

Household Use of Clorin in Lusaka, Zambia

Supplement to “Can Higher Prices Stimulate Product Use? Evidence from a Field Experiment in Zambia”

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Abstract

This note accompanies the paper “Can Higher Prices Stimulate Product Use?” It reports on a small-scale survey that we conducted to assess the importance of non-drinking-water uses of Clorin.

1 Overview

This note accompanies the paper “Can Higher Prices Stimulate Product Use?” It provides additional detail on the small-scale survey described in section 3.5 of the paper. This note is meant to be read alongside the paper rather than as a standalone piece of research. We provide it as a supplement to the paper for researchers interested in additional information on the various uses of Clorin among households in Lusaka, Zambia.

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To assess the importance of different uses of Clorin we interviewed a convenience sample of 49 female heads of household in Lusaka. We asked respondents to demonstrate how they did their chores and how they used Clorin for various purposes. During these demonstrations we measured the amount of Clorin devoted to different uses. Overall, we found that 61 percent of households used Clorin for purposes other than drinking water, and that non-drinking-water uses of Clorin account for 38 percent of Clorin use by volume in the average household.

2 Data and Methods

We surveyed a convenience sample of 49 female heads of household from four compounds in Lusaka over five days in January and February of 2008. The majority of these respondents came from two compounds that were included in the main study. Households were approached within the compounds and were surveyed if they reported using Clorin.

We established a list of chores based on discussions with compound residents during a pilot day. Surveys were conducted as in-depth interviews in which the surveyor asked the respondent to describe her household chores and to explain exactly how she did each chore (e.g., by showing the surveyor the cleaning tub or taking her to area where the toilet was). Interviews took an average of 41 minutes to administer. Some interviews were scheduled so that the surveyors could watch the respondents do their chores. When this was not possible the surveyor asked the respondent to “act out” the chore so that the surveyor could observe how it was performed.

We asked each respondent how often she performed each chore. Respondents were allowed to report in various units (twice a week, once a month, etc.). We converted responses to a weekly frequency.

If, in any household chore, the respondent mentioned using Clorin, she was asked to demonstrate how much Clorin she used in that chore. Demonstrations were conducted using a Clorin bottle filled with water. The amount of Clorin used was then measured using a measuring cup.

Surveyors identified themselves as employees at the Society for Family Health, the organization that markets Clorin.

Age and years of education were collected for this sample in order to check for similarity with the sample of ever-users of Clorin from the main study. The means roughly correspond between

the two samples. Respondents in the detailed usage survey had an average age of 31.5 years, compared with 32.5 for ever-users in the main study. Ever-users in the main study were slightly less educated on average (6.9 years) compared with the detailed use survey (7.8 years).

3 Reported Use of Clorin

Reported use by type of use is summarized in table 1. Columns 1 and 2 report the number and fraction of respondents reporting each use. Overall, 96% of respondents reported using Clorin for drinking water, and 61% reported using it for something else. The most common non-drinking-water use is washing clothes (53%) followed by cleaning toilets (22%).

Respondents who used Clorin for laundry typically soaked clothing in water treated with Clorin before washing the laundry with soap or detergent in a large basin or tub. Respondents who used Clorin to clean their toilets typically cleaned the cement floor of their pit latrines using Clorin and water (often combined with soap) after sweeping. Several respondents also reported pouring Clorin directly into the pit. (In rarer cases in which respondents had toilets, they reported using Clorin to clean the inside of the bowl.)

Column 3 of table 1 reports the number of times per week that Clorin was used for each purpose, among those households who used Clorin for that respective purpose. Respondents reported an average of 4 to 6 times per week for each use, with the highest frequency for drinking water (5.98), and the lowest frequency for washing clothes/nappies (cloth diapers) (4.37).

Columns 4 and 5 of table 1 display the average amount of Clorin used each time it is used for a given purpose, and the average daily amount of Clorin used for the purpose, among those households who used Clorin for that purpose. Non-drinking-water uses of Clorin use more Clorin per use and per day than drinking-water use. For example, cleaning toilets uses 69.6 mL of Clorin per use, for an average of 54.8 mL per day among those who use Clorin to clean their toilets. Purifying drinking water uses 8.1 mL of Clorin per use, for an average of 7.0 mL per day among those who use Clorin to purify their drinking water.

Table 1: Reported Uses of Clorin

Use	Households:		Number of Times per Week	Mean of:	
	Number (1)	Percent (2)		Amount per Use (mL) (4)	Daily Amount (mL) (5)
Drinking Water	47	95.9	5.98	8.1	7.0
Washing Clothes/Nappies	26	53.1	4.37	19.2	8.3
Cleaning Toilet	11	22.4	5.32	69.6	54.8
Other	4	8.2	5.75	38.1	37.7
All Non-Drinking	30	61.2	6.51	30.0	32.3

Note: Households are counted as using Clorin for a given purpose if they report using Clorin for that purpose and provide usable information on the amount and frequency of Clorin use for that purpose. Number of times per week is the average number of times per week a household reports performing the listed activity. Amount per use is the average amount of Clorin (in mL) used by households in the activity for each instance of the activity. Daily amount is the average amount of Clorin (in mL) used by households in the activity over all instances of the activity in an average day. All averages are taken over households who reported using Clorin in the respective activity.

