# Eliciting and Utilizing Willingness-to-Pay: Evidence from Field Trials in Northern Ghana Supplementary Materials 

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## S1 Health Education Treatments

As described in the main text, at the time of the water sampling and filter sale reminder, we conducted one of two health education treatments to a random subset of households. Households were assigned in equal proportions to receive either 1) a health message about clean water and disease prevention, 2) a health message about clean water, with an emphasis on child sickness, or 3) no health message. We find no evidence that the information treatments increased willingness to pay. These results contribute to the mixed evidence on the effectiveness in providing information on clean water practices or other dimensions of health (see Ahuja, Kremer and Zwane, 2010; Dupas, 2011; and Pattanayak and Pfaff, 2009 for reviews).

Both health messages included information on the relationship between clean water and sickness, in particular diarrhea and guinea worm. The enumerators described how unimproved sources of water can contain germs that are invisible to the eye, and these germs can cause sickness. Cloth filters and alum (two commonly used forms of water treatment) are unable to neutralize all germs in the water, but pot filters (such as the Kosim filter) can effectively neutralize these germs. The demonstrations included pictures of unclean water sources, sick individuals, and figures depicting germs entering the body.

The two separate treatments were developed to examine whether willingness to pay would be more effective if the respondents were told that the filter could prevent sickness among children in particular. The two treatments were identical except that the language describing sickness was either general (e.g., "Unclean water can cause diarrhea, guinea worm, and many more sicknesses") or specific to children (e.g., "Unclean water can cause diarrhea, guinea worm, and many more sicknesses to your children.") The child treatment also described how diarrhea can be more dangerous for children.

Table S1 displays the treatment effects of the health information interventions. First, we examine whether the interventions influenced knowledge of diarrhea prevention, as measured in the baseline survey. Column 1 shows estimated effects on whether the respondent identified clean water when asked, "How do you prevent diarrhea?" The question was open-ended, and the respondent was prompted to provide as many answers as she could. Overall, 53 percent of respondents identified clean drinking water as a way to prevent diarrhea. Responses were 13 percent and 12 percent higher for respondents who had been given the general health treatment and child health treatment, respectively. Both estimates are significant at the 1 percent level. These results show that the health information treatment did have a substantial impact on respondent knowledge that clean water can prevent diarrhea.

Columns 2 and 3 show the impacts of the treatments on willingness to pay for the filter.

Overall, there is no evidence that the information increased willingness to pay. Column 2 shows the estimated impacts of the treatments on BDM bids. The estimates are small and not at all significant. Column 3 shows the results of a probit of TIOLI purchase on the treatments, as described in Section 3 of the main text. Again, the estimates are small and insignificant.

Given that the health information treatments did shift attitudes, it is somewhat surprising that they did not increase willingness to pay. It is possible that in our context, attitudes and beliefs towards clean water are not strong predictors of willingness to pay. In fact, there is no significant correlation between BDM bids and diarrhea prevention knowledge (results not shown). As shown in the main text, we do observe significant correlations between BDM bids and recent diarrhea episodes and wealth, and thus these events and characteristics may be more salient in determination of the BDM bid than general attitudes towards clean water.

## S2 Comparing Demand Under BDM and TIOLI

As noted in the main text, despite their theoretical equivalence there were statistically significant differences between the inverse demand curves obtained using BDM and TIOLI. The horizontal distance in Figure 1 between each TIOLI point and the BDM inverse demand curve indicates a "mechanism effect" of approximately GHS 1 on WTP.

In Table S2, we estimates of the size and significance of the mechanism effect on demand, i.e., the vertical distance between each TIOLI point and the BDM inverse demand curve. From each BDM observation, we create three synthetic observations, each representing the subject's implied purchase decision at a price of $p \in\{2,4,6\}$. That is, for each BDM subject $i$ and each price $p \in\{2,4,6\}$, we create buy $i_{i, p}=1\left\{\mathrm{WTP}_{i} \geq p\right\}$, where $\mathrm{WTP}_{i}$ is subject $i$ 's valuation. We then estimate

$$
\begin{equation*}
\text { buy }_{i c p}=\alpha_{p}+\beta_{p} \mathrm{BDM}_{i c}+x_{i c}^{\prime} \gamma+\varepsilon_{i c p}, \tag{1}
\end{equation*}
$$

where buy $_{i c p}$ indicates whether subject $i$ in compound $c$ purchased at price $p$ (under the TIOLI mechanism), or would have purchased at price $p$ given her bid (under the BDM mechanism), and $\mathrm{BDM}_{i c}$ is an indicator for whether subject $i$ was assigned to the BDM mechanism. For each price $p, \alpha_{p}$ represents the share purchasing under TIOLI and $\beta_{p}$ represents the difference in shares between BDM and TIOLI at price $p .{ }^{1}$

[^0]The regression results are presented in Table S2. As shown in Columns 1, 3, and 5, the difference between the two mechanisms is significant at the 5 percent level or greater for each of the three prices. The test of joint significance of all three differences yields a p-value of less than 0.001 . While the absolute (percentage point) differences are declining with each price, we cannot reject that all three differences are equal ( $p=0.239$ without controls; $p=0.354$ with controls), and there is no such pattern in relative (percentage) differences. As shown in Columns 2, 4, and 6, the results are virtually unchanged with the inclusion of controls.

## S3 Statistical tests of BDM and TIOLI sub-treatments

Figure S1 shows the inverse demand curves for the three BDM sub-treatments described in the main text. Table S3 presents the results of two tests that compare the distributions of the BDM sub-treatments using both the Wilcoxon-Mann-Whitney rank-sum and KolmogorovSmirnov tests. In both tests, the distribution under the marketing treatment is significantly different from the standard treatment at the 10 percent level, while neither test rejects the null that the anchoring and standard BDM treatments are the same. ${ }^{2}$

Turning to the three TIOLI sub-treatments, we run the following regression separately for each price:

$$
\begin{equation*}
b_{u} y_{i c p}=\alpha_{0}+\alpha_{1} \text { TIOLI_ANCH } c_{c}+\alpha_{2} \text { TIOLI_RAND }_{c}+\varepsilon_{i c p} \tag{2}
\end{equation*}
$$

where TIOLI_ANCH ${ }_{c}$ is a dummy variable indicating the anchoring treatment, and TIOLI_RAND ${ }_{c}$ is a dummy variable indicating the random treatment. Means by treatment and price are plotted in Figure S3, with regression results presented in Table S4. Among all six of the individual comparisons, the only significant difference is the difference between the anchoring and the standard treatments at a price of 4 . However, the joint test that all three differences between the anchoring and standard treatments equals zero is rejected at the 10 percent level $(\mathrm{p}$-value $=0.077)$.

[^1]
## S4 WTP and Use in the TIOLI treatment

This section examines the relationship between willingness to pay in the TIOLI treatment. Because the TIOLI treatment did not include a second-stage randomization of the price paid, the relationship between prices and use combine both screening and causal effects. ${ }^{3}$ We run the following OLS regression among TIOLI buyers:

$$
\operatorname{use}_{i c}=\alpha_{0}+\alpha_{1} \text { price }_{i c}+\varepsilon_{i c}
$$

The results of this exercise are presented in Table S5. Overall, this table presents little evidence for a relationship between price and use in TIOLI treatment. There is a slight positive correlation between price and one of the use measures in the short term, but no clear patterns of effects.

