Promoting Parent-Child Reading in Kenya*

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Abstract

Reading with young children is an important investment in human capital that builds language skills and teaches the importance of learning. However, many households in western Kenya lack reading materials for young children, and may not be aware of the benefits of early reading. We conduct a field experiment in western Kenya that offers storybooks to households with children aged 3 to 6, along with information about the benefits of reading, suggestions on reading practices, and reminders to read. In an embedded willingness to pay elicitation, we randomly varied the prices at which books are offered in order to estimate household demand for early childhood reading materials. We find that demand for reading materials was high (97%) and downward sloping in price. The intervention increased household storybook ownership and child motivation for reading. However, these gains did not translate into increased reading or improvements in vocabulary measured three months later.

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1 Introduction

Early child reading is a key investment in human capital that is linked with language formation, cognitive development, and eventual school readiness. Parent-child reading is a particularly important investment as it also facilitates bonding between parent and child. (Curenton and Justice (2008), Gove and Cvelich (2011), Walker et al. (1994), Zhang (2006)). However, there are large disparities in early childhood educational investment by income across many country contexts, in terms of both the quantity of time spent with child, and the quality of cognitive stimulation (Kalil and Ryan (2020), Guryan, Hurst and Kearney (2008), Leffel and Suskind (2013)). Moreover, many households in low-income settings lack adequate reading materials for young children, and may be unaware of the benefits of early reading, even if they do have age appropriate books at home (Ong'ayi, Dede Yildirim and Roopnarine (2020)).

This study examines whether a light touch intervention – providing reading materials for young children as well as information on the benefits of reading – can be effective in improving book ownership, parent and child reading practices, and early childhood literacy. In particular, we conduct a field experiment in western Kenya that offers storybooks to households with children aged 3 to 6, along with information about the benefits of reading, suggestions on reading practices, and reminders to read. In an embedded willingness to pay elicitation, we randomly varied the prices at which books are offered in order to estimate household demand for early childhood reading materials.

The sample for this study is part of the Kenya Life Panel Survey (KLPS): a longitudinal dataset that contains educational, health, nutritional, demographic, labor market, and other information for nearly 10,000 Kenyan adults, spanning from their time in primary school up through early adulthood. This experiment was conducted across two waves of KLPS: Wave 1 (Demand Experiment) was designed to (a) elicit demand for storybooks and (b) estimate the impacts of a reading encouragement on reading practices, and Wave 2 (Storybook Effects Experiment) was designed to estimate the impact on reading practice, parent and child investment in reading, and vocabulary.

We conduct follow-up surveys both 3 and 4 months after the intervention, in order to estimate the effects of the intervention on reading practices, reading behavior, and early childhood vocabulary and literacy. We find that demand for reading materials was very high (97% overall), and downward sloping with price. Willingness to pay for storybooks was higher in urban areas, but did not differ by household income levels or gender of parent or child. These findings suggest that lack of access to relevant educational materials may play an important role in explaining lower early-childhood human capital investment in Kenya.

Treatment households increased household storybook ownership in both waves. Children who received the reading promotion intervention scored higher on a reading moti-

vation index – driven by indicators for having favorite stories and being a good listener when the parent reads –and there is a positive, but not statistically significant, effect on hours read at home by child 3 months later.

Despite these gains in reading behavior for children, there is little evidence that the intervention changed parent behavior for reading - treatment parents did not read to their children significantly more than those in the control group. Further, there is no evidence that the storybooks improved child vocabulary and literacy rates 3 months later, measured by child scores on the Peabody Picture Vocabulary Tests and Malawi Developmental Assessment Tool. One potential explanation for this is that the vocabulary in the children's books is limited, and there is little overlap between the words in the books and the words tested in the cognitive assessments (only 13 out of the 120 vocabulary words in the PPVT appeared in the storybooks).

This study contributes to a body of literature on the effectiveness of early childhood educational investments on parental investment and learning outcomes (York, Loeb and Doss (2019), Dillon et al. (2017) Leffel and Suskind (2013)). This adds to existing work by Knauer et al. (2020) by exploring whether a very light touch intervention of distributing books and information can be effective in improving reading practices and eventual vocabulary outcomes. The remainder of the paper is structured as follows: Section 2 provides an overview of the sample and context, Section 3 discusses the experimental design, Section 4 presents the main empirical results, and Section 5 concludes.

2 Sample and Context

The sample for this study is part of the Kenya Life Panel Survey (KLPS): a longitudinal dataset that contains educational, health, nutritional, demographic, labor market, and other information for nearly 10,000 Kenyan adults, spanning from their time in primary school up through early adulthood. The KLPS sample comprises individuals who participated in one of two previous randomized NGO programs: one which provided deworming medication to primary school students during 1998–2003 (known as the Primary School Deworming Program, or PSDP; Miguel and Kremer (2004)) and one which provided merit scholarships to upper primary school girls in 2001 and 2002 (known as the Girls' Scholarship Program, or GSP; Kremer, Miguel and Thornton (2009)). An approximately 20% subset of these individuals also participated in the vocational training and cash grants programs during 2009-2014 (Hicks et al. (2013)).

