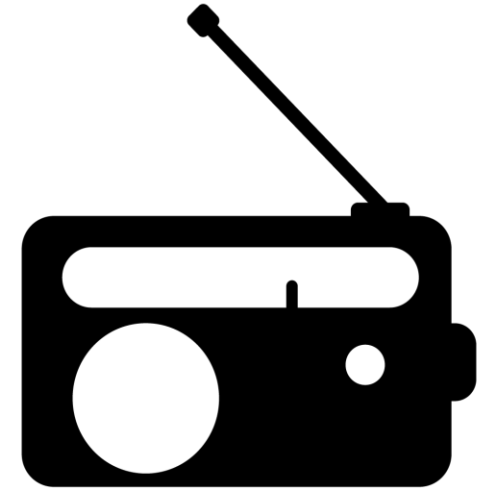
- In all three countries, the most common types of transactions (for all subgroups of the population) are the following:
 - Deposits
 - Withdrawals
 - Airtime purchases
 - Sending/receiving money for regular support/emergencies
- The majority of those who have ever used mobile money have used it for a person-to-person transfer in the past 30 days: 67% in Kenya; 53% in Tanzania, and 73% in Uganda.
- Those who borrow someone else's account are less likely to have made most types of transactions, particularly deposits or airtime purchases.



Why is mobile money used?

Familiarity with mobile money is high, particularly due to radio

- With the exception of poor rural women in Uganda, over 90% of each subgroup in all three countries is familiar with mobile money. They could either volunteer the name of a mobile money service or recognize one when prompted.
- The most common source of information about mobile money in all three countries is mass media:
 - Radio provided information for roughly 80-85% of the population.
 - Personal relationships and representatives of mobile money services reached another 15-20% and 10%, respectively.
 - These shares sum to more than 100% because an individual could list multiple information sources for different mobile money services.
- There are no major differences in sources of information across countries or subgroups.



Person-to-person transfers are the most common reason to start using mobile money

Kenya

- Among the nonpoor, the most common reasons to start using mobile money were to send or receive money (55% and 68%, respectively) and to save or store money safely (10% and 24%, respectively).
- Poor urban women and the rural poor (both men and women) were less likely to want to send money and more likely to want to receive money than the nonpoor.
- All subgroups expressed similar interest in using mobile money for saving or storing funds safely.

Tanzania

- Sending and receiving money were the most common reasons for the nonpoor to start using mobile money, although half as many people cited these reasons as in Kenya (24% and 35%, respectively).
- Poor rural women were especially more skewed toward planning to receive money (58%) as opposed to sending money (7%).
- There was a similar interest in saving and storing funds safely as in Kenya.

Uganda

- High rates of all subgroups reported wanting to send money (ranging from 38% among poor rural women to 65% among poor rural men) and receive money (ranging from 73% among the nonpoor to 83% among poor rural women) as the reason to start using mobile money.
- The survey did not ask about using mobile money for saving or safely storing funds.

Business owners are more likely to use mobile money, but not for business purposes

- Business ownership is strongly predictive of having ever or recently used mobile money. However, the majority of business owners do not report using mobile money for business purposes.

	Business owners (Percentage of population)	Mobile money use		
		Did not use	Sent payments to employees or suppliers	Received payments from customers or suppliers
Kenya	20	63	16	22
Tanzania	16	83	10	12
Uganda	14	69	19	20

- In all three countries, the most common reason business owners cited for not using mobile money for business transactions was that their business was too small to need an account (40% of business owners in Kenya, 56% in Tanzania, and 43% in Uganda).

Summary and conclusions

Summary of findings: Kenya, Tanzania, and Uganda are at different stages of mobile money adoption

- Kenya leads in terms of overall adoption, converting people who have ever used mobile money into registered recent users, and in equity across disadvantaged groups.
- Tanzania's adoption rates are about two-thirds of Kenya's, but similar trends appear in terms of conversion of ever users to registered recent users as well as equity.
- Uganda's rate of ever using mobile money is similar to Tanzania's, but usage drops steeply from ever users to registered recent users. Inequities are also greatest in Uganda, where adoption of mobile money among poor rural women is about one-third of that of the nonpoor.

Summary of findings: The three countries have similar predictors of mobile money use but different equity profiles

- Five key characteristics are associated with mobile money use (either ever use or recent use): Age, education, business ownership, distance to agents, and phone access or ownership.
- Except for age, these characteristics also predict the number of mobile money transactions in the past 30 days.
- In Tanzania and Uganda, even after adjusting for other characteristics, the rural poor (both men and women) are less likely to have ever used or recently used mobile money services.
- No characteristics consistently predict registration or recent use among the registered.
- There are similar inequities across groups in the number of transactions as for adoption of mobile money.
 - Kenya has the smallest inequities in adoption, but the greatest inequities in number of transactions.

