"I wld like u WMP to extend electricity 2 our village"

Supplementary Information

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1 Introduction

In this online appendix, we describe several game theoretical models from which our predictions were derived and report various robustness checks and additional analysis not reported in the main text for brevity. Section 2 begins by presenting a theoretical model from which we derive the prediction that a price subsidy will lead to an increase in messaging (2.2). We then move to present a model, which illustrates the core logic behind our prediction that a price subsidy would increase the share of messages about public goods (2.3).

Section 3 present the results of robustness checks on our test of $H1$ (3.1 and 3.2) and $H4$ (3.3), respectively. Section 4 presents three pieces of analysis alluded to in the body of the main paper: deeper analysis of the non-representativeness of the preferences of the engaged and sender types (4.1); the relationship between message type and constituent type across treatment groups (4.2); heterogeneous effects for $H4$ (public private switching) by political access (4.3); and heterogeneous effects by MP and constituency type (4.4).

Section 5 provides information that allows assessing the extent to which Uganda is 'representative' or a special case with respect to mobile penetration. Section 5.1, documents the massive growth in use of ICTs in Africa and Uganda in particular over the past decade. Section 5.2 presents data on the relative levels of inequality across all countries. That Uganda is a relatively unequal country reinforces our claim that it provides a good context for a study that aims to examine means to increase the political voice of marginalized populations. Finally, Section 6 lists and explains deviations from our pre-analysis plan.

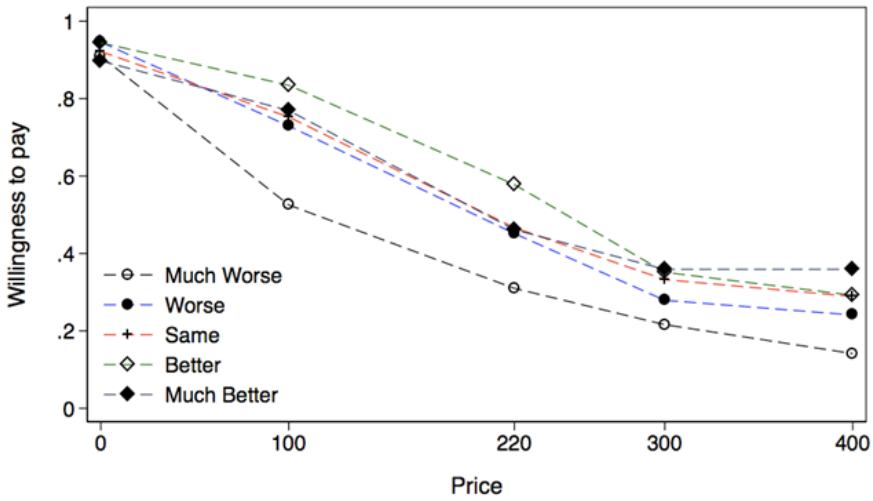
2 Theoretical Motivation

2.1 Heterogeneous Effects of Price: for whom does enhanced access matter?

Our theory suggests that the overall effect of a subsidy on interest articulation may result in part from different effects for different subpopulations and in particular that poorer populations may be more sensitive to higher prices. Data gathered by the National Democratic

Institute (NDI) in 2010 also suggests that such patterns were likely to hold in Uganda. Prior to the implementation of this study, NDI conducted a small pilot in four Ugandan constituencies, using marketing teams to examine the willingness of survey respondents to send a text-message to their MP as a function of *hypothetical* prices. NDI found that poorer constituents reported less willingness to pay for sending a text-message to their MP at all positive price levels. Critically the patterns NDI reports suggest that in the absence of a subsidy, higher prices likely generate messaging (interest articulation) that is more reflective of the needs and preferences of wealthier constituents.

Figure 1: Price Sensitivity by Relative Economic Position



Note: Source: NDI pilot data. Almost all respondents claim to be willing to contact their MPs when a full *hypothetical* subsidy is offered. At higher prices better-off respondents are more than twice as willing as worse-off respondents (NDI, 2010). Note that the full price at the time of NDI's pilot was about 220 Ugandan Shillings (UGX), though prices dropped to about 100 UGX when we conducted our field experiment in 2011.

Though striking, it is important to reiterate that NDI confronted respondents with hypothetical prices—i.e., pilot respondents were not asked to take any action—leaving open the question of whether a subsidy targeted at increasing political communication affects the population of views communicated. Whether actual behavior (message sending) is consistent with self-reported hypothetical behavior is another open question that this study seeks to address.[1] Note also that a similar logic may hold for individuals with

[1] We believe that more works needs to be done on comparing hypothetical and actual behavior, especially since many experimenters in political science employ survey experiments that do not require subjects to

alternative channels of access. Individuals that are otherwise *less* marginalized may also be more sensitive to prices since they have the option to substitute to more traditional channels in the absence of a substantial subsidy. We assess these questions in terms of heterogeneous demand effects.

2.2 Strategic substitution and price effects

In the text we noted that if there is substitution in lobbying for public goods then price reductions can lead to lower take up. The logic is illustrated in the game in figure 2. In this game we assume first that messages act as substitutes and second that when messages are subsidized, both rich and poor would be individually willing to send a message (for a public good), but each would rather the other sends. This produces a coordination problem. In the mixed strategy equilibrium each sends with a 1/3 probability and there are 2/3 messages sent in expectation. With the removal of the subsidy, at higher prices, if the perceived cost of the message is greater for poor than for rich players, then this can result in a unique equilibrium and a resolution of the coordination problem.

2.3 A Logic of Clientelistic and Nonclientelistic Mixing

We hypothesized that a price subsidization might affect the content of messages, increasing the relative share of public good messaging. Here we illustrate the core logic using a full-information normal form game. Consider two players deciding whether to send a message for a public good, a message for a private good, or no message at all. Assume one player is rich and the other poor and payoffs have a structure as in Figure 3. The key features captured by these payoffs are: (a) strategic complementarities in public messaging but substitution in private messaging and (b) the poor player is more sensitive to the monetary cost of messaging than the rich player. In this game when costs are low there are multiple equilibria but the equilibrium involving public messaging Pareto dominates equilibria from the chicken-like game that is induced by the decision to engage in private messaging. When costs are high, however, there is a unique equilibrium in which the rich player sends

take real action but merely state possible action at various hypothetical scenarios. See **?** for a discussion of external validity concerns of survey experiments.

Figure 2: *Higher prices remove the coordination dilemma.* Pure strategy Nash Equilibria are marked with stars. The payoffs for the poor are 2 points lower on the right whenever messages are sent and 0.5 lower for the rich. The symmetric Nash equilibrium on the left has each send messages with probability 1/3 for an expected 2/3 messages sent.

a private message. In this case a rise in prices produces two effects: an overall decline in messaging and a shift (for the wealthy player) from public to private messaging.

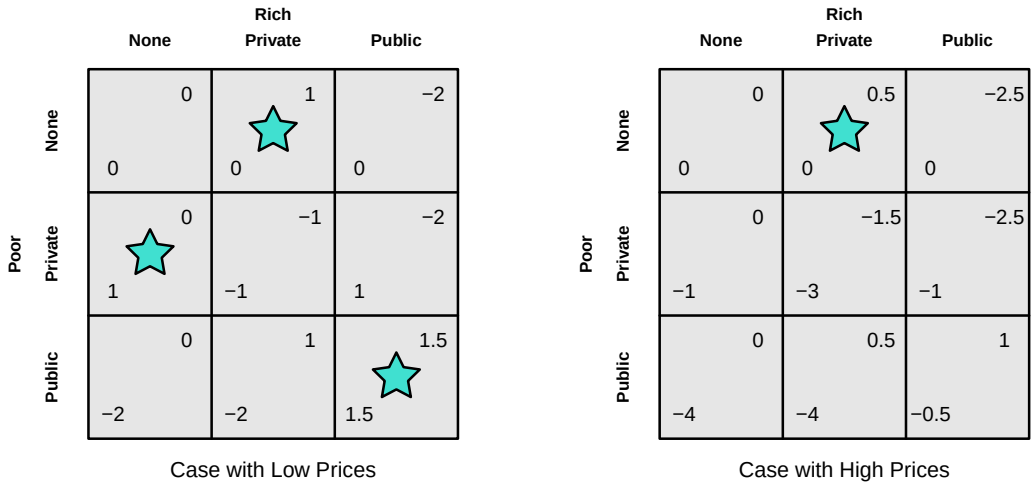


Figure 3: Higher prices remove public messaging equilibrium. Pure strategy Nash Equilibria marked with stars. The payoffs for the poor are 2 points lower on the right whenever messages are sent and 0.5 lower for the rich.

3 Sensitivity Analysis

In this section we test the sensitivity of our findings by relaxing some of the assumptions made in the main text.