The fourth round of the KLPS data collection effort (KLPS-4) was conducted between 2017 and 2022 and focused on the subsets of the KLPS sample who participated in the PSDP or the vocational training and cash grants interventions. The KLPS-4 data collection consisted of two separate activities. First, the E+ Module survey data collection gathered detailed economic information on KLPS (adult) respondents. The second data

collection activity included administration of the I Module, PC Module, and a series of child assessments in order to collect information on a wide variety of outcomes for KLPS (adult) respondents as well as a subset of their children aged 3-9 (KLPS-Kids) and the primary caregivers (PCs) of these children. For both these activities, data was collected in two representative waves. Wave 1 of the KLPS-Kids activity launched in September 2018 and ran through March 2020; Wave 2 of the KLPS-Kids activity launched in June 2021 and ran through December 2021.

The sample for the reading promotion intervention is a subset of those participating in the KLPS-Kids modules. The KLPS-Kids modules were designed to capture information on children aged 2.5 to 8.5 years old as of the date of launch of the survey wave.[1] Up to one eligible child per age group was selected per KLPS parent for inclusion in the KLPS-Kids sample. In cases in which the adult had more than two children within an age group, children to be interviewed were randomly chosen by the survey software (SurveyCTO).[2]

While the intervention aimed to promote child reading among all young children of a KLPS parent, and intervention materials were not child-specific, for the purposes of administering the intervention, tracking, and assessment, we designated a specific storybook child for eligible KLPS parents. The eligible sample for the reading promotion intervention was the sub-sample of KLPS parents with at least one sampled child between 2.5 years and 6 years of age at the time of each respective survey launch. In cases where a KLPS parent had more than one sampled child in this age range, we designated the 3 to 5 year old child as the storybook child.

In Wave 1, the intervention was administered as part of the PC Module to the Primary Caregiver associated with the storybook child. In Wave 2, the intervention was administered as part of the I-Module survey for parents assigned to treatment with an eligible storybook child. In both waves, the intervention was framed around promoting parent-child reading rather than reading with a particular child.

Baseline storybook ownership ranges from 1.44 storybooks per household in Wave 1 to 2.32 storybooks in Wave 2 (Table 2). 52 to 68 percent of households own at least one book. 51 percent of household sreport reading at least one time in the last week.

[1]For example, Wave 1 was launched in September 2018, and children who were 2.5 to 8.5 years old as of September 2018 are included in the wave 1 eligibility sample. For the purposes of the KLPS-Kids activity, we define two age groups: pre-school aged children (aged 3 years to 5 years 11 months old, or 36-71 months old) and school-aged children (aged 6 years to 8 years 11 months old, or 72-107 months old). Age group distinctions were made in part to align with the transition from pre-school and kindergarten to primary school between ages 5 and 7, and in part to align with the appropriate ages corresponding to our battery of assessments.

[2]We refer to children who are included in the KLPS-Kids sample based on the above eligibility criteria and sampling methodology as sampled children. These sampled children and their primary caregivers were later contacted for participation in the KLPS-Kids data collection activity. This data collection activity consisted of (1) administering age-appropriate assessments to each child to measure cognitive and non-cognitive abilities and (2) administering a Primary Caregiver Module (PC Module) to the child's primary caregiver.

3 Experimental Design

This storybook experiment was conducted across the two KLPS waves: Wave 1 of the RCT (Demand Experiment) was designed to (a) elicit demand for storybooks and (b) estimate the impacts of a reading encouragement on reading practices, and Wave 2 of the RCT (Storybook Effects Experiment) estimates the impact on reading practice, parent and child investment in reading, and vocabulary. We first describe each wave of the experiment. Next, we describe the randomization into treatment groups. Finally, we provide information on the timeline and data collected.

3.1 Wave 1 Demand Experiment

3.1.1 Reading Promotion Intervention

The Wave 1 Demand Experiment consisted of three treatment groups and one control group. In Treatment Groups 1 and 2, caregivers were offered a small amount of cash plus the opportunity to purchase a subsidized storybook. In Treatment Group 3, the caregiver was offered a free storybook (full subsidy). All three treatment groups also received an informational script and poster, as well as an SMS message sent an average of 3 months after reminding the household to read. The fourth group was the control group, which received no storybook offer, informational materials, or SMS reminder message.

The child reading promotion intervention content is summarized below:

- A small cash grant (up to KES 300 (approximately USD 3.00) and an offer to purchase a subsidized storybook at a randomly-selected price OR an offer of a free storybook;
- An informational script on the benefits of reading to small children and strategies for doing so;
- A poster summarizing the informational script;
- An SMS reminder message to encourage reading sent an average of 3 months after the intervention.

The storybooks offered in Wave 1 of the intervention were printed by Oxford University Press – East Africa, and included short stories with animations appropriate for young children aged 3 to 6. In Wave 1, we offered six different storybooks that were selected based on pilot work and focus group discussions with enumerators. Two of the books were in English and the remaining four were in Kiswahili. These books could be purchased at textbook stores in larger urban areas or cities, including Busia Town, Kisumu, or Nairobi.

Please see Appendix B for the script, poster, and SMS reminder message. The instructions in the script were specifically tailored to account for the possibility that some parents may not be literate, and focused on the ways that parents can encourage familiarity with and love for books by creating stories based on the pictures, and engaging

children with questions about the story. The poster included drawings of parents reading to their children, and summarized the key points of the information script. It also served as a later reminder for parents to continue reading to their children.

For both Treatment Groups 1 and 2, caregivers were first informed that they had been randomly selected to receive the monetary gift. The survey enumerator then provided information on the benefits of reading, and presented an opportunity to purchase the storybooks at a randomly-selected subsidized price[3]. The four groups are summarized in Table 1.