Summary of findings: Mobile money is used in similar ways across the three countries

- The desire to be able to make person-to-person transfers motivated most people to start using mobile money.
- Person-to-person transfers, along with deposits, withdrawals, and airtime purchases, are the most common types of transactions that mobile money users ultimately make.
- Although business owners are much more likely to use mobile money, they do not use it for business purposes primarily because they consider their businesses to be too small to need financial services.

Policy implications

- Policymakers in the three East African countries need to address the inequities we identified in access to and use of mobile money services. If they remain unaddressed, mobile money could reinforce existing economic inequalities instead of alleviating them.
- The key characteristics that predict mobile money use can be leveraged for improving penetration of mobile money. For example, lowering cost of accessing/owning a phone could encourage more people to adopt a mobile money. Another example would be to emphasize increasing mobile money use among the less educated as a policy goal.
- However, given the descriptive nature of the current analysis, we would underscore the need for determining the impacts of mobile money use on the economic outcomes of families and business owners before recommending potential policy options.
- There is much room for continued development of the digital financial services sector in these countries with higher-value services, such as interest-bearing savings, credit, and insurance accounts.

Supplementary analyses on farmers

Defining “farmers”

- For these analyses, **we include all respondents who indicated that their “primary job” (that is, the job where you spend most of your time) was either farmer or farm worker.** This accounts for 32% of Kenyans, 45% of Tanzanians, and 54% of Ugandans.*
- We did not include those who listed farmer or farm worker among their secondary or side jobs since based on our familiarity with East Africa, this likely includes many people who have other employment but still do some farm work at their extended family’s land holdings.

* As in the earlier analyses, we use sampling weights for all calculations.



“Urban” farmers?

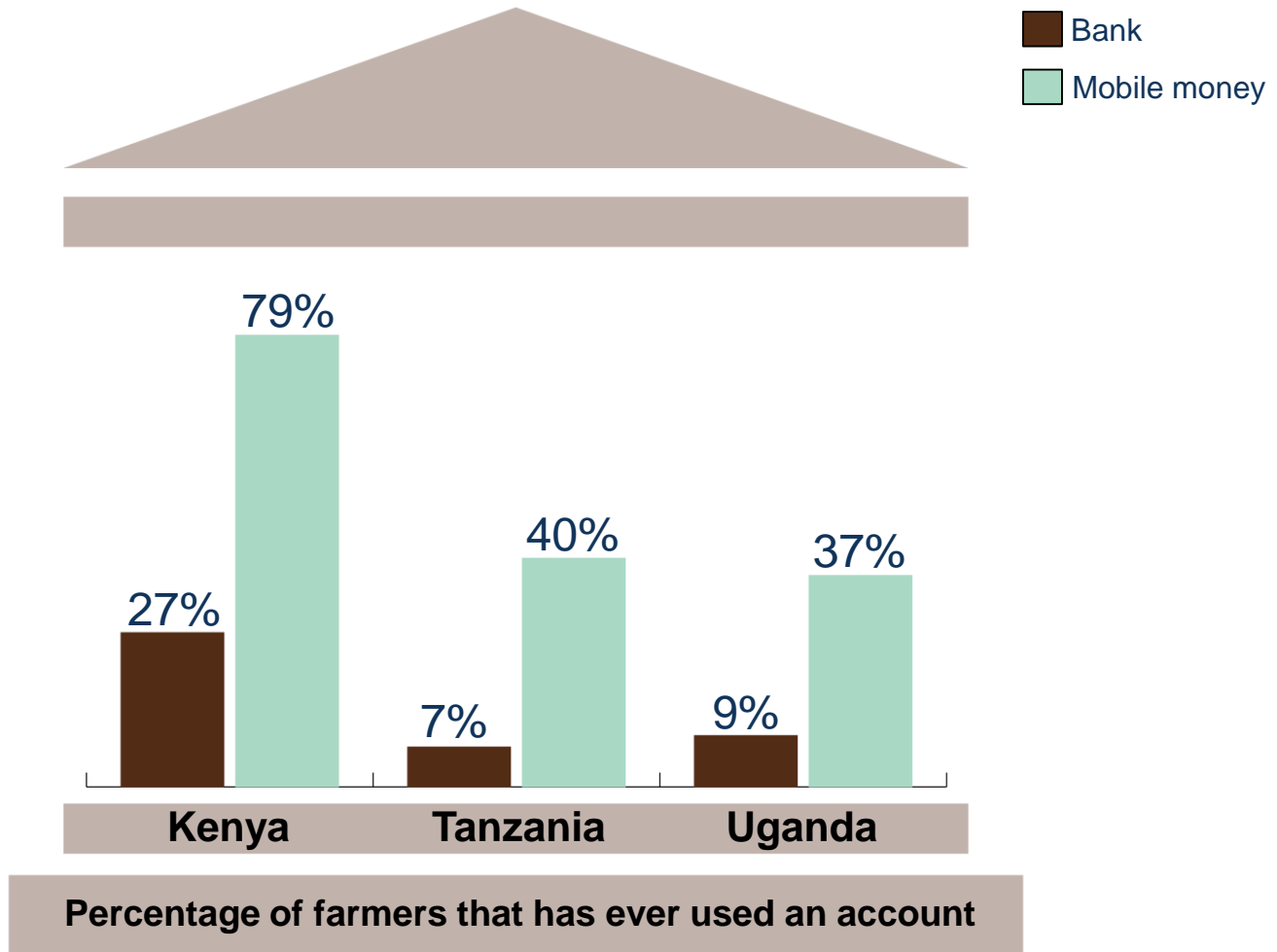
- A relatively high share of farmers are categorized as “urban” according to the enumeration area type included in the datasets (10% in Kenya, 20% in Tanzania, and 5% in Uganda). We did not have sufficient information on how urban areas were identified to be able to judge whether or not this was plausible. We include these respondents in the analysis on the assumption that this reflects peri-urban areas where farming is possible.
- Rural farmers are slightly less likely to have ever used mobile money than urban farmers, so the inclusion of urban respondents in the farming group could potentially have inflated the adoption rates presented in these analyses.