3.1 Sensitivity Analysis: poverty and marginalization definitions

In the main text we used the median as a cutoff point to define poor and marginalized citizens. In this analysis we relax this assumption by examining how the difference in the marginal effect of the subsidy is sensitive to our definition of subgroups of interest. For each continuous summary index that measures poverty and marginalization, we calculate the difference in the marginal effect of the subsidy at every possible population split between 0 and 100. Results, presented in Figure 4 and Figure 5, suggest that our findings are quite insensitive to the de cutoff used to define poor and marginalized constituents.

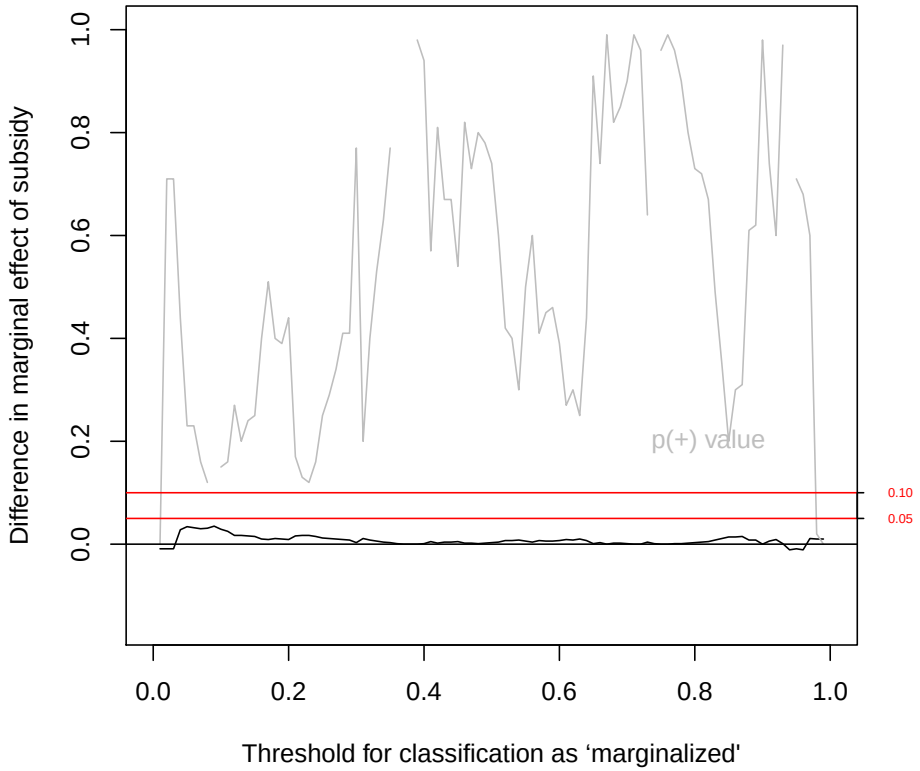


Figure 4: Difference in the marginal effects of price (subsidy) given all possible population cutpoints between the marginalized and non-marginalized. There is very little difference in price sensitivity between the two groups across the full set of possible coding decisions.

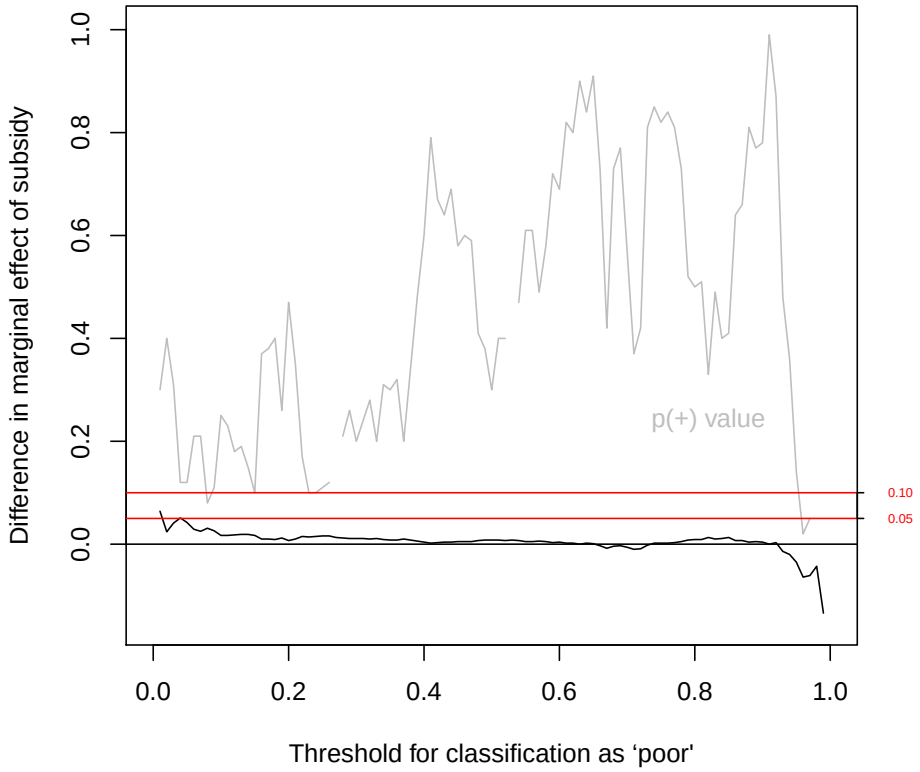
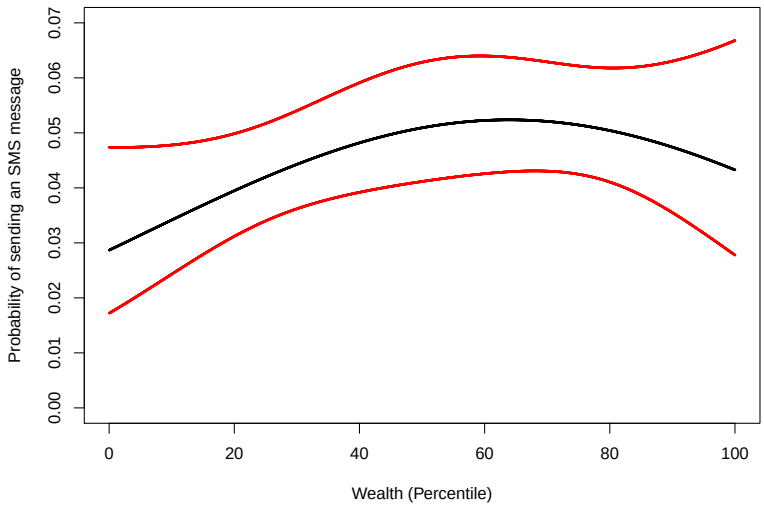


Figure 5: Marginal effects of price (subsidy) given all possible poipulation cutpoints between the poor and non-poor. There is very little difference in price sensitivity between the two groups across the full set of possible coding decisions.

To test for a middle class effect more formally we estimate a logit model in which a binary variable indicating take-up is regressed on a linear and quadratic term of our wealth composite index. Figure 6 demonstrates the stronger estimated effect for the middle class but also shows the statistical imprecision of this relationship.

Figure 6: **Middle Class Messaging**



Note: Dependent variable: SMS messaging. Predicted values estimated using logit regression. Number of observations: 3772.

3.2 Sensitivity Analysis: flattening participation

In the main text we report tests of hypothesis 1 (flattening) for marginal and poor respondents. However, the marginalization index includes groups other than poor. In Table 1 we report disaggregated results for all groups that make up the marginalization measure: poor, women, non-coethnics, non-cogender and distant respondents. For all groups, with the exemption of non-coethnic, SMS access flattens political participation. This suggests that our results are not driven but one type of (marginal) constituents.

Table 1: **Flattening Participation: Pairwise tests**

1	Share of poor respondents among the highly engaged type	0.32
	Share of poor respondents among SMS access population	0.47
	Difference	0.15
	(p)	(0.01)**
2	Share of women respondents among the highly engaged type	0.26
	Share of women respondents among SMS access population	0.47
	Difference	0.21
	(p)	(0.00)**
3	Share of non-coethnic respondents among the highly engaged type	0.38
	Share of non-coethnic respondents among SMS access population	0.29
	Difference	-0.08
	(p)	(0.10)
4	Share of non-cogender respondents among the highly engaged type	0.38
	Share of non-cogender respondents among SMS access population	0.56
	Difference	0.18
	(p)	(0.00)**
5	Share of distant respondents among the highly engaged type	0.49
	Share of distant respondents among SMS access population	0.60
	Difference	0.10
	(p)	(0.05)*

Note: p value from χ^2 test in parenthesis. N. obs: 3,790. * $p < 0.05$, ** $p < 0.01$

3.3 Sensitivity Analysis: strategic Public to Private switching

We turn to asses the sensitivity of our results regrading H_4, according to which less expensive communication results in greater focus on public rather than private issues. Recall that in the main text we report that we do not find strong evidence supporting that hypothesis.[2] Here we record the message type variable such that categories 0, 1, 2, and 4 are coded as private messages and categories 3 and 5 are coded as public messages. Results reported in Table 2 suggest that the null finding is robust to changes in the way we define public and private messaging.