3.1.2 Demand Elicitation

To elicit demand for storybooks, the intervention further randomly varied the price at which storybooks were offered and the amount of money respondents were given to purchase the books. In Treatment Group 1, caregivers were given KES 150 (approximately USD 1.50) with an offer to purchase up to one storybook at a randomly-selected subsidized price. In Treatment Group 2, caregivers were given KES 300 (approximately USD 3.00) with an offer to purchase up to two storybooks, each at a subsidized price[4]. In Treatment Group 3, the final book price is KES 0, a 100 percent (full) subsidy.

The market price of a storybook is KES 195 (approximately USD 1.95). In both Treatment Groups 1 and 2, one of three subsidy levels were randomly offered: Low Subsidy (Subgroup L), Medium Subsidy (Subgroup M), or High Subsidy (Subgroup H). In Subgroup L, the final book price is KES 150, which is about a 25 percent subsidy. In Subgroup M, the final book price is KES 100, about a 50 percent subsidy. In Subgroup H, the final book price is KES 50, about a 75 percent subsidy. These subsidy levels are randomly assigned, and each caregiver had an equal chance of receiving each subsidy level. The caregiver received any funds not used to purchase the book via M-Pesa within 10 days after the survey.

3.2 Wave 2 Storybook Effects Experiment

The second wave of the experiment consisted of one treatment group (25 percent of sample) and one control group (75 percent of sample). Given the high demand in the sample in Wave 1, the Wave 2 intervention consisted of three free storybooks. Households in the storybook treatment group were offered three free storybooks, and could select any three books out of a set of 8 book options (4 English books and 4 Swahili books).

[3]Both Treatment Group 1 and 2 received the cash and opportunity to purchase a subsidized storybook in advance of the informational script and poster. Our main measure of demand was thus elicited in advance of the informational intervention. If the respondent changed their mind and decided to purchase or accept a storybook after hearing the information, we allowed them to purchase or accept, and recorded the book title.

[4]We restricted the number of books a caregiver can purchase so that they can fund the entire purchase with the cash we give to them.

Paralleling the treatment in Wave 1 of the study, the free storybooks were paired with the same information script on the benefits of reading, a poster summarizing the information script, and an SMS reminder message sent an average of 3 months after the intervention. The control group received no storybook offer, informational materials, or SMS reminder message

The Wave 2 child reading promotion intervention content is summarized below:

- three free storybooks
- Information script on benefits of reading, poster summarizing information script, SMS reminder message (same as Wave 1)

The storybooks offered in Wave 2 of the study were printed by Longhorn Publishers PLC, East African Educational Publishers, and Moran Publishers and included short stories with animations that are appropriate for children aged 3 to 6. In Wave 2, we offered 8 different storybooks that were selected based on pilot work and focus groups in the local area. Four of the books were in English and the remaining four were in Kiswahili. These books can be purchased at textbook stores in larger urban areas or cities, including Busia Town, Kisumu, or Nairobi. Please see Appendix B for the script, poster, and SMS reminder message.

There are two key differences in the intervention between the two waves. First, in Wave 2 those in the storybook treatment group were offered three storybooks for free. In contrast, in Wave 1, we included multiple storybook treatment arms, some of which provided cash plus a randomly assigned storybook subsidy, in order to allow us to estimate the demand for storybooks. Second, in Wave 1, the intervention was conducted with the primary caregiver (PC) of the selected storybook child, while in Wave 2 the intervention was conducted with the KLPS respondent (FR) in cases where the KLPS respondent has an eligible child[5].

3.3 Randomization and Data Collection

In Wave 1, Assignment to treatment groups was done as follows: the full sample of KLPS Wave 1 adults were assigned to one of the four groups (three treatment groups and one control group)[6]. Randomization was stratified by three adult characteristics: PSDP or GSP group[7], grade in school at baseline, and gender.

At the time of the baseline survey, enumerators determined whether KLPS respondents had children eligible for the KLPS-Kids activity. For those with eligible children, sam-

[5]under the condition that the FR had to either (a) live in same household as the storybook child, (b) spend at least two days in the same household as storybook child in the last 30 days, or (c) normally communicate with child's PC, other parent, or child in a typical week

[6]Assignment to treatment groups was done this way because children were not identified until the time of the I-module survey

[7]There are three PSDP/ GSP groups used for stratification: i) PSDP treatment (Groups 1 and 2), ii) PSDP control (Group 3), iii) GSP sample.

pled children were selected and information was collected about their primary caregivers. From this, the storybook child was determined, and the appropriate child reading promotion intervention for the KLPS parent's treatment assignment is implemented for the corresponding primary caregiver.

Assignment to storybook treatment groups in Wave 2 was done as follows:1 since eligible children (aged 3-6) are not identified until the time of the interview, the full sample of KLPS Wave 2 adults were assigned to either storybook treatment or control. Randomization was stratified by three adult characteristics: treatment status, grade in school at baseline, and gender. At the time of the I Module survey with the KLPS respondent, enumerators determine whether the respondent has a child (or children) eligible for the KLPS-Kids activity. For those with eligible children, sampled children are selected and information is collected about their primary caregivers. From this, the storybook child is determined, and the appropriate child reading promotion intervention for the KLPS parent's storybook treatment assignment is implemented as part of the I Module for the KLPS FR, conditional on meeting at least one of the three conditions. The FR has to either (a) live in same household as the storybook child, (b) spend at least two days in the same household as storybook child in the last 30 days, or (c) normally communicate with child's PC, other parent, or child in a typical week.