Farming, location, and poverty

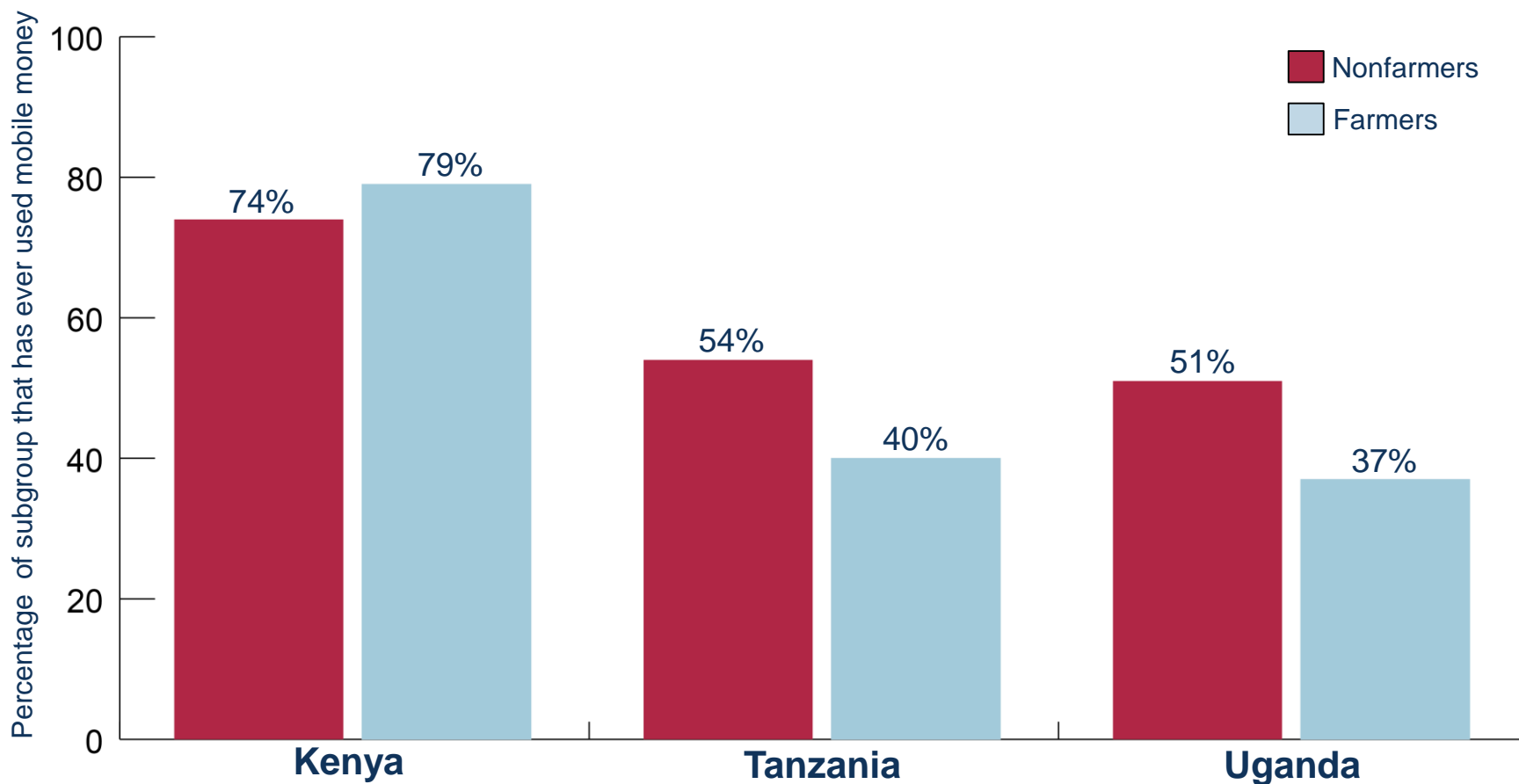
- **There is a high degree of overlap between the subgroups used in this analysis of farmers and the subgroups based on location and poverty used in the main analysis on inequities**
 - Almost 60% of farmers in Kenya are rural and poor
 - More than 80% of farmers in Tanzania are rural and poor
 - More than 75% of farmers in Uganda are rural and poor
- **In all three countries, the majority of the nonpoor are also nonfarmers**
 - More than 75% in Kenya and Tanzania
 - 65% in Uganda
- **Because of this overlap, the results by farm employment have a number of similarities with the results by location and poverty;** nonetheless, there are some interesting insights that emerge when the sample is divided by farming