Table 2: **Sensitivity Analysis: Price Effects**

Treatment	Effect	Any	Public	Private	H_4 test
Full (N=1268)	Level	0.041	0.011	0.029	
Subsidy (N=1267)	Level	0.038	0.015	0.021	
Free (N=1255)	Level	0.058	0.021	0.037	
Subsidy vs. Full Price	ATE	-0.001	0.004	-0.006	
	(p^+)	(0.428)	(0.206)	(0.691)	
	(N)	2535	2535	2535	
Free vs. Subsidy	ATE	0.021	0.008	0.014	
	(p^+)	(0.072)	(0.172)	(0.121)	
	(N)	2522	2522	2522	
Free vs. Full Price	ATE	0.02	0.01	0.009	
	(p^+)	(0.05)	(0.042)	(0.239)	
	(N)	2523	2523	2523	
Linear Trend	Trend	0.01	0.005	0.004	-0.001
	(p^+)	(0.014)	(0.015)	(0.128)	(0.63)
	(N)	3790	3790	3790	(3790, 3790)
		H_2 test			

Note: ATEs estimated using linear regression, p-values estimated using randomization inference (taking into account blocked assignment). N. simulations: 5,000.

[2]Recall that using a continuous measure of publicness, instead of a binary measure, we find a positive and weakly significant relationship between price and private messaging, as originally hypothesized. Note, however, that this finding is driven largely by the extremes and, in particular, a somewhat higher incidence of national messages in the free price treatment condition.

3.4 Sensitivity Analysis: Randomization Inference for Heterogeneoeus Effects, Price Induced Flattening 1

We implemented randomization inference based tests of $H_{3.1}$. For the interaction of a covariate and the price treatment, we test the null hypothesis of no interactions above and beyond the base effects. We use estimated coefficients from base model to impute potential outcomes for a set of 5,000 possible random assignments, under the assumption that effects are additive. We then compute an F statistic comparing the interacted to non-interacted model using the simulated potential outcomes. The one sided positive p-value is the probability with which we observe F statistics from this simulation that are greater than or equal to the F statistic comparing the interacted and non-interacted model estimated using our observed experimental data.

When we use RI, results are identical in significance to those presented in the main paper.

Table 3: **Price induced flattening (1) ($H_{3.1}$)**

	Rich	Poor	$H_{3.1}$	
Marg. effect of subsidy	0.012	0.008	Difference	-0.004
by poverty	(0.032)	(0.076)	(p^+)	(0.648)
	Low Access	High Access		
Marg. effect of subsidy	0.009	0.01	Difference	0.001
by political access	(0.082)	(0.027)	(p^+)	(0.868)

Note: **Estimated marginal effect of a price subsidy**. Marginal effect of subsidy by poverty controlling for access, marginal effect of subsidy by access controlling for poverty, and marginal effect of subsidy by marginalization. p values from a one sided test (p^+), that take into account the blocking strategy, are estimated using randomization inference. Number of simulations: 5000.

3.5 Sensitivity Analysis: Randomization Inference for Heterogenous Effects, Price Induced Flattening 2

We use the procedure described in the previous section to test the null of no interaction of marginalization and price beyond the base effects. Again results are identical in significance to those presented in the main paper when using this mode of testing.

Table 4: **Price induced flattening (2): Test of $H_{3.2}$**

Marginal effect of subsidy for marginalized (p^+)	0.005	(0.263)
Marginal effect of subsidy for non-marginalized (p^+)	0.014	(0.004)
Difference (p^+)	-0.009	(0.290)
Share of marginal respondents among full price senders	0.558	
Share of marginal respondents among partial subsidy price senders	0.562	
Share of marginal respondents among full subsidy (free) senders	0.507	
Trend from high price to free	0.054	
p^- $H_{3.2}$	(0.822)	
p	(0.430)	

Note: p values estimated using randomization inference. N. simulations= $5,000$. The number of SMS users in the full-price treatment condition is 52, 48 in the partial subsidy price treatment condition, and 73 in the free condition.

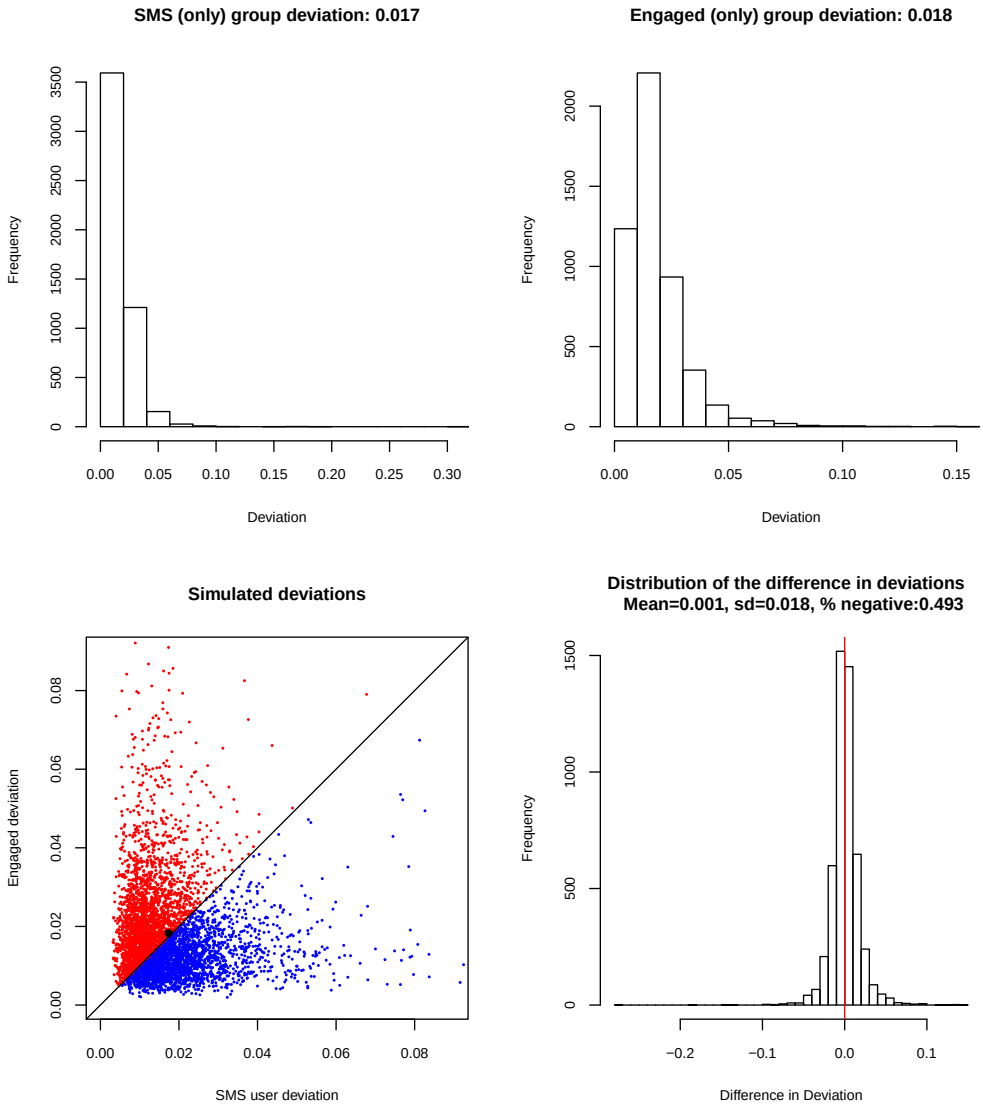
4 Additional Analysis

In this section we report results of additional analysis undertaken by the research team, which we decided not to incorporate into the main text for the sake of brevity. We begin by providing additional support to the fact that contrary to $H_{1.2}$, our data does not support the idea that priority issues for ICT users are closer to those of the general population than are those raised by traditional high engagement groups (section 4.1). We then move to examine the unconditional relationship between message type and constituent type; i.e., across all treatment groups (section 4.2). We complete this section by analyzing an additional form of strategic considerations; namely whether citizens are more likely to send messages as a function of expectations regrading MP responsiveness (section 4.4).