3.4 Data

Data for the study was collected across two representative waves: Wave 1 and Wave 2. We discuss each data collection module below.

3.4.1 Wave 1 Baseline (PC Module)

KLPS-4 served as a baseline for the child reading promotion intervention. Immediately before the intervention, a detailed Primary Caregiver Module was administered to each primary caregiver. This module asked detailed questions about the KLPS child, primary caregiver, and household environment. Particular sections include: caregiver characteristics, child health and development, child sleep patterns, home environment, and a child strengths and difficulties questionnaire.

3.4.2 Wave 1 Follow-up Survey (KSI Module)

The KSI follow-up phone survey asks detailed questions on reading practices and investment in the education of the storybook child in order to estimate effects of the storybook intervention. The interview lasts about 10 minutes and is conducted with the primary caregiver of each storybook child an average of six months after the intervention.

3.4.3 Wave 2 Baseline (I-Module)

KLPS-4 served as a baseline for the Wave 2 child reading promotion intervention. Immediately before the intervention, an I-Module is administered to each respondent (FR). This module asked detailed questions about the child's home environment, reading at home, and school attendance. As part of the reading promotion intervention, we collected data on storybooks selected, the reason why each book was selected, and who in the household selected or helped to select the storybooks. Lastly, if the caregiver chose not to accept a free storybook, we ask why they did not purchase or accept a storybook.

3.4.4 Wave 2 Follow-up Survey 1 (PC Module)

The PC-Module follow-up survey was administered to the storybook child's primary caregiver about 3 months after baseline. This module asked detailed questions about the KLPS child, primary caregiver, and household environment in order to estimate effects of the storybook intervention. Particular sections of interest included: caregiver characteristics, home environment, reading at home, child's educational enrollment, caregiver reading self-efficacy, and child motivation for reading.

3.4.5 Wave 2 Kids Assessments

The KLPS Kids assessment activity administer age-appropriate cognitive tests to children in the sample. In particular, the following cognitive assessments will allow us to measure the impact of the storybook intervention on early-child vocabulary and literacy for children in our storybook sample:

- The Peabody Picture Vocabulary Test (PPVT; Dunn and Dunn, 2007) which measures receptive vocabulary. This test is administered to children aged 3 to 6 in our storybook sample.
- Malawi Developmental Assessment Tool (MDAT) which measures general language abilities, including receptive and expressive vocabulary, understanding analogies, ability to identify common objects and their use, and ability to answer questions. This test is administered to children aged 3 to 5 in our storybook sample.
- Early Grade Reading Assessment Swahili (EGRA Swahili) which is a standardized assessment measuring literacy. The EGRA Swahili is administered to children age 6 in our storybook sample.

3.4.6 Wave 2 Follow-up Survey 2 (KSI Module)

The KSSI follow-up phone survey asks additional follow-up questions on reading practices and investment in the education of the storybook child. The interview lasts about 10 minutes and will be conducted with the primary caregiver of each storybook child one month after PC-Module (in most cases four months after the initial intervention).

4 Results

In this section we report our main empirical results. We first discuss the he demand elicitation in Wave 1 of the study. We then turn to the estimation of the effects of storybooks on storybook ownership and reading practices (Wave 1 and Wave 2) as well as reading behavior and vocabulary (Wave 2).

4.1 Demand

The estimation strategy uses intention-to-treat (ITT) estimates of treatment group assignment on the outcomes of interest.

First, we look at the binary take-up decision for storybooks. We will estimate the following regression specification for Treatment Groups 1, 2 and 3:

$$Y_i = \alpha + \beta_1 T_i^H + \beta_2 T_i^M + \beta_3 T_i^L + X_i'\lambda + \epsilon_i \tag{1}$$

where Y_i is an indicator variable reflecting the take-up decision of household i, T_i^H, T_i^M, and T_i^L indicate whether the KLPS respondent i was randomly assigned to the high, medium, or low subsidy arm, respectively, $\beta_1, \beta_2, \beta_3$ capture the subsidy impacts on take-up relative to take-up of the fully subsidized storybook for Treatment Group 3 (free book). Our main specification includes a vector of control variables, X_i, containing the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education/ cash grant sample as well as treatment groups within the intervention.

Second, we look at take-up in terms of the number of storybooks purchased as a function of the subsidy level in Treatment Group 2. We restrict attention to Treatment Group 2 as it is the only group with the opportunity to purchase more than one storybook. We estimate:

$$Y_i = \alpha + \gamma_1 T_i^M + \gamma_2 T_i^L + X_i'\lambda + \epsilon_i \tag{2}$$

where Y_i is an indicator variable reflecting the number of storybooks purchased (Group 2 only), T_i^M and T_i^L indicate whether the KLPS respondent i was randomly assigned to the medium or low subsidy arm, respectively, X_i is a vector of containing the variables used for stratification during storybook treatment randomization and other controls (same as described in Equation 1 above).

We examine two main outcomes in our demand analysis. The first is the binary decision to purchase or accept a storybook, pooled across all groups[8]. The second is the number

[8]Purchase in the case of Groups 1 and 2 and accept in the case of Group 3

of storybooks purchased (from 0 to 2), examined for Treatment Group 2 only.

First, we examine average take-up across group. Results indicate that there is a high demand for storybooks in the sample. Overall demand is 97 percent across all three groups, with 95 percent of Group 1 purchasing a storybook, 93 percent of Group 2 purchasing at least one storybook, and 100 percent of Group 3 accepting a free storybook (Table 2)[9].