In all three countries, mobile money serves far more farmers than traditional banks



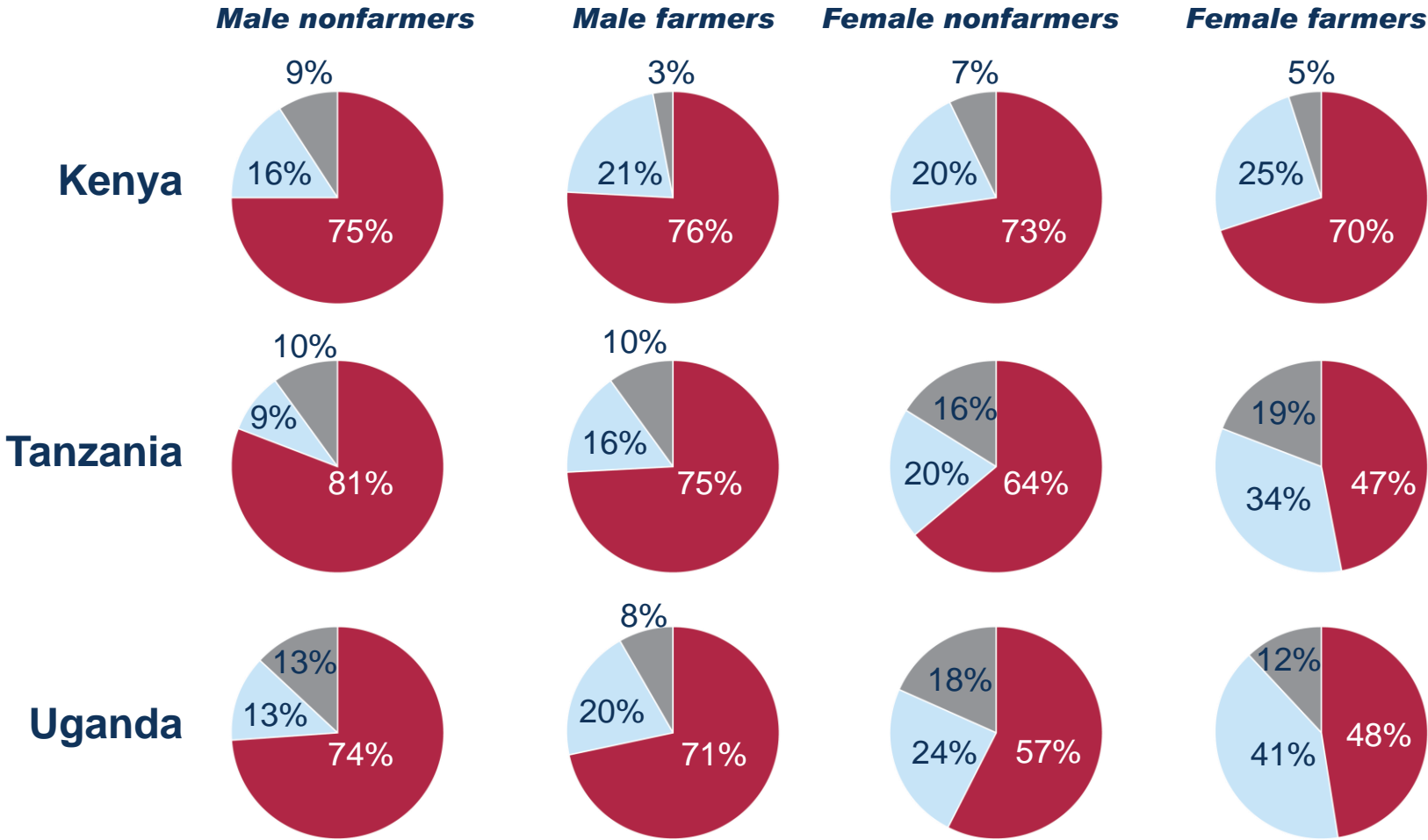
In Tanzania and Uganda, farmers are less likely than nonfarmers to have ever used mobile money