## S5 Attrition

In this section, we discuss attrition from the follow-up surveys. The overall attrition rate was 12.9 percent in the one-month survey and 9.5 percent in the one-year survey. Table S6 shows that attrition from the one-month survey was fairly well-balanced on assignment to BDM vs. TIOLI and on most observable characteristics, although households that attrited were somewhat more likely to have a young child than households that were captured (7.9 $\mathrm{pp}, p<0.05)$. While the overall attrition rate was slightly lower in the one-year follow-up than at one month, Table S7 indicates that attrited households had significantly more young children ( $p<0.05$ ) and reported more young children having diarrhea in the two weeks $(p<0.1)$ prior to the baseline survey. We also find that attriters in the BDM treatment had lower WTP for the filter than non-attriters (GHS 1.0, p<0.01).

While attriters in the one-year survey had lower WTP, on average, than non-attriters, our treatment effects are estimated across the distribution of WTP. The most relevant test is thus whether treatment is correlated with attrition at different levels of WTP. To implement this test, we estimate

$$
\begin{equation*}
y_{i c}=\beta_{0}+\beta_{1} T_{i c}+\beta_{2} \mathrm{WTP}_{i c}+\varepsilon_{i c}, \tag{3}
\end{equation*}
$$

where $y_{i c}$ is an indicator for whether subject $i$ in compound $c$ attrited from the follow-up survey, $T_{i c}$ is an indicator for treatment (subject $i$ 's BDM bid was greater than her draw) and $\mathrm{WTP}_{i c}$ is subject $i$ 's bid. We estimate equation (3) on the full sample (all BDM subjects

[^2]with one or more children age $0-5$ in one-year follow-up villages). To see whether there is unbalanced attrition at certain levels of WTP, we also estimate equation (3) in a kernel (local linear) regression. As in Section 5.2, we estimate at each GHS 0.1 step from GHS 1 to GHS 6 , which correspond approximately to the 0.1 and 0.9 quantiles of WTP in the BDM sample. We use an Epanechnikov kernel and Silverman's rule of thumb to choose the bandwidth.

The results are plotted in Figure S4. The heavy horizontal lines correspond to the point estimate (solid) and 95 percent confidence intervals (dashed) from the overall regression on the full sample, while the light line and shading correspond to the point estimates (solid) and 95 percent confidence intervals (shading) from the local linear regression. As shown in Figure S4, there is no significant difference in attrition between treated (BDM winners) and untreated (BDM losers) once we condition on WTP. While we cannot test whether attrition is balanced on unobservables, this null result may mitigate, at least to some extent, the potential concerns from Table S7.

## References

Ahuja, Amrita, Michael Kremer, and Alix Peterson Zwane, "Providing Safe Water: Evidence from Randomized Evaluations," Annual Review of Resource Economics, 2010, 2, 237-256.

Dupas, Pascaline, "Health Behavior in Developing Countries," Annual Review of Economics, 2011, 3, 425-449.

Pattanayak, Subhrendu K. and Alexander Pfaff, "Behavior, Environment, and Health in Developing Countries: Evaluation and Valuation," Annual Review of Resource Economics, 2009, 1, 183-217.

Figure S1: Histogram of BDM Bids


Notes: This figure plots a histogram of all BDM bids for the filter (607 observations total). Approximately 1.5 GHS per USD.

Figure S2: Comparison of BDM Sub-treatments


Notes: The standard, anchoring and marketing treatments are described in detail in the text. 607 observations total, of which 212 are standard BDM, 199 are marketing BDM and 196 are anchoring BDM. All treatments were randomized at the compound (extended family) level.

Figure S3: Comparison of TIOLI Sub-treatments


Notes: This graph plots demand for the filter at each take-it-or-leave-it price, for each TIOLI sub-treatment. The random, anchoring and standard sub-treatments are described in detail in the text. Each treatment was randomized at the compound level. For the standard and anchoring TIOLI treatments, the price was also randomized at the compound level. For the random TIOLI treatment, the price was drawn by individual respondents. 658 observations, of which: standard 217 (GHS2 91, GHS4 70, GHS6 56); random 225 (GHS2 87, GHS4 75, GHS6 63); anchoring 216 (GHS2 68, GHS4 79, GHS6 69).

Figure S4: Difference in attrition rates: BDM Winners vs. Losers 1-year follow-up survey; BDM participants with children 0-5 years old


Notes: This figure plots estimated differences, with $95 \%$ in the rate of attrition from the one-year follow-up survey between BDM subjects who won the filter and subjects who did not win, controlling for the subject's BDM bid. The thick horizontal line represents the average difference in attrition between winners and losers, controlling for the bid. The thin line plots estimates from kernel regressions of attrition on winning the filter, controlling for the bid and using Epanechnikov kernel with Silverman's rule-of-thumb bandwidth. Standard errors are robust to clustering at the compound (extended family) level.

Figure S5: Kernel IV Estimates of Treatment Effects Ancillary Statistics
(a) One-Month Follow-Up

(b) One-Year Follow-Up



Notes: The solid line (left axis) plots the sample size, i.e. the number of children receiving positive weight in the kernel regression, at each evaluation point WTP $=1.0,1.1, \ldots, 6.0$. The dashed line (right axis) plots Shea's partial R-squared for the excluded instrument (the BDM price draw) in the first-stage regression at each evaluation point.

Table S1: Effect of Health Treatments

|  | OLS |  | Probit |
| :--- | :---: | :---: | :---: | :---: |
|  | Identifies Clean |  |  |
|  | Water as Way | BDM-Estimated | TIOLI |
|  | to Prevent Diarrhea | WTP | Purchase |
|  | $(1)$ | $(2)$ | $(3)$ |
| General health treatmnent | $0.130^{* * *}$ | -0.049 | -0.189 |
|  | $(0.043)$ | $(0.327)$ | $(0.323)$ |
| Child health treatment | $0.117^{* * *}$ | -0.231 | 0.157 |
|  | $(0.042)$ | $(0.275)$ | $(0.315)$ |
| Mean Dependent Variable | 0.532 | 3.051 | 0.562 |
| R-squared | 0.013 | 0.002 |  |
| Observations | 1,265 | 607 | 658 |

Notes: Column (1) displays coefficients from a linear regression of BDM bid on health treatment dummies. Column (3) reports probit estimates of purchase decisions. As discussed in the main text, by restricting the coefficient on price to equal -1 in the probit estimation, the estimated coefficients can be interpretable in terms of willingness to pay. Standard errors clustered at the compound (extended family) level in parentheses. ${ }^{*} p<0.10,{ }^{* *} p<0.05,{ }^{* * *} p<0.01$.