Demand is downward sloping with price. First, Figure 1, Panel A plots average demand across subsidy level – including both the decision to purchase or accept any book (Groups 1-3) and the decision to purchase two books (Group 2 only). 99 percent of households purchase at least one book at the highest subsidy level with a price of 50 Kenyan shillings (pooled across Groups 1 and 2), 92 percent purchase at the medium subsidy with a price of 100 Kenyan shillings, and 91 percent purchase at the lowest subsidy with a price of 150 Kenyan shillings. Second, we plot the proportion of Group 2 that purchase two books at each subsidy level. 93 percent purchase two books at the highest subsidy level, 86 percent purchase two books at the medium subsidy level, and 72 percent purchase two books at the lowest subsidy level, confirming that demand falls as the price increases. Figure 1, Panel B plots heterogeneity by urban status of residence with "urban" defined as living in Nairobi, Mombasa, or Kampala. Results indicate that demand is much higher for urban households.

Turning to the estimating equations (Equation 1 and Equation 2), we examine take-up in our regression framework with the binary take-up indicator and number of books as the outcome variables. Paralleling the descriptive results, Columns 1 and 2 of Table 9 indicate that demand decreases with price. Column 1 indicates that take-up is lower by 11 percentage points for medium subsidy and 12 percentage points for the low subsidy group, relative to a free storybook. Similarly, number of books purchases is 18 percentage points lower for the medium subsidy and 32 percentage points lower for the low subsidy groups relative to the high subsidy group. Columns 3 and 4 plot interactions with urban status of residence. Column 3 indicates that demand is higher for urban households, paralleling the descriptive results in Figure 1. Table 10 shows the same regression specification with weights taking into account the two-stage tracking strategy of KLPS. Magnitudes and significance are similar in specifications with and without weights.

4.2 Storybook Effects

The main estimating equation looks at effects from receiving any storybook treatment. We estimate the following equation:

[9]In Group 1, 100 percent of the high subsidy group, 94 percent of the medium subsidy group, and 92 percent of the low subsidy group purchase a storybook, respectively. Similarly, in Group 2, 97 percent of the high subsidy group, 91 percent of the medium subsidy group, and 90 percent of the low subsidy group elect to purchase a storybook

$$Y_i = \alpha_0 + \alpha_1 AnyTreat_{it} + X'_{it}\lambda + \epsilon_{it} \quad (3)$$

where Y_{it} is an outcome of interest for respondent i at time t, $AnyTreat_i$ is an indicator equal to 1 if respondent i was in any storybook treatment group at time t and X'_{it} is a vector of control variables.

We examine four sets of outcomes from Wave 1 of the study that measure the effect of the reading promotion intervention on storybook ownership and reading practices (Table 3). First, we measure storybook ownership. Treatment households report owning 0.6 total storybooks 3 months after the intervention, statistically significant at the 1% level. There is a positive, but not statistically significant effect on the number of books added by storybook household. There is no significant effect on days read in the last week or minutes read in the last day by adults (Table 3 Columns 4 and 5) or child (Table 7 Columns 6 and 7). Finally, to examine whether the reading promotion intervention increased school attendance for storybook households, we examine school attendance in the last 5 days that school was in session. There is a positive, but not statistically significant effect on attendance in school (Table 3, Column 8).

Next, we examine the outcomes for Wave 2 of the study. As discussed in Section 3 above, we collected data at two points of time in Wave 1: 3 months after the intervention and 4 months after the intervention. The key difference between these two data collection activities is that the 3 month follow-up was conducted in person, and the 4 month follow-up was conducted via the phone.

Similar to Wave 1, we first examine storybook ownership in the sample. Treatment households report owning 1.6 and 1.1 total storybooks 3 to 4 months after the intervention, respectively, both statistically significant at the 1% level (Table 5, Column 1, 4). There is no statistically significant difference in the number of additional books the household owns, following the intervention. (Table 5, Column 3).

We examine three measures of child investment in reading (Table 6): (i) number of days read by child in the last week, both 3 months and 4 months after the intervention, (ii) number of minutes read by child in the last day, both 3 months and 4 months after the intervention, and (iii) child motivation for reading. To measure child motivation for reading, we construct a "Child Reading Motivation Index" that is a means effect index of indicators for the PC agreeing with the following three statements reported by the parent: child is a good listener when someone else is reading a story, child has favorite stories from book that he/ she likes to read about or listen to, child likes to tell others about what he/ she is reading/ someone has read to him / her.

Households report a positive (though not statistically significant) increase in the number of days read in the last week (Table 6, Columns 1, 4). The intervention improves child motivation for reading, statistically significant at the 1% level (6, Columns 3). This

increase is driven by the categories "child is a good listener" and "child has favorite stories".

Similarly, we examine three measures of parental investment in reading (Table 7): (i) days read by parent to child in the last week, both 3 months and 4 months after the intervention, (ii) minutes read by parent to child in the last day, 3 months and 4 months after the intervention, and (iii) parent self-efficacy. Parental reading self-efficacy measures parental confidence in their ability to engage in reading with their child, and includes statements such as "I can choose appropriate storybooks for my child", "I can encourage my child to talk about a book while reading", and "I can help my child answer questions about a story when reading". There are no overall significant effects of the treatment on parent reading behavior (Table 7, Column 1, 2, 5, 6).