In Kenya, farmers are actually slightly more likely than nonfarmers to have ever used mobile money, driven by higher adoption among male farmers.



In Tanzania and Uganda, women, particularly farmers, are less likely to own phones and more likely to access someone else's phone than men

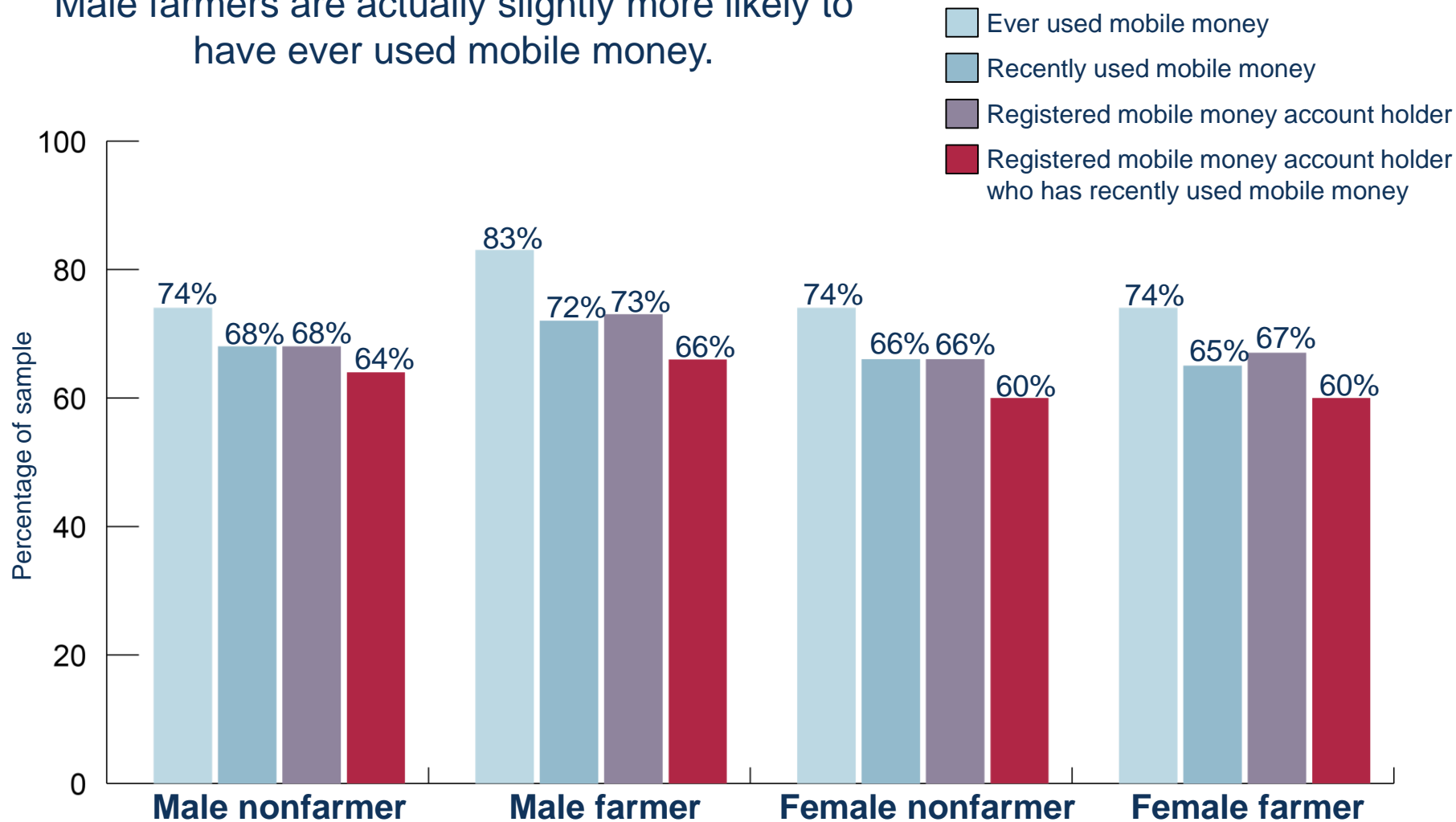
■ Owns phone
 ■ Can access phone
 ■ No access to phone



Note: Percentages may not sum to 100 due to rounding.