4.1 Non representativeness

Figure 7 illustrates the analysis of non-representativeness of preferences of engaged and sender types. The figure shows that the differences between the priorities of SMS senders and the general population is statistically no greater than then the differences between the priorities of highly engaged citizens and the general population.

Figure 7: Flattening Representation



Note: The upper row shows estimates of the NR statistics for each group. The last row compares estimates of NRS for each group. Based on $5,000$ simulations.

4.2 Message Type by Constituent Type

Table 5 describes general uptake and message type broken down by different types of constituents. For continuous summary indices such as marginalization, political engagement, distance to district capital and wealth, we use the median as a cutoff point as specified in our pre-analysis plan.

Table 5: **Message Type by Source**

	Public SMS	Private SMS	Any SMS
Non-Marginal	0.0228	0.0191	0.0424
Marginal	0.0289	0.0184	0.0488
Poorer half (below median)	0.0285	0.0195	0.0486
Richer half (above median)	0.0232	0.0179	0.0427
Women	0.0244	0.0175	0.0430
Men	0.0273	0.0199	0.0483
Cogender	0.0199	0.0188	0.0397
Non-Cogender	0.0320	0.0187	0.0517
Coethnic	0.0280	0.0185	0.0473
Non-coethnic	0.0222	0.0213	0.0444
Close to district capital (below median)	0.0185	0.0174	0.0370
Far from district capital (above median)	0.0332	0.0200	0.0543
Non-Middle Class	0.0118	0.0074	0.0391
Middle Class (25-75% wealth percentiles)	0.0140	0.0114	0.0521
No Formal Education	0.0202	0.0150	0.0358
Formal Education	0.0317	0.0226	0.0559
Low access (below median)	0.0279	0.0161	0.0451
High access (above median)	0.0238	0.0213	0.0461
Low political engagement (below median)	0.0222	0.0155	0.0387
Low political engagement (above median)	0.0297	0.0221	0.0529
All	0.0259	0.0187	0.0456
N Messages	98	71	173

Note: Because of 4 blank messages, the sum of the proportion of senders in each of the public and private message categories is sometimes less than the proportion sending any SMS within each category. No. of experimental subjects: 3,790.

4.3 Heterogeneous Effects: Voters' Characteristics

Recall that we expect that the difference in uptake when moving from higher to lower prices (subsidy effect) will be larger for poorer constituents than richer constituents. Similarly we expect that a subsidy will result in increased use of the system by individuals with greater alternative channels of access. Since wealthier constituents also tend to have, on average, higher levels of political access, we examine the effects of poverty on the subsidy effect conditional on political access and vice versa. The key results are shown in Table 6.

Table 6: **Heterogeneous Effects: Voters' Characteristics**

		Rich	Poor		All	Δ	(Poor-Rich)
Low Access	Private	-0.008	-0.003		0		0.006
		(0.762)	(0.596)		(0.361)		(0.24)
	Public	0.007	0.011		0.009		0.005
		(0.198)	(0.218)		(0.031)		(0.382)
	Any	0	0.009		0.01		0.009
		(0.411)	(0.35)		(0.057)		(0.239)
High Access	Private	0.005	0.015		0.011		0.011
		(0.209)	(0.131)		(0.02)		(0.215)
	Public	0.012	-0.003		0.003		-0.016
		(0.175)	(0.663)		(0.261)		(0.888)
	Any	0.017	0.011		0.014		-0.005
		(0.104)	(0.439)		(0.033)		(0.688)
Any Access	Private	0.002	0.004		0.004		0.002
		(0.394)	(0.373)		(0.124)		(0.365)
	Public	0.008	0.004		0.005		-0.004
		(0.04)	(0.374)		(0.021)		(0.76)
	Any	0.01	0.007		0.01	$H_{3.2}$	-0.003
		(0.06)	(0.348)		(0.014)	(+)	(0.611)
Difference	Private	0.013	0.018		0.011		
		(0.083)	(0.11)		(0.04)		
	Public	0.005	-0.015		-0.005		
		(0.38)	(0.815)		(0.842)		
	Any	0.017	0.002	$H_{3.1}$	0.005		
		(0.125)	(0.445)	(+)	(0.308)		

Note: Each cell shows the estimated marginal effect of a price subsidy derived from a linear OLS model (or differences in marginal effect). One-sided p values that take into account the blocking strategy are estimated using randomization inference and reported in parentheses. Number of simulations: 5,000.

4.4 MP responsiveness: Strategic Considerations

In the main text we test whether voter–voter strategic interactions impact price effects. There are other ways, however, in which constituents may be strategic regarding the usage of the ICT platform to contact their representatives in parliament. The simplest possible strategic logic would suggest that voters send messages as a function of expected MP responsiveness. In the final part of our analysis we, therefore, turn to examine whether voter choices depend on constituency and MP characteristics. To answer this question, we estimate the effects of subsidies and the *differences in subsidy effects* for constituents under different political conditions. Recall, we expect that the difference in messaging (uptake) when moving from higher to lower prices (subsidy effect) will be larger for (a) constituents represented by opposition MPs, (b) non-co-partisans (c) voters in noncompetitive constituencies and (d) constituencies represented by older MPs (H_5).

We measure political competition at the constituency level using the percentage point difference between the vote share of the winning candidate and the runner up in the 2011 parliamentary election. Partisanship is a binary measure calculated using a self-reported party ID measure.[3] The age and the party affiliation of MPs were assembled from the Ugandan Parliament's website. Results shown in Table 7 do not support these expectations. In fact, we find that MP (and constituency) characteristics hardly mediate the impact of price on uptake.

One possible explanation for the lack of evidence for strategic behavior is that the likelihood of getting a response from their MP simply did not factor into our subjects' decision-making process. This could be the case for example if communicating general priorities and preferences to one's MP is an expressive more than an instrumental political action. Alternatively it may be that MP's partisanship, age, and constituency's characteristics are poor indicators of responsiveness, though we cannot assess that possibility with available data. It is also possible that voters are strategic, but that different voters consider MP and constituency characteristics differently. For example, it may be that some voters assume that younger MPs are more likely to respond to ICT messaging, but others

[3]The partisanship measure uses subjects' response to the following question: *"Which party do you feel closest to?"*

assume that younger MPs are less influential. Similarly, it may be that voters are strategic, but the the relevant political unit for voters is above the constituency level. Figure 8 provides some evidence that uptake might be related to historical political trajectories at the regional level— very low uptake in the marginalized areas of the north east (Karamoja region) and the north (Acholi region), against relatively high uptake in the more affluent central (Baganda) region in the western region, from which president Museveni originates. We conclude this analysis by pointing that better understanding of voters' expectations of MP responsiveness is a promising avenue for future work.

Table 7: **Constituency and MP Characteristics**

		No	Yes	ATE Difference
NRM MP	Uptake	0.041	0.041	
	ATE	0.004	0.012	0.007
	(p^+)	(0.256)	(0.048)	(0.823)
Copartisan MP	Uptake	0.047	0.037	
	ATE	0.004	0.012	0.008
	(p^+)	(0.427)	(0.065)	(0.828)
Competitive Constituency	Uptake	0.05	0.033	
	ATE	0.01	0.01	0
	(p^+)	(0.116)	(0.079)	(0.521)
Younger MP	Uptake	0.047	0.034	
	ATE	0.011	0.008	-0.003
	(p^+)	(0.094)	(0.135)	(0.33)

Note: Estimated marginal effects (and differences in marginal effects) of price subsidy are estimated using regression. p values from a one sided test, reported in parentheses, are estimated using randomization inference (5,000 simulations). Uptake measures the percent of SMS senders at the full-price treatment.