Table S2: Demand Comparison by Purchase Mechanism
Take-it-or-leave-it Price Points

|  | Dependent Variable: WTP $\geq$ Price (GHS) |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Price $=2$ |  | Price $=4$ |  | Price $=6$ |  |
| Difference (BDM - TIOLI) | $-0.182^{* * *}$ | $-0.171^{* * *}$ | $-0.163^{* * *}$ | $-0.152^{* * *}$ | $-0.100^{* *}$ | $-0.103^{* * *}$ |
|  | $(0.033)$ | $(0.033)$ | $(0.052)$ | $(0.052)$ | $(0.040)$ | $(0.039)$ |
| Mean TIOLI Purchase | 0.915 | 0.915 | 0.473 | 0.473 | 0.207 | 0.207 |
| Controls: | No | Yes | No | Yes | No | Yes |
| Number of BDM Respondents | 607 | 607 | 607 | 607 | 607 | 607 |
| Number of TIOLI Respondents | 246 | 246 | 224 | 224 | 188 | 188 |
| Number of clusters | 395 | 395 | 390 | 390 | 376 | 376 |

Notes: BDM acceptance rate calculated based on share of respondents bidding greater than or equal to the evaluated price. TIOLI acceptance rate equal to share of respondents offered the evaluated price who agreed to purchase. Controls include all variables listed in Table 1. Missing values of the control variables are set to 0 , and dummy variables are included to indicate missing values. Standard errors clustered at the compound (extended family) level in parentheses. ${ }^{*} p<0.10,{ }^{* *} p<0.05,{ }^{* * *} p<0.01$. Joint p-value testing significance of BDM across all three equations (GHS 2, 4, 6): 0.000 without controls; 0.000 with controls. P-value testing equality of BDM across equations: 0.239 without controls; 0.354 with controls.

Table S3: Equality of BID Distributions
Comparison with Standard BDM

|  | Market <br> $(1)$ | Anchor <br> $(2)$ |
| :--- | :---: | :---: |
| A. Wilcoxon |  |  |
| Z-statistic | 2.754 | -0.900 |
| P-value |  |  |
| Num. Obs. | 411 | 408 |
| B. Kolmogorov-Smirnov |  |  |
| D-statistic | 0.144 | 0.058 |
| P-value | 0.054 | 0.771 |
| Num. Obs. | 411 | 408 |

Notes: This table reports results of nonparametric tests for equality of bid distributions across BDM treatments. The anchoring and marketing BDM treatments (describe in the text) are separately compared to the standard BDM treatment. P-values robust to clustering at the compound level are calculated via randomization inference.

Table S4: Differences Between TIOLI sub-treatments

|  | Price=2 <br> $(1)$ | Price $=4$ <br> $(2)$ | Price $=6$ <br> $(3)$ |
| :--- | :---: | :---: | :---: |
| Random TIOLI | 0.018 | -0.133 | 0.022 |
|  | $(0.063)$ | $(0.104)$ | $(0.084)$ |
| Anchoring TIOLI | 0.066 | $-0.233^{* *}$ | -0.087 |
|  | $(0.059)$ | $(0.114)$ | $(0.075)$ |
| Constant | 0.890 | 0.600 | 0.232 |
|  | $(0.053)$ | $(0.083)$ | $(0.056)$ |
| Mean Dependent Variable | 0.915 | 0.473 | 0.207 |
| R-squared | 0.009 | 0.036 | 0.014 |
| Observations | 246 | 224 | 188 |

Notes: This table reports results of a linear probability model for purchase of the filter at the TIOLI price indicated in the column header. The ommitted category is standard TIOLI. The p-values for joint tests across equations are calculated from SUR estimation. P-value for joint test that coefficient on Random $\mathrm{TIOLI}=0$ in all three equations: 0.587 . P-value for joint test that coefficient on Anchoring TIOLI $=0$ in all three equations: 0.077 . Standard errors clustered at the compound (extended family) level in parentheses. * $p<0.10$, ${ }^{* *} p<0.05$, *** $p<0.01$.

Table S5: Relationship between TIOLI price and use

|  | Filter Present <br> and Undamaged <br> $(1)$ | Storage Vessel <br> Contains Water <br> $(2)$ | Clay Pot <br> Contains Water <br> $(3)$ | Usage Index <br> $(4)$ |
| :--- | :---: | :---: | :---: | :---: |
| A. Short-term effects | $0.021^{*}$ | -0.002 | -0.002 | 0.018 |
| Price | $(0.012)$ | $(0.017)$ | $(0.019)$ | $(0.026)$ |
| Mean Dependent Variable | 0.871 | 0.751 | 0.732 | -0.007 |
| R-squared | 0.008 | 0.000 | 0.000 | 0.001 |
| Observations | 325 | 325 | 325 | 325 |
| B. One-year effects |  |  |  |  |
| Price | 0.012 | -0.009 | 0.006 | 0.006 |
|  | $(0.028)$ | $(0.030)$ | $(0.028)$ | $(0.042)$ |
| Mean Dependent Variable | 0.617 | 0.378 | 0.350 | -0.044 |
| R-squared | 0.001 | 0.001 | 0.000 | 0.000 |
| Observations | 180 | 180 | 180 | 180 |

Notes: The sample includes those subjects in the TIOLI treatment who purchased the filter. Each column presents the results of a separate regression of the dependent variable, listed in the column heading, on TIOLI price. See the main text for definitions of the outcome variables. Usage index is a composite of all three usage measures. Usage measures are observed by an enumerator at indicated follow-up survey. Standard errors clustered at the compound (extended family) level in parentheses. ${ }^{*} p<0.10,{ }^{* *} p<0.05,{ }^{* * *} p<0.01$.

Table S6: Attrition - 1-month survey

|  | Baseline <br> $(1)$ | Surveyed <br> $(2)$ | Not Surveyed <br> $(3)$ | Difference <br> $(4)$ |
| :--- | :---: | :---: | :---: | :---: |
| Share of households |  | 0.871 | 0.129 |  |
| Assigned to BDM treatment | 0.480 | 0.479 | 0.485 | 0.006 |
|  | $[0.500]$ | $[0.500]$ | $[0.501]$ | $(0.043)$ |
| Number of respondents in compound | 3.593 | 3.580 | 3.681 | 0.101 |
|  | $[2.323]$ | $[2.378]$ | $[1.914]$ | $(0.207)$ |
| Respondent's husband lives in compound | 0.794 | 0.804 | 0.730 | $-0.074^{* *}$ |
|  | $[0.404]$ | $[0.397]$ | $[0.445]$ | $(0.037)$ |
| One or more children age 0-5 in household | 0.723 | 0.713 | 0.791 | $0.078^{* *}$ |
|  | $[0.448]$ | $[0.452]$ | $[0.408]$ | $(0.035)$ |
| Number of children age 0-5 in household | 1.569 | 1.561 | 1.620 | 0.059 |
| (conditional on positive) | $[0.801]$ | $[0.760]$ | $[1.017]$ | $(0.111)$ |
| Num. children age 0-5 w. diarrhea in prev. 2 wks. | 0.337 | 0.328 | 0.388 | 0.059 |
| (among households with children age 0-5) | $[0.592]$ | $[0.597]$ | $[0.563]$ | $(0.055)$ |
| Num. children age 6-17 w. diarrhea in prev. 2 wks. | 0.075 | 0.081 | 0.033 | $-0.047^{* *}$ |
| (among households with children age 0-5) | $[0.335]$ | $[0.349]$ | $[0.181]$ | $(0.023)$ |
| Respondent ever attended school | 0.090 | 0.088 | 0.104 | 0.016 |
|  | $[0.286]$ | $[0.283]$ | $[0.307]$ | $(0.025)$ |
| Respondent's spouse ever attended school | 0.233 | 0.225 | 0.300 | 0.075 |
|  | $[0.423]$ | $[0.418]$ | $[0.464]$ | $(0.078)$ |
| Wealth index | 0.132 | 0.115 | 0.245 | 0.130 |
|  | $[1.555]$ | $[1.556]$ | $[1.549]$ | $(0.131)$ |
| Improved water source, all year | 0.187 | 0.185 | 0.202 | 0.017 |
|  | $[0.390]$ | $[0.389]$ | $[0.403]$ | $(0.036)$ |
| Treats water with an effective method | 0.115 | 0.107 | 0.166 | $0.059^{*}$ |
| Water quality: E. coli (MPN, z-score) | $[0.319]$ | $[0.309]$ | $[0.373]$ | $(0.035)$ |
| Water quality: Turbidity (index, z-score) | -0.052 | -0.050 | -0.067 | -0.018 |
| Bid for filter (GHS) | $[0.949]$ | $[0.958]$ | $[0.877]$ | $(0.108)$ |
| (among BDM respondents) | -0.065 | -0.080 | 0.072 | 0.151 |
| Filter offer price (GHS) | $[0.997]$ | $[0.985]$ | $[1.100]$ | $(0.141)$ |
| (among BDM respondents) | 3.051 | 3.022 | 3.243 | 0.221 |
|  | $[2.268]$ | $[2.247]$ | $[2.414]$ | $(0.276)$ |
|  | 4.650 | 4.621 | 4.842 | 0.221 |
|  | $[3.663]$ | $[3.669]$ | $[3.641]$ | $(0.434)$ |