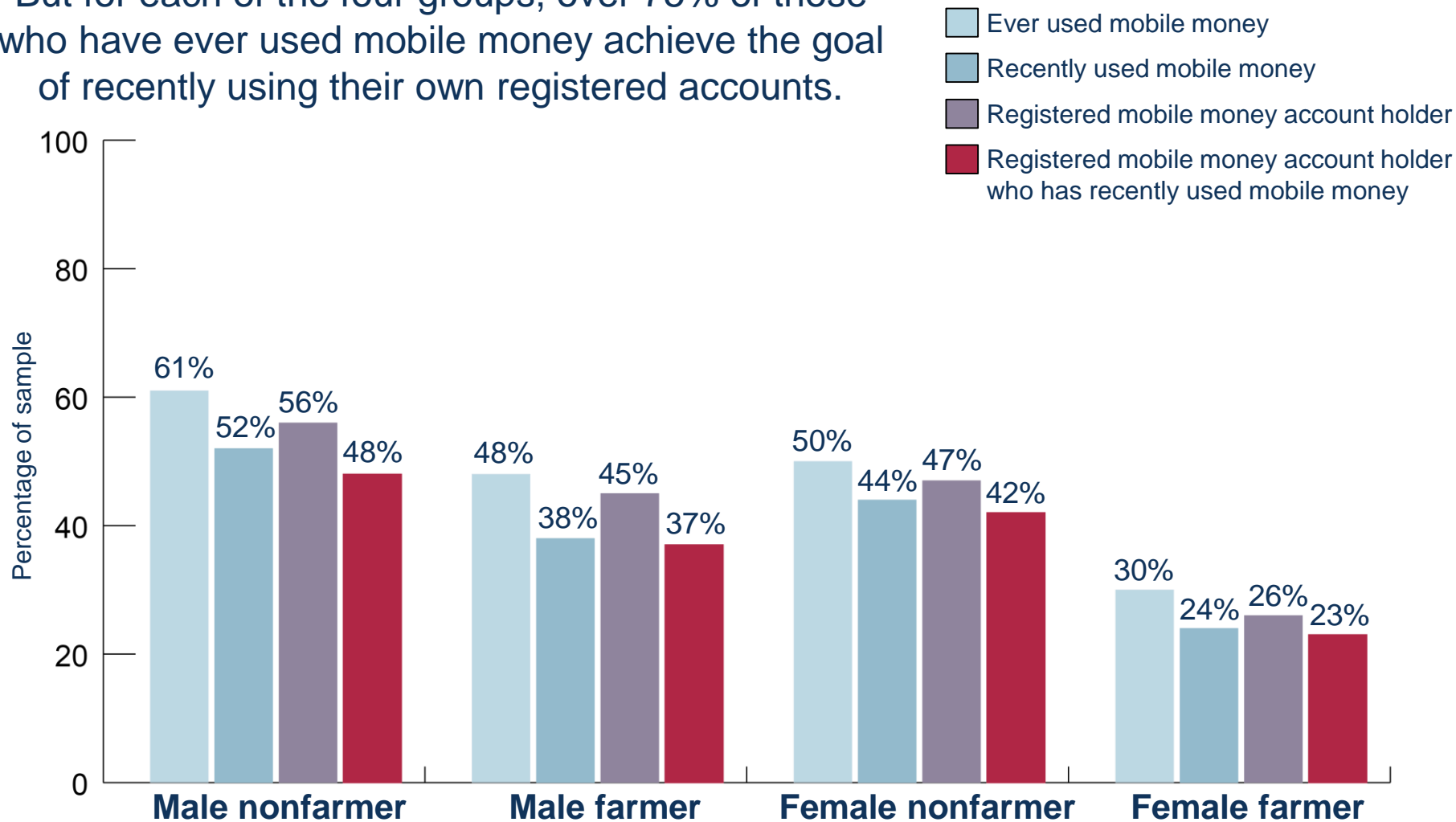
In Kenya, farmers are no less likely to have used mobile money than the rest of the population

Male farmers are actually slightly more likely to have ever used mobile money.