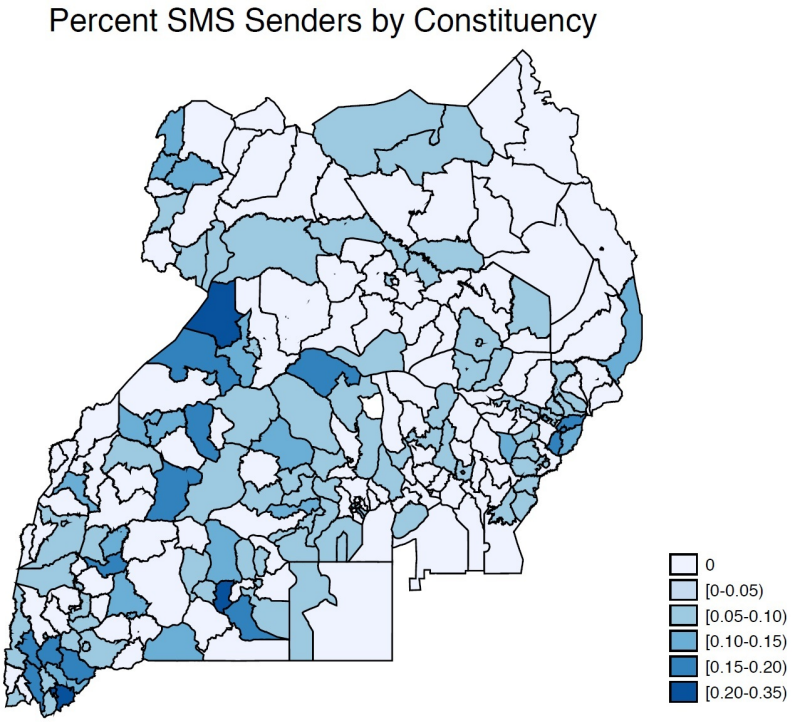
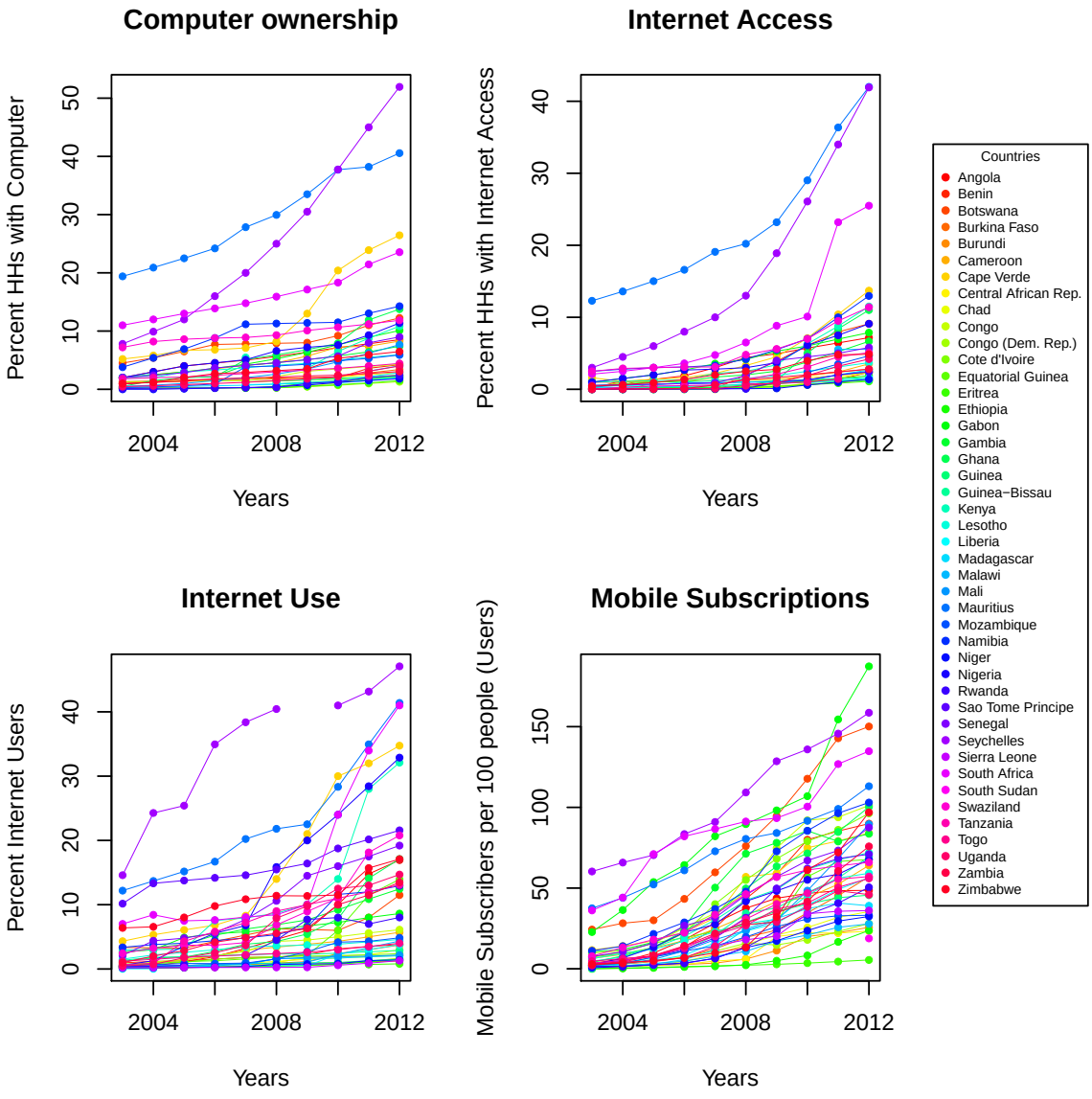