Given that the reading intervention may affect overall parent-child bonding beyond reading alone, we also measure the extent to which adults in the household have performed other activities with child in the last one week. This also allows us to test whether parents who read with their child substitute away from other activities. We construct a "Family Care Indicators Index" that is a means effect index of a set of activities including telling stories with child, singing songs with child, helping child with homework, playing sports/ games, teaching vocabulary words to child. The intervention does not lead to any significant difference in this index (Table 7, Column 4).

Finally we examine whether the intervention effects early child vocabulary and literacy measured using three different cognitive assessments: the Peabody Picture Vocabulary Test (PPVT) administered to storybook children aged 3 to 6, the Malawi Developmental Assessment Tool (MDAT) administered to storybook children aged 3 to 6, and the Early Grade Reading Assessment - Swhaili, administered to storybook children aged 6 and higher (Table 8). When we examine the effect of the intervention on these outcomes, we see that there is no statistically significant effect on vocabulary and literacy. Part of the reason could be that these assessments are not testing the exact vocabulary content as the books.

5 Conclusion

On average, demand for storybooks is high and downward sloping, with highest demand among the urban areas. The information provided in the intervention may inform households of the value of reading to young children. An alternative mechanism is that households value storybooks, but most households are unable to access them in their rural places of residence. Thus the intervention bridges this gap by not only offering households books and information about reading, but also by increasing the supply of storybooks available to households.

Although the reading promotion intervention increases storybook ownership and motivation for reading, there is little effect on parent investment in reading and on eventual

cognitive outcomes. One potential reason for this is that receiving only three storybooks provides limited exposure to the vocabulary tested on these cognitive assessments. Additional follow-ups will test if there is any longer run effects of the books on later child outcomes.

6 Main Tables and Figures

Table 1: Intervention

	Wave 1				Wave 2	
	Group 1	**Group 2**	**Group 3**	**Control**	**Treat**	**Control**
KES 150 + 1 Book Offer	X					
KES 300 + 2 Book Offer		X				
Free Book(s)			X		X	
Poster & Information	X	X	X		X	
SMS Reminder Message	X	X	X		X	

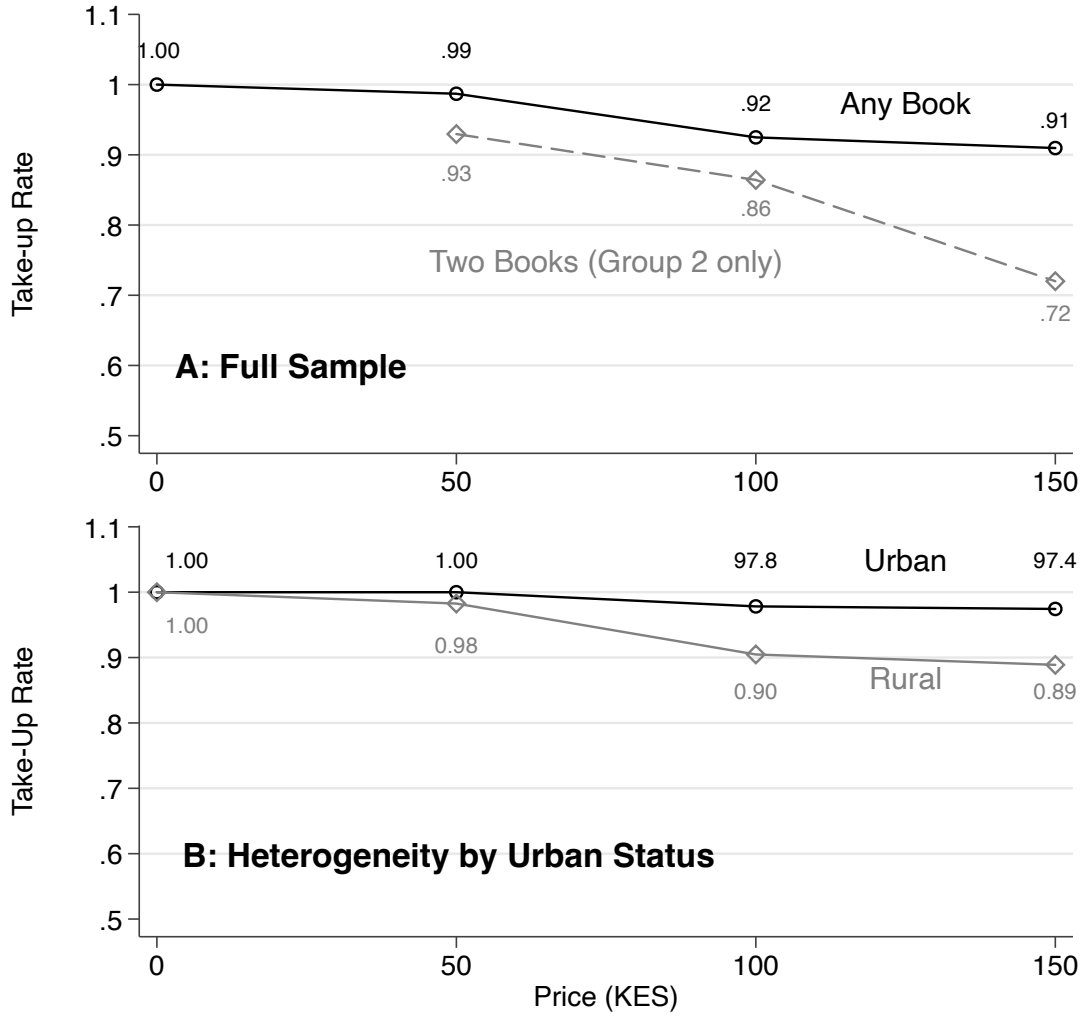
Notes: This table summarizes the intervention groups. Wave 1 consisted of three treatment groups and one control group: in Treatment Groups 1 and 2, caregivers were offered a small amount of cash plus the opportunity to purchase a subsidized storybook. In Treatment Group 3, the caregiver was offered a free storybook (full subsidy). All three treatment groups received an informational script and poster, as well as an SMS message sent an average of 3 months after reminding the household to read. The fourth group was the control group, which received no storybook offer, informational materials, or SMS reminder message. The Wave 2 intervention consisted of three free storybooks. Households in the storybook treatment group were offered three free storybooks, and could select any three books out of a set of 8 book options (4 English books and 4 Swahili books). Paralleling the treatment in Wave 1 of the study, the free storybooks were paired with the same information script on the benefits of reading, a poster summarizing the information script, and an SMS reminder message sent an average of 3 months after the intervention. The control group received no storybook offer, informational materials, or SMS reminder message