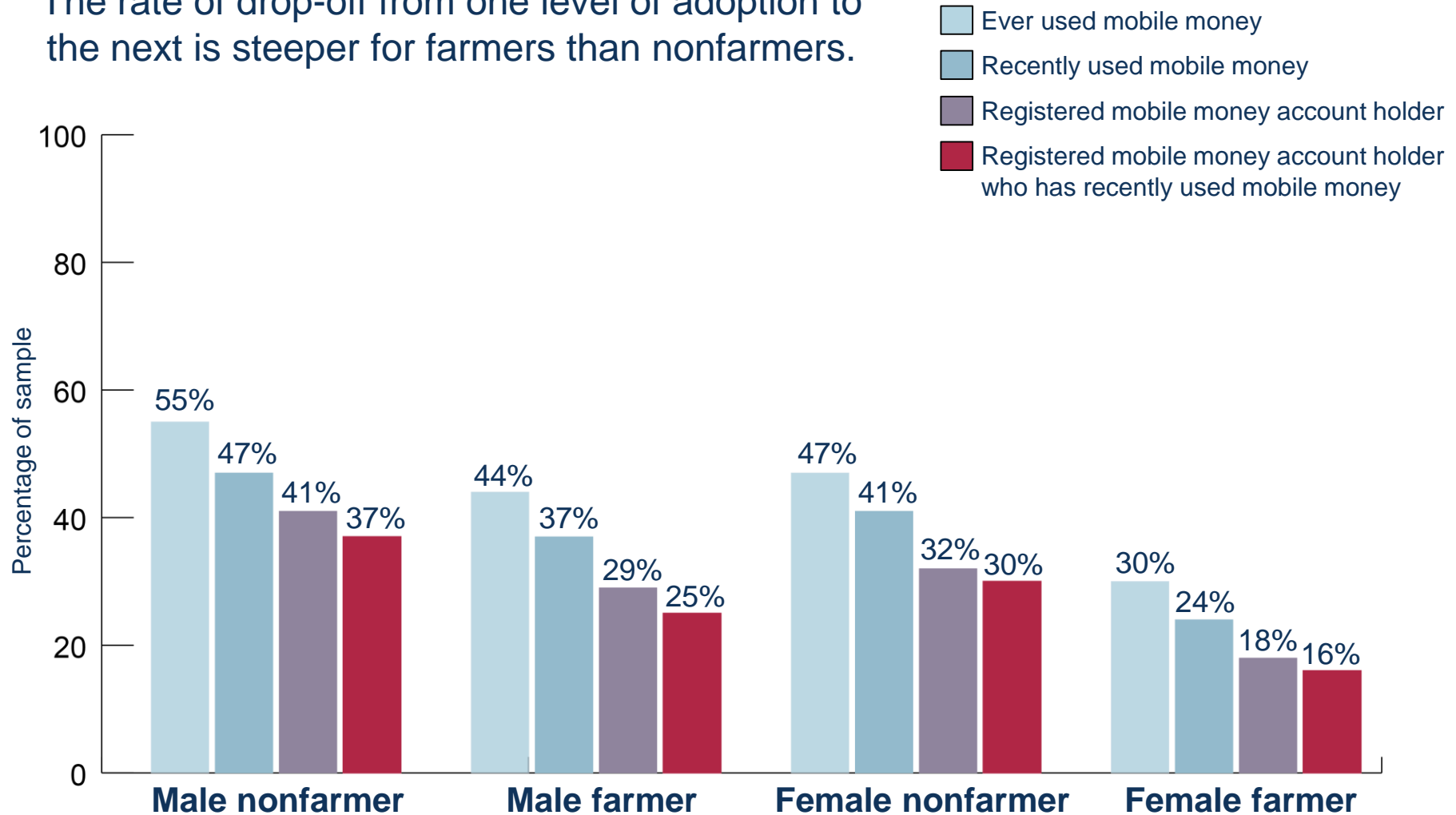
In Tanzania, female farmers' adoption is just over half the rate for female nonfarmers, and just less than 2/3 the rate of male farmers

But for each of the four groups, over 75% of those who have ever used mobile money achieve the goal of recently using their own registered accounts.