Figure 8: Uptake by Constituency

5 Uganda in Context

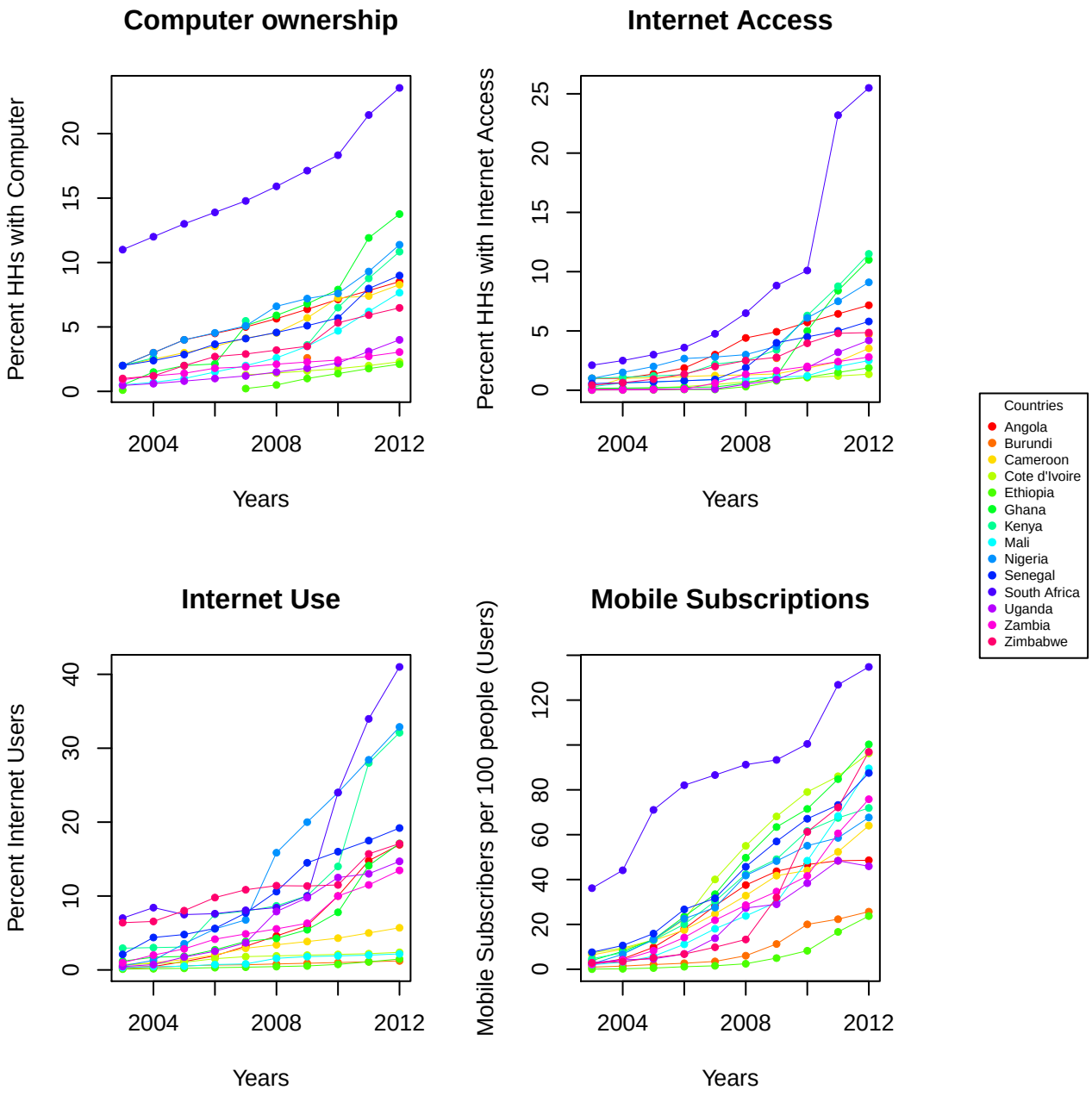
5.1 Uganda's ICT environment in context

Figure 9: ICT Use and Ownership in Africa



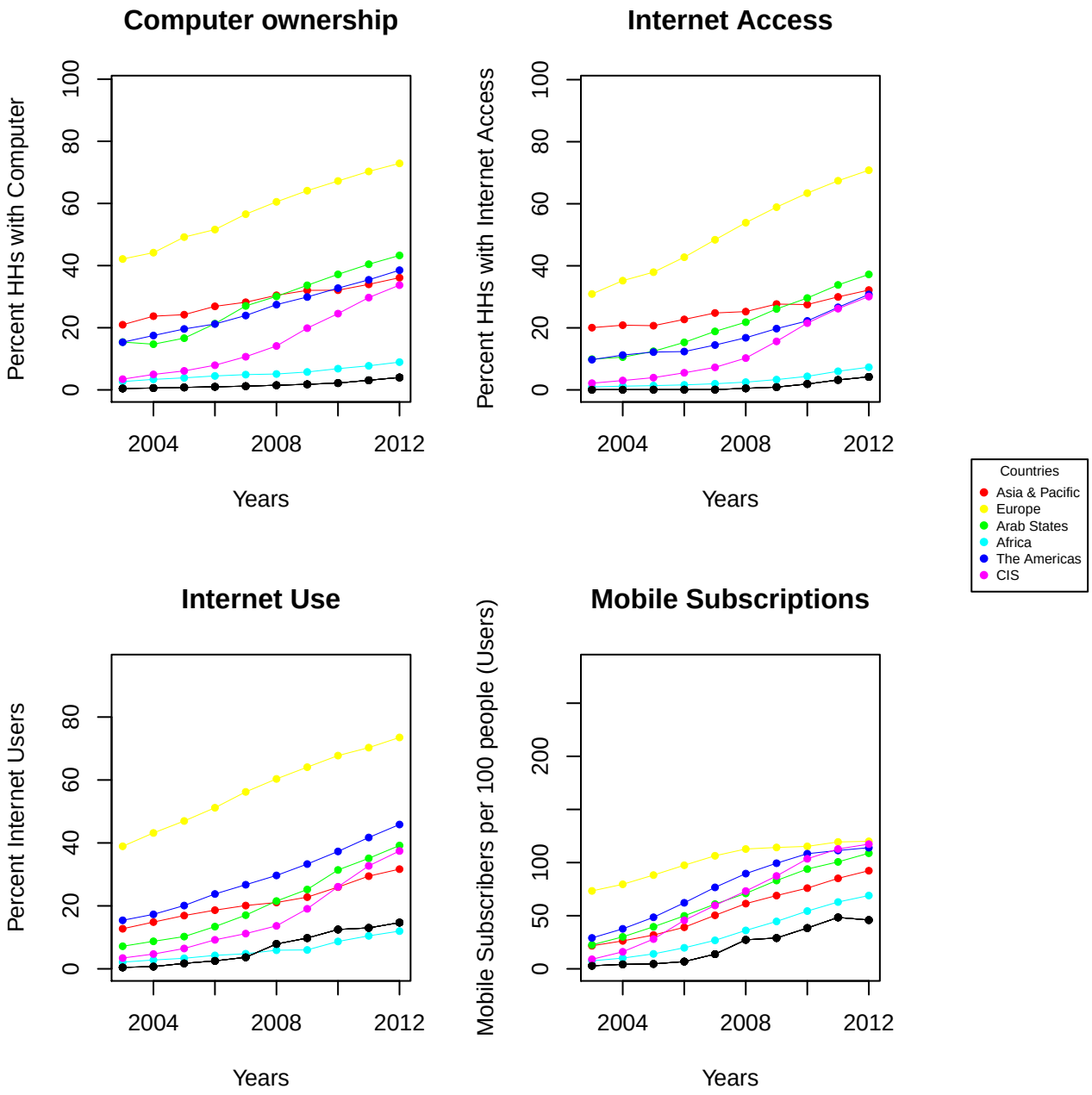
Note: Data from the Telecommunication Development Sector (ITU-D), a UN specialized agency. ICT ownership, use and access across all African countries has grown significantly over the period 2002-2012, and mobile subscriptions are the most prevalent type of ICT use across all countries.

Figure 10: ICT Use and Ownership: Selected African Countries



Note: Data from the Telecommunication Development Sector (ITU-D), a UN specialized agency showing the growth in ICT ownership, access, and use over the period 2002-2012 across selected African countries. Among this subset of countries Uganda is not an outlier and has grown at comprable rates.

Figure 11: ICT Use and Ownership Across Regions



Note: Data from the Telecommunication Development Sector (ITU-D), a UN specialized agency showing the growth in ICT ownership, access, and use over the period 2002-2012 by region. The black line represents Uganda. Uganda is below regional averages in Internet acess, Mobile Subscriptions, and Computer Ownership, and slightly above on Internet use. Although African rates remain the lowest across the world, the level of mobile subscriptions are closest to other regional averages.

	Percentage of households with Radio	Year of latest data	Percentage of households with TV	Year of latest data	Percentage of households with Fixed line telephone	Year of latest data	Percentage of households with Mobile-cellular telephone	Year of latest data	Percentage of households with Computer	Year of latest data	Percentage of households with Internet access at home	Year of latest data
Nigeria	68.7	2010	40	2010	0.9	2010	59.7	2010	7.6	2010	6.1	2010
South Africa	77.2	2010	74.7	2010	16.7	2010	85.8	2010	21.5	2011	23.2	2011
Kenya	74	2009	28	2009	1.2	2009	63.2	2009	3.6	2009	...	
Tanzania	58.4	2008	9.9	2009	0.7	2008	28.1	2008	...		...	
Ghana	73.7	2008	51	2010	2.3	2010	57	2008	13.8	2012	11	2012
Uganda	62.8	2008	6.4	2009			...		...		...	
Angola	47.8	2009	38.5	2009	1.5	2009	40.4	2009	...		...	
Cameroon	...		33.1	2009	...		...		7.4	2011	2.4	2011
Mali	...		31.3	2009	...		...		6.2	2011	2.0	2011
Senegal	78.5	2010	62	2010	13.75	2010	92	2010	8.0	2011	4	2009
Zimbabwe	37.9	2011	36.3	2011	4.1	2011	62.2	2011	5.92	2011	4.0	2010
Zambia	...		27	2009	...		...		...		...	

Table 8: ICT ownership in Selected Sub-Saharan African Countries

Note: Data from the Telecommunication Development Sector (ITU-D)'s Core Indicators database.

5.2 Inequality in Uganda

The GINI index measures the degree of inequality within a country. High GINI indices represent high inequality in the country's income distribution. In the distribution of inequality across all countries, as measured by the GINI index, Uganda in ranked 46 out of 136. It lies just to the right of the upper quartile or the distribution of all GINI indices globally, meaning it is amongst the most highly unequal countries.