Notes: Standard deviations in brackets. Estimated standard errors in parentheses. ${ }^{*} p<0.10,^{* *} p<0.05$, *** $p<0.01$.

Table S7: Attrition - 1-year survey

|  | Baseline <br> $(1)$ | Surveyed <br> $(2)$ | Not Surveyed <br> $(3)$ | Difference <br> $(4)$ |
| :--- | :---: | :---: | :---: | :---: |
| Share of households |  | 0.904 | 0.096 |  |
| Assigned to BDM treatment | 0.479 | 0.488 | 0.400 | -0.088 |
|  | $[0.500]$ | $[0.500]$ | $[0.494]$ | $(0.084)$ |
| Number of respondents in compound | 3.676 | 3.620 | 4.215 | 0.596 |
|  | $[2.552]$ | $[2.523]$ | $[2.781]$ | $(0.378)$ |
| Respondent's husband lives in compound | 0.800 | 0.816 | 0.646 | $-0.170^{* *}$ |
|  | $[0.400]$ | $[0.388]$ | $[0.482]$ | $(0.070)$ |
| One or more children age 0-5 in household | 0.722 | 0.725 | 0.692 | -0.033 |
|  | $[0.448]$ | $[0.447]$ | $[0.465]$ | $(0.062)$ |
| Number of children age 0-5 in household | 1.556 | 1.578 | 1.333 | $-0.245^{* *}$ |
| (conditional on positive) | $[0.763]$ | $[0.771]$ | $[0.640]$ | $(0.114)$ |
| Num. children age 0-5 w. diarrhea in prev. 2 wks. | 0.367 | 0.379 | 0.244 | $-0.134^{*}$ |
| (among households with children age 0-5) | $[0.606]$ | $[0.620]$ | $[0.435]$ | $(0.072)$ |
| Num. children age 6-17 w. diarrhea in prev. 2 wks. | 0.080 | 0.079 | 0.088 | 0.009 |
| (among households with children age 0-5) | $[0.288]$ | $[0.288]$ | $[0.288]$ | $(0.052)$ |
| Respondent ever attended school | 0.099 | 0.093 | 0.154 | 0.061 |
|  | $[0.298]$ | $[0.290]$ | $[0.364]$ | $(0.047)$ |
| Respondent's spouse ever attended school | 0.303 | 0.311 | 0.200 | -0.111 |
|  | $[0.461]$ | $[0.464]$ | $[0.414]$ | $(0.103)$ |
| Wealth index | 0.030 | 0.070 | -0.341 | -0.411 |
|  | $[1.574]$ | $[1.553]$ | $[1.726]$ | $(0.269)$ |
| Improved water source, all year | 0.216 | 0.220 | 0.185 | -0.035 |
|  | $[0.412]$ | $[0.414]$ | $[0.391]$ | $(0.069)$ |
| Treats water with an effective method | 0.107 | 0.106 | 0.123 | 0.017 |
| Water quality: E. coli (MPN, z-score) | $[0.310]$ | $[0.308]$ | $[0.331]$ | $(0.043)$ |
| Water quality: Turbidity (index, z-score) | -0.132 | -0.113 | -0.313 | -0.200 |
| Bid for filter (GHS) | $[0.928]$ | $[0.951]$ | $[0.664]$ | $(0.131)$ |
| (among BDM respondents) | -0.348 | -0.353 | -0.298 | 0.055 |
| Filter offer price (GHS) | $[0.532]$ | $[0.536]$ | $[0.495]$ | $(0.088)$ |
| (among BDM respondents) | 3.068 | 3.150 | 2.115 | $-1.035^{* * *}$ |
|  | $[2.383]$ | $[2.428]$ | $[1.519]$ | $(0.369)$ |
|  | 4.606 | 4.632 | 4.308 | -0.324 |
|  | $[3.585]$ | $[3.614]$ | $[3.290]$ | $(0.631)$ |

Notes: Standard deviations in brackets. Estimated standard errors in parentheses. ${ }^{*} p<0.10,^{* *} p<0.05$, *** $p<0.01$.

## I. BDM_MARKET_STUDY

## READ EXACTLY FROM SCRIPT. DO NOT SAY ANYTHING THAT IS NOT IN SCRIPT.

## READ:

- We are performing a market study to determine the price at which we should sell the Kosim water filter in villages like yours. We are gathering information on how much people are willing to pay for the filters.
- We would like to sell you a filter but the price is not yet fixed. It will be determined by chance in a game we are about to play.
- You will not have to spend any more for the filter than you really want to.
- You may even be able to buy it for less.

Here is how the promotion works:

- I will ask you to tell me the maximum price (dan kuli) you are willing to pay (ka a ni sagi dan kuli) for the Kosim filter (koterigu di mali lokorigu).
- In this cup, I have many different balls with different numbers on them.
- The numbers represent prices for the filter.
- Then I will ask you to pick a ball from the cup, and we will look at the price together.
- If the number you pick is less than your bid, you will buy (ani too dali) the filter and you will pay the price you pick from the cup.
- If the number you pick is greater than your bid, then you cannot buy the filter.
- You will only have one chance to play for the filter.
- You cannot change your bid after you draw from the cup.
- You must state a price that you are actually able to pay now.
- We will practice in one moment, but for now, do you have any questions?


## Answer any questions respondent has.

## I. 1 BDM_MARKET_STUDY PRACTICE

REMEMBER: Get respondent to state HIGHEST price they are WILLING AND ABLE to pay right now.

## NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.

- Before we play for the filter, let's practice the game. We'll play the same game, but instead of playing for the filter, we will play for this bar of soap. Show respondent soap.

1) What is the maximum amount (dan kuli) that you are willing to pay for this soap? [Respondent states price $X$ ]
2) Now, if you pick a number that is less than or equal to $X$, you will buy the soap at the price you pick. If you pick a number greater than X , you will not be able to purchase the soap, even if you are willing to pay the greater number. You cannot change your bid after you pick a price. Do you understand?
3) Please, tell me - if you pick [ $\mathrm{X}+5$ peswas] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
4) And if you pick [X-5 peswas] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
5) If you draw $[\mathrm{X}+5]$, will you want to purchase the soap for $[\mathrm{X}+5]$ ?

$$
\begin{aligned}
& \text { IF YES: } \rightarrow \text { 5) } \\
& \text { IF NO: } \rightarrow \text { 6) }
\end{aligned}
$$

6) Do you want to change your bid to [ $\mathrm{X}+5]$ ?