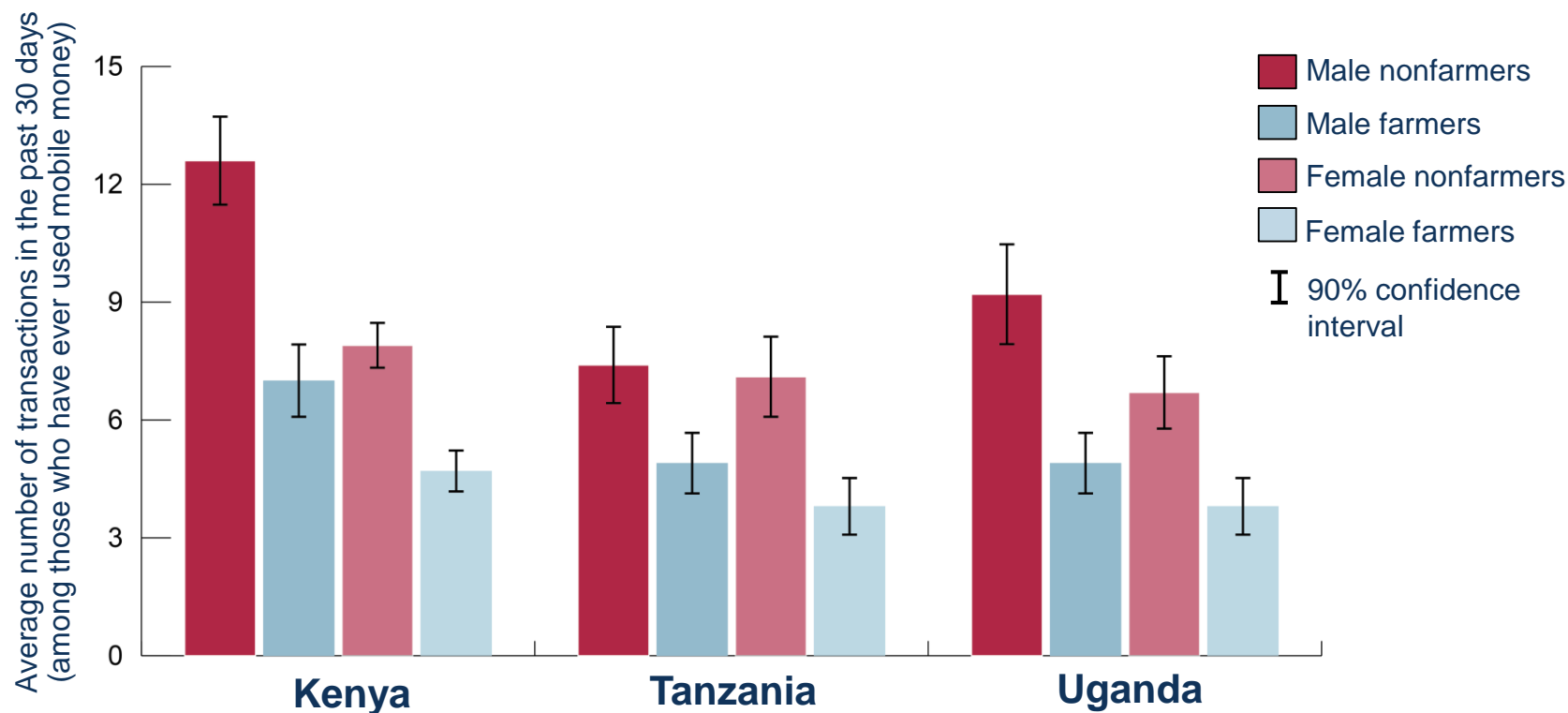
In Uganda, the situation is similar to Tanzania, except that fewer people have registered accounts

The rate of drop-off from one level of adoption to the next is steeper for farmers than nonfarmers.



Farmers make fewer transactions than nonfarmers in all three countries

In Kenya and Uganda, females make fewer transactions than males. Females make roughly the same number of transactions in all three countries, but roughly half as many by farmers as nonfarmers.



Summary of findings on farmers

- **In Tanzania and Uganda, farmers are less likely to use mobile money than nonfarmers, and there is a gender gap in mobile money use regardless of occupation**
 - Farmers' adoption of mobile money is a bit higher than among the rural poor, but the rates of conversion from having ever used mobile money to having recently used a registered account are very similar to those for rural poor
- **In contrast, Kenyan farmers and women are no less likely to have ever used mobile money**
- **In all three countries, farmers use mobile money less intensively than nonfarmers** (based on the number of transactions)
 - In Kenya and Uganda, there is also a gender gap in the intensity of use

Conclusions

- **In these rich datasets, there are a number of ways to define farmers; for example, farmers could either include or exclude**
 - those who report being a “farm worker”
 - those who report farming/farm work among their secondary jobs, and
 - those who report farming/farm work as a job but live in urban areas
- **Regardless of the exact definition, there is a high degree of overlap between occupation (farming versus not) and location/poverty**
- In our primary analysis, controlling for other characteristics, farming was not significantly correlated with adoption of mobile money (see slide 20)
- **However, if occupation is easier to observe than poverty status, targeting farmers could be a cost-effective approach for efforts to increase use of mobile money**

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