Table 9: Global Inequality

Country Name	GINI Index	Year of Estimate
Seychelles	65.77	2000
Comoros	64.3	2004
Namibia	63.9	2004
South Africa	63.14	1993
Micronesia, Fed. Sts.	61.1	2000
Botswana	60.96	1986
Haiti	59.21	2001
Zambia	57.49	1993
Honduras	56.95	1986
Central African Republic	56.3	2003
Bolivia	56.29	2008
Colombia	55.91	2010
Guatemala	55.89	1998
Brazil	54.69	2009
Belize	53.13	1999
Suriname	52.88	1999
Lesotho	52.5	2003
Paraguay	52.42	2010
Chile	52.06	2006
Panama	51.92	1979
Swaziland	51.49	2001
Papua New Guinea	50.88	1996
Rwanda	50.82	1985
Sao Tome and Principe	50.82	2001
Costa Rica	50.73	1981
Cape Verde	50.52	2002
Zimbabwe	50.1	1995
Ecuador	49.26	2010
Nigeria	48.83	1986
El Salvador	48.33	2006
Peru	48.14	1986
Kenya	47.68	1994
Congo, Rep.	47.32	2005
Gambia, The	47.28	2003
Dominican Republic	47.2	2010
Mexico	47.16	1984
Malaysia	46.21	2004
Mozambique	45.66	1996
South Sudan	45.53	2009
Jamaica	45.51	1988
Uruguay	45.32	1981
Venezuela, RB	44.77	2006
Guyana	44.54	1998
Argentina	44.49	1986
Congo, Dem. Rep.	44.43	2006
Uganda	**44.3**	**1992**
Madagascar	44.11	1997
Malawi	43.91	2004
Macedonia, FYR	43.56	1998
Hong Kong SAR, China	43.44	1996
Philippines	42.98	1985
Fiji	42.83	2009
Ghana	42.76	1988
Angola	42.66	2009
St. Lucia	42.58	1995
Singapore	42.48	1998
Georgia	42.1	1996
China	42.06	1981
Cote d'Ivoire	41.5	1985
Gabon	41.45	2005
Qatar	41.1	2007
Morocco	40.88	1985
United States	40.81	2000
Turkmenistan	40.77	1998
Nicaragua	40.47	2005
Mauritania	40.46	1996
Senegal	40.3	2005
Trinidad and Tobago	40.27	1992
Russian Federation	40.11	1999
Turkey	40.03	2007
Djibouti	39.96	2002
Burkina Faso	39.79	2003
Chad	39.78	2003
Thailand	39.37	2010
Guinea	39.35	2007
Togo	39.29	2006
Israel	39.2	2001
Cameroon	38.91	2007
Bhutan	38.73	2007
Benin	38.62	2003
Portugal	38.45	1997
Iran, Islamic Rep.	38.28	2005
Liberia	38.16	2007
Indonesia	38.14	1984
Yemen, Rep.	37.69	1998
Tanzania	37.58	1992
Lithuania	37.57	1988
Maldives	37.37	2004
Lao PDR	36.74	1992
Uzbekistan	36.72	2003
Mongolia	36.52	1995
Sri Lanka	36.4	1985
Bosnia and Herzegovina	36.21	2007
New Zealand	36.17	1997
Tunisia	36.06	2010
Italy	36.03	2000
Cambodia	36.03	2009
Estonia	36	2004
United Kingdom	35.97	1999
Syrian Arab Republic	35.78	2004
Vietnam	35.57	1998
Guinea-Bissau	35.52	2002
West Bank and Gaza	35.5	2009
Jordan	35.43	2008
Sierra Leone	35.35	2011
Algeria	35.33	1995
Sudan	35.29	2009
Australia	35.19	1994
Latvia	34.81	1988
Spain	34.66	2000
Niger	34.55	2008
Albania	34.51	1997
Ireland	34.28	2000
Greece	34.27	2000
India	33.9	1983
Azerbaijan	33.71	2008
Switzerland	33.68	2000
Croatia	33.65	1988
Ethiopia	33.6	1982
Kyrgyz Republic	33.38	2011
Burundi	33.27	2006
Moldova	33.03	2010
Mali	33.02	2010
Belgium	32.97	2000
Nepal	32.82	1985
France	32.74	1995
Poland	32.73	1985
Canada	32.56	2000
Bangladesh	32.12	1984
Korea, Rep.	31.59	1998
Armenia	31.3	2010
Hungary	31.18	1987
Slovenia	31.15	1987
Netherlands	30.9	1999
Iraq	30.86	2007
Tajikistan	30.83	1999
Egypt, Arab Rep.	30.77	2008
Luxembourg	30.76	2000
Pakistan	30.02	2008
Serbia	29.62	2007
Austria	29.15	2000
Kazakhstan	29.04	2009
Montenegro	28.58	2010
Germany	28.31	2000
Bulgaria	28.19	1997
Afghanistan	27.82	2008
Romania	27.42	2010
Finland	26.88	2000
Belarus	26.48	2011
Slovak Republic	26	1988
Czech Republic	25.82	1996
Norway	25.79	2000
Ukraine	25.62	2010
Sweden	25	2000
Japan	24.85	1993
Denmark	24.7	1997

6 Adherence to Pre-Analysis plan

The authors registered a pre-analysis plan with EGAP in which we specified the tests for each of our hypothesis [reviewers wishing to obtain access to anonymized version of the pre-analysis plan can do so by contacting the editors of the APSR]. The table below indicates where we deviated from that plan and motivates these changes.

New	Old		Hypothesis	Planned Test	Test Conducted	Rationale for change
$H_{1.1}$	H_1	Technology Induced Flattening	The share of ICT based communication from marginalized groups is greater than it is for traditional channels of communication.	χ^2 test of the difference between marginalized populations in the traditional engagement group versus the SMS access group, marginalized defined as those above the median in the marginalization index	We restricted the definition of the marginalized population to those in the top 4.5% of the marginalization index and then estimated seemingly unrelated regressions (SUR) & χ^2 test	We changed the marginalization measure to the top 4.5% in order to match the population share of the SMS messaging population, used SUR to allow the errors to be correlated
$H_{1.1}$					Estimated the difference in the share of marginalized among the SMS users to the share marginalized among the "most engaged" type and associated p-values across all possible thresholds for classification as "marginalized"	We included this result because its an important sensitivity check.

$H_{1.2}$	H_2	Technology Induced Flattening	The priority issues for ICT users are closer to those of the general population than are those raised by traditional high engagement groups.	(1) set the values of the non-SMS sending non-engaged group as the references distribution (2) estimate a multinomial logit model of sector choice as a function of group membership and using the estimated distribution of parameters (3) simulate a distribution of NR statistics relative to the (fixed) reference distribution as well as a distribution of differences in NRS's relative to the reference distribution both for non-SMS (and non engaged) populations and non-engaged (but SMS sending) populations. The significance test for the NR of each group is calculated relative to the estimated distribution of NR statistics we would expect in the reference group (relative to the reference distribution), due to sampling error alone	Unchanged	

H_2	H_3	Demand	Less expensive communication results in greater uptake across all groups.	$\hat{ATE}$ using diff in means estimator across all poss pairs of treatments, p values from randomization inference and coefficient on regression where dep. Var is 3 category treatment	Unchanged	
$H_{3.1}$	H_{5a}	Price Induced Flattening 1	The effect of decreasing prices will be stronger for (a) poorer constituents and (b) constituents with alternative channels of access to politicians	Use randomization inference to test for significant difference in price effects across wealthy and poorer constituents and high and low access constituents	We report p-values from OLS in the main text and p-values from randomization inference in the online appendix.	RI for interaction terms is quite complicated, whereas OLS is more transparent and straightforward.
$H_{3.2}$	H_5	Price Induced Flattening 2	Overall, lower prices will result in greater representation of marginalized groups	Use randomization inference to test for significant difference in price effects across marginal and non-marginal constituents and high and low access constituents. Then use χ^2 test of the difference between the share of marginalized senders in the low price group versus the share in the high price group.	We report p-values from OLS in the main text and p-values from randomization inference in the online appendix.	RI for interaction terms is quite complicated, whereas OLS is more transparent and straightforward.

H_4	H_4	Voter strategic effects	Content Filtering: Less expensive communication results in greater focus on public rather than private issues	We take the difference in linear trend in price effects (where treatment variable is 3 categories) across public and private messaging and then use randomization inference to test that marginal effect on share public is more negative than marginal effect on share private.	Unchanged	