Table 2: Wave 1 Take-Up Proportion by Subsidy Level

	Mean	SD	Min	Max	Obs
Group 1					
Total	0.95	0.22	0.0	1.0	248
High Subsidy	1.00	0.00	1.0	1.0	81
Medium Subsidy	0.94	0.24	0.0	1.0	84
Low Subsidy	0.92	0.28	0.0	1.0	83
Group 2					
Total	0.93	0.26	0.0	1.0	245
High Subsidy	0.97	0.16	0.0	1.0	73
Medium Subsidy	0.91	0.29	0.0	1.0	89
Low Subsidy	0.90	0.30	0.0	1.0	83
Group 3					
Total	1.00	0.00	1.0	1.0	479
Overall Take-Up	**0.97**	**0.17**	**0.0**	**1.0**	**972**

Notes: This table plots take up by storybook group and subsidy level in the Wave 1 Demand Experiment, where take-up is defined as the binary decision to purchase or accept at least one book. To elicit demand for storybooks, the intervention further randomly varied the price at which storybooks were offered and the amount of money respondents were given to purchase the books. In Treatment Group 1, caregivers were given KES 150 (approximately USD 1.50) with an offer to purchase up to one storybook at a randomly-selected subsidized price. In Treatment Group 2, caregivers were given KES 300 (approximately USD 3.00) with an offer to purchase up to two storybooks, each at a subsidized price

Figure 1: Storybook Demand



Notes: This figure plots take-up of storybooks from the Wave 1 Demand Experiment. Panel A of this figure visually displays demand by plotting (i) the binary take-up decision as a function of storybook price for Treatment Groups 1, 2 and 3 (Any Book) and (ii) whether or not respondent took up two books in Treatment Group 2. Panel B plots heterogeneity by urban status, with urban defined as those living in Nairobi, Mombasa, or Kampala.

Table 3: Wave 1 Effects

	Ownership			Adult Reading		Child Reading		
	(1) Total Books	(2) Add Books	(3) Ownership Index	(4) Days Read	(5) Min Read	(6) Days Read	(7) Min Read	(8) Attendance
Any Treatment	.6***	.022	.18**	.18	-3	.25	-1.8	.11
	(.16)	(.04)	(.07)	(.17)	(2.20)	(.17)	(1.45)	(.10)
Control Mean	1.72	.42	-.00	3.90	18.15	3.78	17.02	4.42
N	1441	1428	1441	1441	1441	1441	1440	1441

Notes: This table plots outcomes from the Wave 1 Storybooks Effects. Column 1 is the number of storybooks in household. Column 2 is an indicator for purchased any additional storybooks. Column 3 is a means effects index of the previous two measures. Column 4 is number of days read in the last 7 days by an adult to child. Column 5 is minutes read in the last 24 hours by an adult to child. Column 6 is number of days in the last 7 days storybook child read. Column 7 is the number of minutes in the last 24 hours storybook child read. Column 8 is number of days the storybook child attended school in the last 5 days that school is in session. The specification includs the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent.Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01).

Table 4: Wave 1 Effects

	Ownership			Adult Reading		Child Reading		
	(1) Total Books	(2) Add Books	(3) Ownership Index	(4) Days Read	(5) Min Read	(6) Days Read	(7) Min Read	(8) Attendance
group1	.47**	-.02	.093	.12	-4.9**	.16	-.34	.072
	(.20)	(.05)	(.09)	(.21)	(2.26)	(.24)	(2.56)	(.14)
group2	1.3***	.058	.4***	.52**	2.6	.33	-2.9	.15
	(.21)	(.05)	(.10)	(.26)	(4.29)	(.23)	(2.06)	(.12)
group3	.33**	.022	.11	.046	-5**	.25	-1.9	.1
	(.17)	(.04)	(.08)	(.20)	(2.36)	(.20)	(1.55)	(.11)
Control Mean	1.72	.42	-.00	3.90	18.15	3.78	17.02	4.42
N	1441	1428	1441	1441	1441	1441	1440	1441

Notes: This table plots outcomes from the Wave 1 Storybooks Effects. Column 1 is the number of storybooks in household. Column 2 is an indicator for purchased any additional storybooks. Column 3 is a means effects index of the previous two measures. Column 4 is number of days read in the last 7 days by an adult to child. Column 5 is minutes read in the last 24 hours by an adult to child. Column 6 is number of days in the last 7 days storybook child read. Column 7 is the number of minutes in the last 24 hours storybook child read. Column 8 is number of days the storybook child attended school in the last 5 days that school is in session. The specification includs the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent.Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01).