IF YES: OK, your new bid is $[\mathrm{X}+5] . \rightarrow 2$ ) [use $\mathrm{X}+5$ as new X ]
IF NO: $\rightarrow$ 6)
7) So, is $X$ truly the most you would want to pay?

> IF YES: $\rightarrow$ 7)
> IF NO: $\rightarrow$ 1)
8) If you pick $X$, you must be able to pay $X$. Are you able to pay $X$ now?

IF YES: $\rightarrow$ I.1.1 (Page 28 of Household survey)
IF NO: What is the maximum price you are willing and able to pay now? $\rightarrow$ 2) [use new $X$ ]

## $\rightarrow$ Record respondent's Final Bid (I.1.1, page 28)

9) Could you please fetch the amount you have stated you are willing to pay and show it to me? Wait for respondent to fetch money and check to see she has enough funds for Final Bid.
10) Now you will pick a price from the cup. If you pick $X$ or less, you will buy the soap at the price you pick. If you pick more than X , you will not be able to buy the soap. Are you ready to pick a ball?

Mix balls in cup, hold cup above eye level of respondent and have her pick a ball without looking.
11) Now you can draw a ball from the cup. Let respondent draw ball. Together, look at the ball and read the price picked. [Drawn price is $Y$ ]
$\rightarrow$ Record Drawn Price (I.1.2, page 28)
12) Let us look at the ball together.
$\rightarrow$ Record if Drawn Price is lower/equal to or higher than Final Bid (I.1.3, page 28)
a. [If $\boldsymbol{Y}<=\boldsymbol{X}$ ]: The price is Y which is [less than/equal to] the amount you said you would be willing and able to pay for this soap. You can now buy the item at this price.
$\rightarrow$ Exchange payment for soap.
b. [If $\boldsymbol{Y}>\boldsymbol{X}$ ]: The price is Y, which is greater than the amount you said you would be willing to spend. You cannot purchase the soap.
13) Do you have any questions about the game?

Address any questions or concerns respondent has. Make sure she understands rules of game.

## I. 2 BDM_MARKET_STUDY FILTER SALE

REMEMBER: Get respondent to state HIGHEST price they are WILLING AND ABLE to pay right now.
NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.
Read:

- Now you will play to buy the filter, so that we can determine how much we should sell the filter for in the future in villages like yours.
- Recall the community meeting on [day of community meeting]
- Have you thought about how much you are willing to pay for the filter?
- Do you have the funds available now?

Let's begin:

1) What is the maximum amount (dan kuli) that you are willing to pay for this filter?

## [Respondent states price $X$ ]

2) Now, if you pick a number that is less than or equal to $X$, you will buy the soap at the price you pick. If you pick a number greater than X , you will not be able to purchase the soap, even if you are willing to pay the greater number. You cannot change your bid after you pick a price. Do you understand?
3) Please, tell me - if you pick [ $\mathrm{X}+1$ cedis] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
4) And if you pick [X-1 cedis] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
5) If you draw $[\mathrm{X}+1]$, will you want to purchase the filter for $[\mathrm{X}+1]$ ?

> IF YES: $\rightarrow$ 5)
> IF NO: $\rightarrow$ 6)
6) Do you want to change your bid to [ $\mathrm{X}+1]$ ?

IF YES: OK, your new bid is $[\mathrm{X}+1] . \rightarrow 2$ ) [use $\mathrm{X}+1$ as new X$]$
IF NO: $\rightarrow$ 6)
7) So, is $X$ truly the most you would want to pay?

$$
\begin{aligned}
& \text { IF YES: } \rightarrow \text { 7) } \\
& \text { IF NO: } \rightarrow \text { 1) }
\end{aligned}
$$

8) If you pick $X$, you must be able to pay $X$. Are you able to pay $X$ now?

IF YES: $\rightarrow$ I.2.1
IF NO: What is the maximum price you are willing and able to pay now? $\rightarrow$ 2) [use new $X$ ]

## $\rightarrow$ Record respondent's Final Bid (I.2.1, page 28)

9) Could you please fetch the amount you have stated you are willing to pay and show it to me? Wait for respondent to fetch money and check to see she has enough funds for Final Bid.
10) Now you will pick a price from the cup. If you pick $X$ or less, you will buy the filter at the price you pick. If you pick more than X , you will not be able to buy the filter. Are you ready to pick a ball?

Mix balls in cup, hold cup above eye level of respondent and have her pick a ball without looking.
11) Now you can draw a ball from the cup. Let respondent draw ball. Together, look at the ball and read the price picked. [Drawn price is $Y$ ]
$\rightarrow$ Record Drawn Price (I.2.2, page 28)
12) Let us look at the ball together.
$\rightarrow$ Record if Drawn Price is lower/equal to or higher than Final Bid Survey (I.2.3, page 28)
a. [If $\boldsymbol{Y}<=\boldsymbol{X}$ ]: The price is Y which is [less than/equal to] the amount you said you would be willing and able to pay for this filter. You can now buy the filter at this price.
$\rightarrow$ Receive payment for filter. Record filter tracking code on survey (I.2.5, page 28). Record filter tracking code on receipt and give it to respondent. Inform her of where and when she can pick up the filter.
$\rightarrow$ Skip to I.2.8
b. [If $\boldsymbol{Y}>\boldsymbol{X}$ ]: The price is Y , which is greater than the amount you said you would be willing to spend. You cannot purchase the filter.
$\rightarrow$ Skip to I.2.6
$\rightarrow$ Skip to Section O.Conclusion. REMEMBER: record specifics about filter sale

## J. REGULAR_BDM

## READ EXACTLY FROM SCRIPT. DO NOT SAY ANYTHING THAT IS NOT IN SCRIPT.

## READ:

- We would like to sell you a filter but the price is not yet fixed. It will be determined by chance in a game we are about to play.
- You will not have to spend any more for the filter than you really want to.
- You may even be able to buy it for less.

Here is how the promotion works:

- I will ask you to tell me the maximum price (dan kuli) you are willing to pay (ka a ni sagi dali) for the Kosim filter (koterigu di mali lokorigu).
- In this cup, I have many different balls with different numbers on them.
- The numbers represent prices for the filter.
- Then I will ask you to pick a ball from the cup, and we will look at the price together.
- If the number you pick is less than or equal to your bid, you will buy (ani too dali) the filter and you will pay the price you pick from the cup.
- If the number you pick is greater than your bid, then you cannot buy the filter.
- You will only have one chance to play for the filter.
- You cannot change your bid after you draw from the cup.
- You must state a price that you are actually able to pay now.
- We will practice in one moment, but for now, do you have any questions?


## Answer any questions respondent has.

## J. 1 REGULAR_BDM PRACTICE

REMEMBER: Get respondent to state HIGHEST price they are WILLING AND ABLE to pay right now.

## NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.

- Before we play for the filter, let's practice the game. We'll play the same game, but instead of playing for the filter, we will play for this bar of soap. Show respondent soap.