“Other” category includes cleaning floors, cleaning the kitchen, cleaning the bathtub and cleaning mats/carpets.

Nine households reported using Clorin to clean vegetables. All but one household who reported using Clorin to clean vegetables reported using stored drinking water for that purpose. We therefore omit this category from the table.

4 Data Validity and Other Findings

We asked households to report on how long a bottle of Clorin lasts. The average household reports that a bottle of Clorin lasts for 24 days (median 14). Based on our estimate of each household's average daily use of Clorin, we estimate that a bottle of Clorin would last the average household for 51 days (median 25). Excluding two outliers reduces the average to 37 days. The difference in mean values implies either that households are under-reporting how long a bottle of Clorin lasts or that we underestimate the amount of Clorin devoted to some or all purposes. Across households, reported and estimated days to use up a Clorin bottle are correlated. The correlation coefficient is 0.37 ($p - value = 0.01$) in the full sample and 0.67 ($p - value < 0.001$) when we exclude two outliers.

We find that 61% of Clorin users had some alternative use. By contrast, only 22% of ever-users of Clorin in the main study reported alternative uses at the time of the follow-up. We believe this discrepancy is plausibly attributable to recall error. We found that respondents often could not immediately recall every use of Clorin when asked directly, but would often mention using Clorin when given the opportunity to discuss the details of their household chores. An alternative explanation is that the structure of the in-depth interviews made respondents more comfortable discussing non-drinking-water uses of Clorin than did the wording of the survey used in the main study.

The detailed usage survey took place during the rainy season, while the main study took place at the start of the dry season. In order to examine whether use might vary between seasons, respondents (excluding those we interviewed on the first day of surveying) were asked whether they used Clorin more intensively during different times of year. Of the 33 who reported using Clorin in their drinking water, 15 (45%) reported using Clorin more intensively in drinking water during the rainy season. In contrast, out of the 31 instances of alternative use identified, only 3 (9.7%) were reported as being more intensive during the rainy season.

Very few respondents reported giving away Clorin: 12.5% of respondents had ever given Clorin away to a friend or neighbor. Respondents seemed to interpret this question as covering either a bottle or partial bottle of Clorin. The primary reason for giving away Clorin was that others did not have the money to buy a bottle for themselves.

Discussion on Cleaning and Clorin

(Remember, bring both old clorin and new clorin bottles but don't bring them out until the appropriate time. Please make this a conversation and learn as much as you can. In all circumstances, ask to see the washing basin, toilet, etc. Bring a measuring cup.)

Orientation:

Hello, I am from Society for Family Health. We would like to find out more about how women keep their house and family clean. Can I have a few minutes of your time? There is no wrong or right, we're not here to check your place – please feel comfortable.

Discussion Question:

1. Tell me about the ways in which you keep your home and family clean
2. What about Clorin, how do you use it? (if do not use, skip to next household)

(do not prompt initially, then later probe)

a. Laundry

Laundry I: White Clothes

- a. How do you do your laundry? Please bring me to your washing basin or bring it to me..
- b. What exactly do you put into this water basin?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

Laundry II: Nappies

- a. How do you wash your nappies? Please bring me to your washing basin or bring it to me..
- b. What exactly do you put into this water basin?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

Laundry III: Sheets/Towels

- a. How do you do wash your sheet/towels? Please bring me to your washing basin or bring it to me..

- b. What exactly do you put into this water basin?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

Laundry IV: Colored Clothes

- a. How do you wash your colored clothes? Please bring me to your washing basin or bring it to me..
- b. What exactly do you put into this water basin?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

b. Cleaning Toilet

- a. How do you do clean your toilet? Please bring me to your toilet
- b. What exactly do you put into the toilet and when?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

c. Cleaning Water

- a. How do you do clean your water? Please bring me to your water bucket or bring it to me.
- b. What exactly do you put into the drinking water and when?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

d. Cleaning Floors

- a. How do you do clean your floors? Please bring me to the bucket you use for cleaning floors or bring it to me.
- b. What exactly do you put into the bucket?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

e. Cleaning Mats/Carpets

- a. How do you do clean your mats/carpets? Please bring me to the bucket you use for cleaning.
- b. What exactly do you put into the bucket?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

f. Cleaning Tub

- a. How do you do clean your bathtub? Please bring me to your bathtub/
- b. What exactly do you put into the bathtub and when?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

g. Cleaning Vegetables

- a. How do you do clean your vegetables? Please bring me to your kitchen so that I can see the way you clean your vegetables
- b. What exactly do you put into the toilet and when?
How much do you use of Clorin when you put it in?
Exactly how much –show me.
(Then put the amount into measuring cup)
- c. How often?

3. Have you ever given Clorin away?

Have you ever given some to your neighbor?
Friend? When?

Have you ever thrown it away?

Do you know of anyone who has thrown it away?

4. How long does this bottle last you?

5. How big is your family?

6. How much water per day does your family consume?