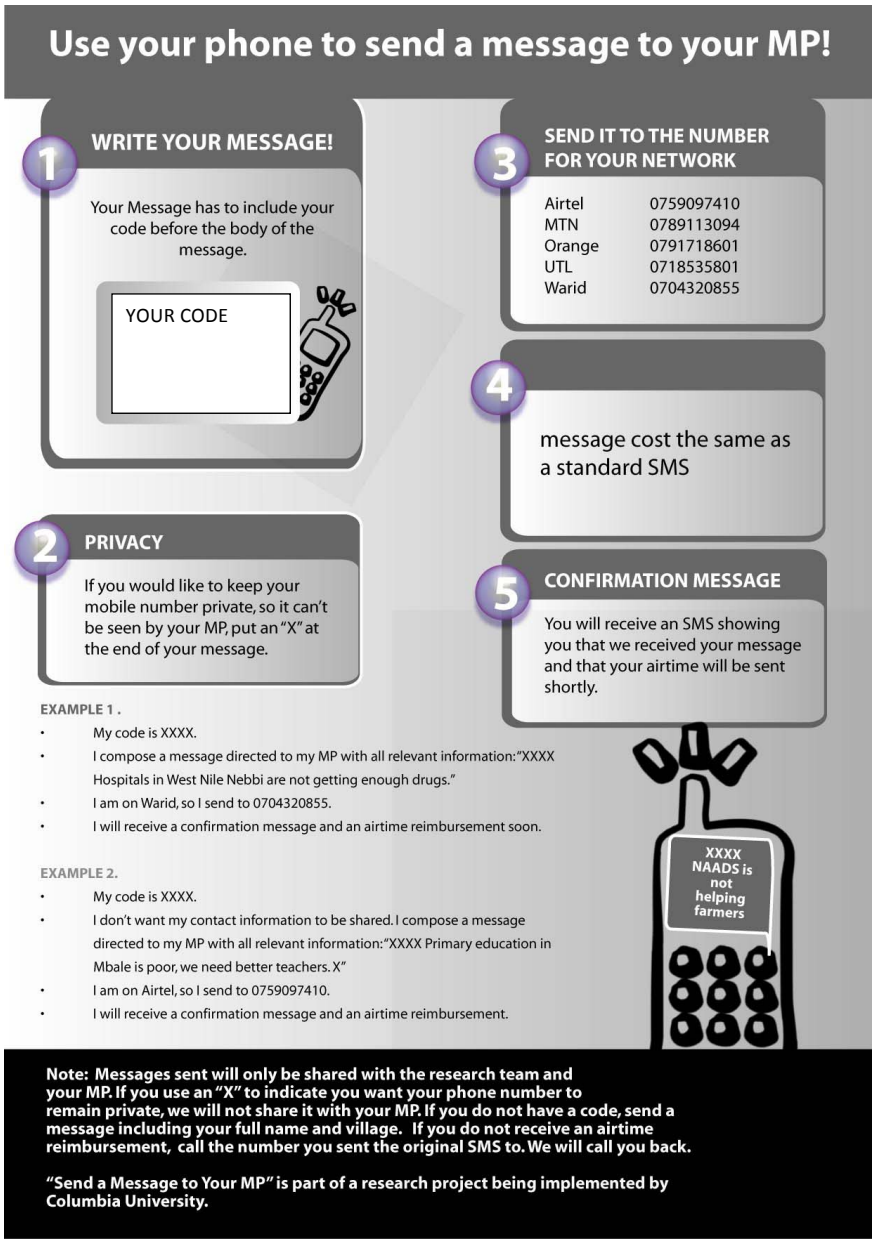


Figure 12: Flyer given to respondents in the full-price treatment condition.

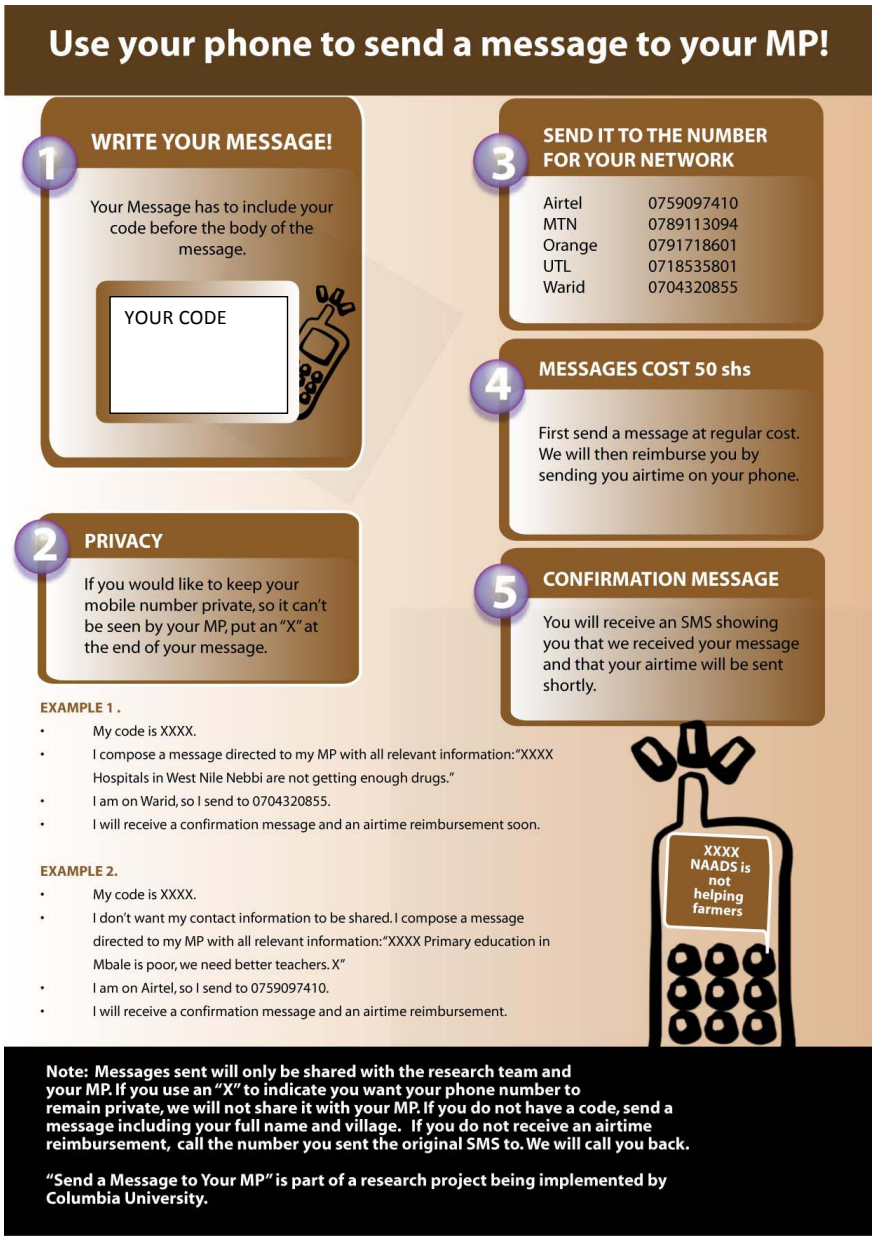


Figure 13: Flyer given to respondents in the partial subsidy treatment condition.

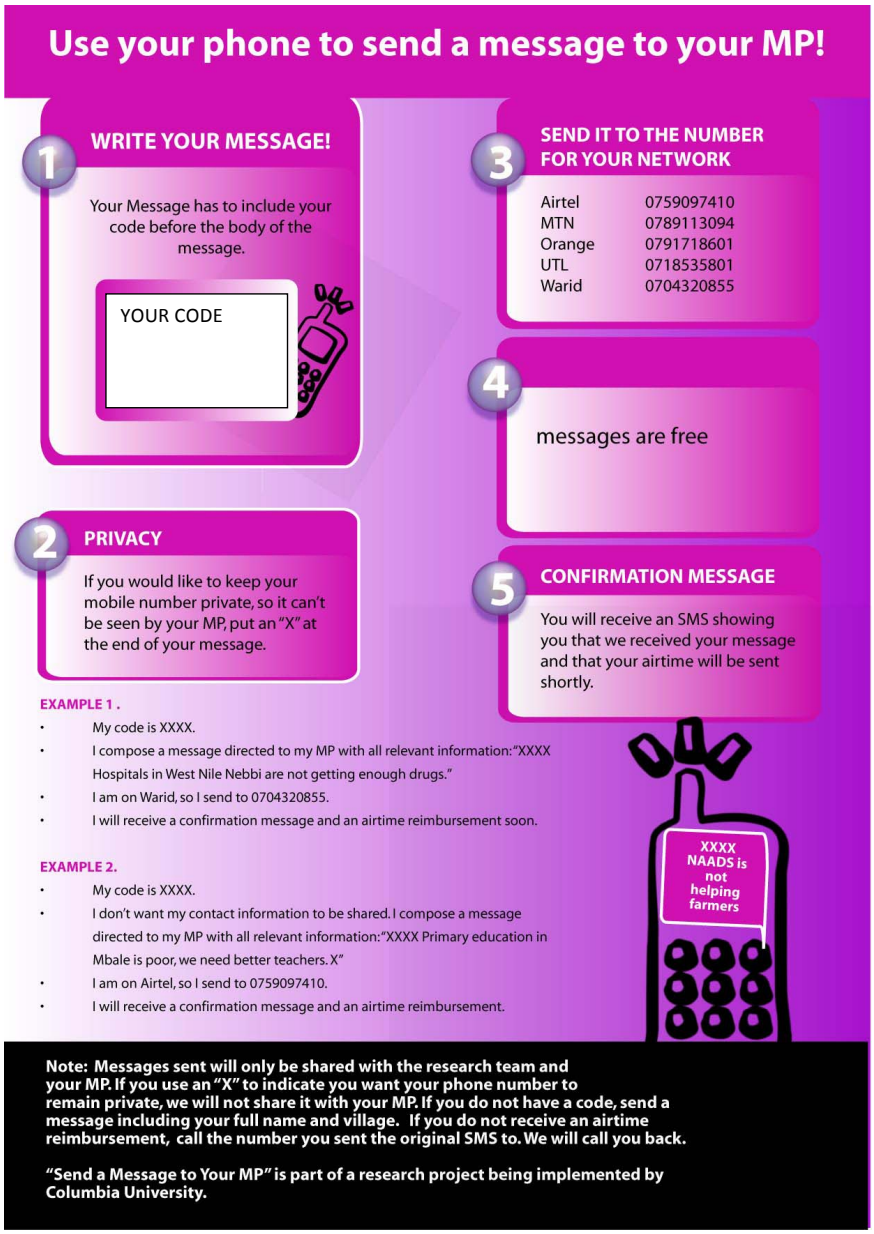


Figure 14: Flyer given to respondents in the full subsidy treatment condition.