1) What is the maximum amount (dan kuli) that you are willing to pay for this soap? [Respondent states price $X$ ]
2) Now, if you pick a number that is less than or equal to $X$, you will buy the soap at the price you pick. If you pick a number greater than X , you will not be able to purchase the soap, even if you are willing to pay the greater number. You cannot change your bid after you pick a price. Do you understand?
3) Please, tell me - if you pick [ $\mathrm{X}+5$ peswas] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
4) And if you pick [X-5 peswas] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
5) If you draw $[\mathrm{X}+5]$, will you want to purchase the soap for $[\mathrm{X}+5]$ ?

$$
\begin{aligned}
& \text { IF YES: } \rightarrow \text { 5) } \\
& \text { IF NO: } \rightarrow \text { 6) }
\end{aligned}
$$

6) Do you want to change your bid to [ $\mathrm{X}+5]$ ?

IF YES: OK, your new bid is $[\mathrm{X}+5] . \rightarrow 2$ ) [use $\mathrm{X}+5$ as new X ]
IF NO: $\rightarrow$ 6)
7) So, is $X$ truly the most you would want to pay?

IF YES: $\rightarrow$ 7)
IF NO: $\rightarrow$ 1)
8) If you pick $X$, you must be able to pay $X$. Are you able to pay $X$ now?

IF YES: $\rightarrow$ J.1.1
IF NO: What is the maximum price you are willing and able to pay now? $\rightarrow 2$ ) [use new $X$ ]
$\rightarrow$ Record respondent's Final Bid (J.1.1, page 29)
9) Could you please fetch the amount you have stated you are willing to pay and show it to me? Wait for respondent to fetch money and check to see she has enough funds for Final Bid.
10) Now you will pick a price from the cup. If you pick $X$ or less, you will buy the soap at the price you pick. If you pick more than X , you will not be able to buy the soap. Are you ready to pick a ball?

Mix balls in cup, hold cup above eye level of respondent and have her pick a ball without looking.
11) Now you can draw a ball from the cup. Let respondent draw ball. Together, look at the ball and read the price picked. [Drawn price is $Y$ ]
$\rightarrow$ Record Drawn Price (J.1.2, page 29)
12) Let us look at the ball together.
$\rightarrow$ Record if Drawn Price is lower/equal to or higher than Final Bid Survey (J.1.3, page 29)
a. [If $\boldsymbol{Y}<=\boldsymbol{X}$ ]: The price is Y which is [less than/equal to] the amount you said you would be willing and able to pay for this soap. You can now buy the item at this price.
$\rightarrow$ Exchange payment for soap.
b. [If $\boldsymbol{Y}>\boldsymbol{X}$ ]: The price is Y, which is greater than the amount you said you would be willing to spend. You cannot purchase the soap.
13) Do you have any questions about the game?

Address any questions or concerns respondent has. Make sure she understands rules of game.

## J. 2 REGULAR_BDM FILTER SALE

REMEMBER: Get respondent to state HIGHEST price they are WILLING AND ABLE to pay right now.
NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.

## Read:

- Now you will play to buy the filter
- Recall the community meeting on [day of community meeting]
- Have you thought about how much you are willing to pay for the filter?
- Do you have the funds available now?

Let's begin:

1) What is the maximum amount (dan kuli) that you are willing to pay for this filter? [Respondent states price $X$ ]
2) Now, if you pick a number that is less than or equal to $X$, you will buy the soap at the price you pick. If you pick a number greater than X , you will not be able to purchase the soap, even if you are willing to pay the greater number. You cannot change your bid after you pick a price. Do you understand?
3) Please, tell me - if you pick [ $\mathrm{X}+1$ cedis] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
4) And if you pick [X-1 cedis] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
5) If you draw $[\mathrm{X}+1]$, will you want to purchase the filter for $[\mathrm{X}+1]$ ?

IF YES: $\rightarrow$ 5)
IF NO: $\rightarrow$ 6)
6) Do you want to change your bid to [ $\mathrm{X}+1]$ ?

IF YES: OK, your new bid is $[\mathrm{X}+1] . \rightarrow 2$ ) [use $\mathrm{X}+1$ as new X$]$
IF NO: $\rightarrow$ 6)
7) So, is $X$ truly the most you would want to pay?

IF YES: $\rightarrow$ 7)
IF NO: $\rightarrow$ 1)
8) If you pick $X$, you must be able to pay $X$. Are you able to pay $X$ now?

IF YES: $\rightarrow$ J.2.1
IF NO: What is the maximum price you are willing and able to pay now? $\rightarrow 2$ [ [use new $X$ ]

## $\rightarrow$ Record respondent's Final Bid (J.2.1, page 29)

9) Could you please fetch the amount you have stated you are willing to pay and show it to me? Wait for respondent to fetch money and check to see she has enough funds for Final Bid.
10) Now you will pick a price from the cup. If you pick $X$ or less, you will buy the filter at the price you pick. If you pick more than X , you will not bes 28 le to buy the filter. Are you ready to pick a ball?

Mix balls in cup, hold cup above eye level of respondent and have her pick a ball without looking.
11) Now you can draw a ball from the cup. Let respondent draw ball. Together, look at the ball and read the price picked. [Drawn price is $Y$ ]
$\rightarrow$ Record Drawn Price (J.2.2, page 29)
12) Let us look at the ball together.
$\rightarrow$ Record if Drawn Price is lower/equal to or higher than Final Bid (J.2.3, page 29)
a. [If $\boldsymbol{Y}<=\boldsymbol{X}$ ]: The price is Y which is [less than/equal to] the amount you said you would be willing and able to pay for this filter. You can now buy the filter at this price.
$\rightarrow$ Receive payment for filter. Record filter tracking code on survey ( I.2.5, page 29). Record filter tracking code on receipt and give it to respondent. Inform her of where and when she can pick up the filter.
b. [If $\boldsymbol{Y}>\boldsymbol{X}$ ]: The price is Y, which is greater than the amount you said you would be willing to spend. You cannot purchase the filter.
$\rightarrow$ Go to Household Survey question J.24, page 29

## K. BDM_ANCHORING

## READ EXACTLY FROM SCRIPT. DO NOT SAY ANYTHING THAT IS NOT IN SCRIPT.

## Read:

- We would like to sell you a filter but the price is not yet fixed. It will be determined by chance in a game we are about to play.
- You will not have to spend any more for the filter than you really want to.
- You may even be able to buy it for less.
- The price of the filter in a store or at the market is GH\& 21.

Here is how the promotion works:

- I will ask you to tell me the maximum price (dan kuli) you are willing to pay (ka a ni sagi dan kuli) for the Kosim filter (koterigu di mali lokorigu).
- In this cup, I have many different balls with different numbers on them.
- The numbers represent prices for the filter.
- Then I will ask you to pick a ball from the cup, and we will look at the price together.
- If the number you pick is less than or equal to your bid, you will buy (ani too dali) the filter and you will pay the price you pick from the cup.
- If the number you pick is greater than your bid, then you cannot buy the filter.
- You will only have one chance to play for the filter.
- You cannot change your bid after you draw from the cup.
- You must state a price that you are actually able to pay now.
- We will practice in one moment, but for now, do you have any questions?


## Answer any questions respondent has.

## K. 1 BDM_ANCHORING PRACTICE

REMEMBER: Get respondent to state HIGHEST price they are WILLING AND ABLE to pay right now.

## NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.

- Before we play for the filter, let's practice the game. We'll play the same game, but instead of playing for the filter, we will play for this bar of soap. Show respondent soap.

1) What is the maximum amount (dan kuli) that you are willing to pay for this soap? [Respondent states price $X$ ]
2) Now, if you pick a number that is less than or equal to $X$, you will buy the soap at the price you pick. If you pick a number greater than X , you will not be able to purchase the soap, even if you are willing to pay the greater number. You cannot change your bid after you pick a price. Do you understand?
3) Please, tell me - if you pick [ $\mathrm{X}+5$ peswas] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
4) And if you pick [X-5 peswas] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
5) If you draw $[\mathrm{X}+5]$, will you want to purchase the soap for $[\mathrm{X}+5]$ ?

$$
\begin{aligned}
& \text { IF YES: } \rightarrow \text { 5) } \\
& \text { IF NO: } \rightarrow \text { 6) }
\end{aligned}
$$

6) Do you want to change your bid to [ $\mathrm{X}+5]$ ?

IF YES: OK, your new bid is $[\mathrm{X}+5] . \rightarrow 2$ ) [use $\mathrm{X}+5$ as new X ]
IF NO: $\rightarrow$ 6)
7) So, is $X$ truly the most you would want to pay?

IF YES: $\rightarrow$ 7)
IF NO: $\rightarrow$ 1)
8) If you pick $X$, you must be able to pay $X$. Are you able to pay $X$ now?

IF YES: $\rightarrow$ K.1.1
IF NO: What is the maximum price you are willing and able to pay now? $\rightarrow$ 2) [use new $X$ ]
$\rightarrow$ Record respondent's Final Bid (K.1.1, page 30)
9) Could you please fetch the amount you have stated you are willing to pay and show it to me? Wait for respondent to fetch money and check to see she has enough funds for Final Bid.
10) Now you will pick a price from the cup. If you pick $X$ or less, you will buy the soap at the price you pick. If you pick more than X , you will not be able to buy the soap. Are you ready to pick a ball?

Mix balls in cup, hold cup above eye level of respondent and have her pick a ball without looking.
11) Now you can draw a ball from the cup. Let respondent draw ball. Together, look at the ball and read the price picked. [Drawn price is $Y$ ]
$\rightarrow$ Record Drawn Price (K.1.2, page 30
12) Let us look at the ball together.
$\rightarrow$ Record if Drawn Price is lower/equal to or higher than Final Bid (K.1.3, page 30)
a. [If $\boldsymbol{Y}<=\boldsymbol{X}$ ]: The price is Y which is [less than/equal to] the amount you said you would be willing and able to pay for this soap. You can now buy the item at this price.
$\rightarrow$ Exchange payment for soap.
b. [If $\boldsymbol{Y}>\boldsymbol{X}$ ]: The price is Y, which is greater than the amount you said you would be willing to spend. You cannot purchase the soap.
13) Do you have any questions about the game?

Address any questions or concerns respondent has. Make sure she understands rules of game.

## K. 2 BDM_ANCHORING FILTER SALE

REMEMBER: Get respondent to state HIGHEST price they are WILLING AND ABLE to pay right now.
NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.

## Read:

- Now you will play to buy the filter.
- Recall the community meeting on [date of meeting]
- Have you thought about how much you are willing to pay for the filter?
- For your information, the filter costs GH\$ 21 at stores or at the market in town.
- Do you have the funds available now?

Let's begin:

1) What is the maximum amount (dan kuli) that you are willing to pay for this filter?

## [Respondent states price $X$ ]

2) Now, if you pick a number that is less than or equal to $X$, you will buy the soap at the price you pick. If you pick a number greater than X , you will not be able to purchase the soap, even if you are willing to pay the greater number. You cannot change your bid after you pick a price. Do you understand?
3) Please, tell me - if you pick [ $\mathrm{X}+1$ cedis] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
4) And if you pick [X-1 cedis] now, what happens? If respondent does not give correct answer, explain the rules again and then ask question again.
5) If you draw $[\mathrm{X}+1]$, will you want to purchase the filter for $[\mathrm{X}+1]$ ?

> IF YES: $\rightarrow$ 5)
> IF NO: $\rightarrow$ 6)
6) Do you want to change your bid to [ $\mathrm{X}+1]$ ?

IF YES: OK, your new bid is $[\mathrm{X}+1] . \rightarrow 2$ ) [use $\mathrm{X}+1$ as new X$]$
IF NO: $\rightarrow$ 6)
7) So, is $X$ truly the most you would want to pay?

IF YES: $\rightarrow$ 7)
IF NO: $\rightarrow$ 1)
8) If you pick $X$, you must be able to pay $X$. Are you able to pay $X$ now?

IF YES: $\rightarrow$ K.2.1
IF NO: What is the maximum price you are willing and able to pay now? $\rightarrow 2$ ) [use new $X$ ]

## $\rightarrow$ Record respondent's Final Bid (K.2.1, page 30)

9) Could you please fetch the amount you have stated you are willing to pay and show it to me? Wait for respondent to fetch money and check to see she has enough funds for Final Bid.
10) Now you will pick a price from the cup. If you pick $X$ or less, you will buy the filter at the price you pick. If you pick more than X , you will not be able to buy the filter. Are you ready to pick a ball?

Mix balls in cup, hold cup above eye level of respondent and have her pick a ball without looking.
11) Now you can draw a ball from the cup. Let respondent draw ball. Together, look at the ball and read the price picked. [Drawn price is $Y$ ]
$\rightarrow$ Record Drawn Price (K.2.2, on page 30)
12) Let us look at the ball together.
$\rightarrow$ Record if Drawn Price is lower/equal to or higher than Final Bid (K.2.3, page 30)
a. [If $\boldsymbol{Y}<=\boldsymbol{X}$ ]: The price is Y which is [less than/equal to] the amount you said you would be willing and able to pay for this filter. You can now buy the filter at this price.
$\rightarrow$ Receive payment for filter. Record filter tracking code on survey (K.2.5, page 30). Record filter tracking code on receipt and give it to respondent. Inform her of where and when she can pick up the filter.
$\rightarrow$ Skip to Section O.Conclusion. REMEMBER: record specific about filter sale
b. [If $\boldsymbol{Y}>\boldsymbol{X}$ ]: The price is Y , which is greater than the amount you said you would be willing to spend. You cannot purchase the filter.
$\rightarrow$ Skip to K.2.6

## L. RAND_TIOLI

## READ EXACTLY FROM SCRIPT. DO NOT SAY ANYTHING THAT IS NOT IN SCRIPT.

## Read:

- We will give you the chance to purchase the Kosim filter.
- There is no set price for the filter.
- The price will be determined by chance.
- In this cup, I have many different balls with different numbers on them.
- The numbers represent prices for the filter.
- I will ask you to pick a ball from the cup, and we will look at the price together.
- I will then ask you if you are willing to purchase the filter at the price picked.
- If you are willing to purchase at the price picked, I will sell you the filter and you will have to pay now.
- This is the only time we will offer this filter to you.
- We will not offer you any other price and we cannot bargain.
- We would first offer you a bar of soap to buy using the same procedure and then the filter
- Do you understand?

Answer any questions respondent has.

## L. 1 RAND_TIOLI PRACTICE

$\rightarrow$ Mix balls in cup; hold cup above eye level of respondent; have her pick a ball without looking

- Now you can draw a ball from the cup.
$\rightarrow$ Record Drawn Price (L.1.1, page 31)
- Are you willing to purchase the Soap at this price?
$\rightarrow$ Record if Respondent is willing to pay Drawn Price (L.1.2, page 31)
a. If "Yes":
$\rightarrow$ Receive payment for Soap and give it to respondent
b. If "No":
$\rightarrow$ Go to Section L.2, page 31
Answer any questions respondent has.


## L. 2 RAND_TIOLI FILTER

Read:

- We will now give you the chance to purchase the Kosim filter.
- Like I said, there is no set price for the filter.
- The price will be determined by chance.
- I will ask you to pick a ball from the cup, and we will look at the price together.
- I will then ask you if you are willing to purchase the filter at the price picked.
- If you are willing to purchase at the price picked, I will sell you the filter and you will have to pay now.
- This is the only time we will offer this filter to you.
- Do you understand?

Answer questions and address any concerns respondent may have. Make sure she understands that she cannot bargain.
$\rightarrow$ Mix balls in cup; hold cup above eye level of respondent; have her pick a ball without looking

- Now you can draw a ball from the cup.
$\rightarrow$ Record Drawn Price (L.2.1, page 31)
- Are you willing to purchase the filter at this price?
$\rightarrow$ Record if Respondent is willing to pay Drawn Price (L.2.2, page 31)
c. If "Yes":
$\rightarrow$ Receive payment for filter. Record filter tracking code on survey ( L.2.3, page 31).
Record filter tracking code on receipt and give it to respondent. Inform her of where and when she can pick up the filter.
$\rightarrow$ Go to question L.2.5, page 31
d. If "No":
$\rightarrow$ Go to question L.2.4, page 31


## M. STANDARD_TIOLI

READ EXACTLY FROM SCRIPT. DO NOT SAY ANYTHING THAT IS NOT IN SCRIPT.

## Read:

- You have been selected by chance (ti piila gandam gandam) to receive a special promotion for the Kosim Filter (koterigu din mali lokorigu)
- We are offering you the filter at a specific price.
- This is the only time we will offer this filter to you.
- We will not offer you any other price and we cannot bargain.
- If you do accept the special promotion price, you will have to pay now.
- But before we play for the filter we will play the same game for a bar of soap.
- Do you understand?


## M. 1 STANDARD_TIOLI PRACTICE

NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.
$\rightarrow$ Record assigned STAND_TIOLI Price for soap (M.1.1, page 32)

- Are you willing to purchase the soap at this price?
$\rightarrow$ Record if Respondent is willing to pay STAND_TIOLI Price (M.1.2, page 32)
a. If "Yes":
$\rightarrow$ Exchange and go to Section M.2, page 32
b. If "No":
$\rightarrow$ Go to Section M.2, page 32

Address any questions or concerns respondent has. Make sure she understands rules of game.

## M. 2 STANDARD_TIOLI FILTER

Read:

- We will now offer you a chance to buy the filter
- Like I said, we are offering you the filter at a specific price.
- This is the only time we will offer this filter to you.
- We will not offer you any other price and we cannot bargain.
- If you do accept the special promotion price, you will have to pay now.
- Do you understand?

Answer questions and address any concerns respondent may have.
$\rightarrow$ Check Respondent Assignment Sheet and record assigned STAND_TIOLI Price (M.2.1, page 32)

- Are you willing to purchase the filter at this price?
$\rightarrow$ Record if Respondent is willing to pay STAND_TIOLI Price (M.2.2, page 32)
c. If "Yes":
$\rightarrow$ Receive payment for filter. Record filter tracking code on survey (M.2.3, page 32).
Record filter tracking code on receipt and give it to respondent. Inform her of where and when she can pick up the filter.
$\rightarrow$ Go to question M.2.5, page 32
d. If "No":
$\rightarrow$ Go and continue from question M.2.4, page 32


## N. STAND_TIOLI_ANCHORING

READ EXACTLY FROM SCRIPT. DO NOT SAY ANYTHING THAT IS NOT IN SCRIPT.

## Read:

- You have been selected by chance (ti piila gandam gandam) to receive a special promotion for the Kosim Filter (koterigu din mali lokorigu)
- The price of the filter at a store or at the market in town is GH¢ 21.
- We are offering you the filter at a specific price.
- This is the only time we will offer this filter to you.
- We will not offer you any other price and we cannot bargain.
- If you do accept the special promotion price, you will have to pay now.
- But before I offer the filter to you at the fixed price I will offer you a bar of soap using the same procedure.
- Do you understand?


## N. 1 STAND_TIOLI_ANCHORING PRACTICE

NOTE: Refer to p. 23 for correct Dagbani translation of Cedi amounts.
$\rightarrow$ Record assigned STAND_TIOLI_Anchoring Price (N.1.1, page 33)

- Are you willing to purchase the soap at this price?
$\rightarrow$ Record if Respondent is willing to pay STAND_TIOLI_Anchoring Price (N.1.2, page 33)
a. If "Yes":
$\rightarrow$ Receive payment and give soap then go to Section
b. If "No":
$\rightarrow$ Skip to Section N.2.


## N. 2 STAND_TIOLI_ANCHORING FILTER

Read:

- We will now offer you a chance to buy the filter
- Like I said, we are offering you the filter at a specific price.
- This is the only time we will offer this filter to you.
- We will not offer you any other price and we cannot bargain.
- If you do accept the special promotion price, you will have to pay now.
- Do you understand?

Answer questions and address any concerns respondent may have.
$\rightarrow$ Check Respondent Assignment Sheet and record assigned STAND_TIOLI_Anchoring Price (N.2.1, page 33)

- Are you willing to purchase the filter at this price?
$\rightarrow$ Record if Respondent is willing to pay STAND_TIOLI_Anchoring Price (N.2.2, page 33)
c. If "Yes":
$\rightarrow$ Receive payment for filter. Record filter tracking code on survey ( N.2.3, page 33). Record filter tracking code on receipt and give it to respondent. Inform her of where and when she can pick up the filter.
$\rightarrow$ Skip to M.2.5.
d. If "No":
$\rightarrow$ Skip to N.2.4 and complete survey


[^0]:    ${ }^{1}$ Since each BDM subject's bid can be used to simulate purchase behavior at all three prices, each regression contains about three times as many BDM observations as TIOLI observations. We estimate the system (one equation for each of $p=2,4,6$ ) via seemingly unrelated regression to account for correlation of errors across equations and to conduct cross-equation tests.

[^1]:    ${ }^{2}$ Cluster-robust significance levels for the distributional tests are constructed via a bootstrap percentile method. We pool data from the two treatments being compared, draw block-bootstrap samples, where the compound is the block, and then randomly assign placebo treatments by compound and run the distributional test in question. Since the placebo treatments are randomly generated, the null hypothesis of equality of distribution is true by construction. By sampling compounds and assigning placebo treatments by compound, we preserve the clustering structure in the data. We repeat this for 500 bootstrap repetitions, and then obtain a p-value for our test by finding where the original test statistic falls in the distribution of bootstrap test statistics.

[^2]:    ${ }^{3}$ Because we cannot separately identify screening and causal effects in this section, if the true screening and causal effects are different from zero but have opposite signs, we may still find a null result.