Table 5: Book Ownership (Wave 2)

	PC-Module			KSI-Module	
	(1) Total Books	(2) Add Books	(3) Ownership Index	(4) Total Books	(5) Ownership Index
Storybook Treatment	1.6***	.029	.38***	1.1***	.56***
	(.19)	(.02)	(.06)	(.12)	(.06)
Control Mean	1.76	.14	-.00	1.62	-.07
N	1265	1263	1265	1268	1268

Notes: This table shows outcomes from the Wave 1 Storybooks Effects analysis. Column 1 is the number of storybooks in household. Column 2 is an indicator for purchased any additional storybooks. Column 3 is a means effects index of the previous two measures. Column 4 is number of days read in the last 7 days by an adult to child. Column 5 is minutes read in the last 24 hours by an adult to child. Column 6 is number of days in the last 7 days storybook child read. Column 7 is the number of minutes in the last 24 hours storybook child read. Column 8 is number of days the storybook child attended school in the last 5 days that school is in session. The specification includes the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent.Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01).

Table 6: Child Reading (Wave 2)

	PC-Module (3-month)			KSI-Module (4 month)	
	(1) Days Read	(2) Min Read	(3) Reading Motivation	(4) Days Read	(5) Min Read
Storybook Treatment	.12	1.7	.14***	.058	-.23
	(.15)	(1.28)	(.04)	(.14)	(1.07)
Control Mean	2.30	11.11	.00	2.27	12.70
N	1295	1294	1286	1268	1267

Notes: This table shows child reading outcomes from Wave 2 Storybooks Effects. Column 1 is number of days in the last 7 days storybook child read, collected during the 3 month PC Module follow-up survey. Column 2 is the number of minutes in the last 24 hours storybook child read, collected during the 3 month PC module follow-up survey. Column 3 is a "Child Reading Motivation Index" that is a means effect index of indicators for the PC agreeing with the following three statements reported by the parent: child is a good listener when someone else is reading a story, child has favorite stories from book that he/ she likes to read about or listen to, child likes to tell others about what he/ she is reading/ someone has read to him / her. Column 4 is number of days in the last 7 days storybook child read, collected during the 4 month KSI Module follow-up phone survey. Column 5 is the number of minutes in the last 24 hours storybook child read, collected during the 4 month KSI module follow-up phone survey. The specification includes the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent.Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01).

Table 7: Parental Investment (Wave 2)

	PC-Module				KSI-Module	
	(1) Days Read	(2) Min Read	(3) Self Efficacy	(4) Family Care	(5) Days Read	(6) Min Read
Storybook Treatment	.1	-.033	-.019	.027	-.053	-1.1
	(.15)	(1.19)	(.06)	(.03)	(.13)	(1.04)
Control Mean	2.14	9.78	-.00	-.00	2.56	13.28
N	1295	1294	1295	1295	1268	1267

Notes: This table shows parent outcomes from Wave 2 Storybooks Effect analysis. Column 1 is number of days in the last 7 days parent read to children, collected during the 3 month PC Module follow-up survey. Column 2 is the number of minutes in the last 24 hours parent read, collected during the 3 month PC module follow-up survey. Column 3 is a "Self-Efficacy" index that measures parental confidence in their ability to engage in reading with their child, and includes statements such as "I can choose appropriate storybooks for my child", "I can encourage my child to talk about a book while reading", and "I can help my child answer questions about a story when reading". Column 4 is a family care index measuring time spent doing activities with child. Column 5 is number of days in the last 7 days parent read to children, collected during the 4 month KSI Module follow-up survey. Column 6 is the number of minutes in the last 24 hours parent read, collected during the 4 month KSI module follow-up survey. The specification includes the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent.Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01).

Table 8: Cognitive (Wave 2)

	(1) PPVT z-score	(2) PPVT raw	(3) MDAT z-score	(4) MDAT raw	(5) EGRA SW z-score
Storybook Treatment	.0063	.17	.049	.42	.041
	(.06)	(.69)	(.07)	(.72)	(.10)
Control Mean	.05	38.63	.01	38.37	-.24
N	1285	1285	1064	1064	221

Notes: This table shows child reading outcomes from Wave 2 Storybooks Effects. Columns 1 and 2 show the score from the Peabody Picture Vocabulary Test. Columns 3 and 4 show the score from the Malawi Development Assessment Test. Finally Column 5 shows the score from the EGRA Swahili exam. The specification includes the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent.Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01).

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A Appendix Tables and Figures

Table 9: Storybook Take-Up

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
High Subsidy (Price = KES 50)	-.049		-.051	
	(.04)		(.04)	
Medium Subsidy (Price = KES 100)	-.11***	-.18**	-.13***	-.19*
	(.04)	(.09)	(.04)	(.11)
Low Subsidy (Price = KES 150)	-.12***	-.32***	-.14***	-.27**
	(.04)	(.09)	(.04)	(.11)
Urban			-.003	.12
			(.00)	(.08)
Urban x High Subsidy			.022	
			(.01)	
Urban x Med Subsidy			.078**	.03
			(.03)	(.17)
Urban x Low Subsidy			.088**	-.17
			(.04)	(.18)
Weights	None	None	None	None
F-test for Subsidy Level Terms (p-value)	.00021	.0015	.0099	.37
Number Observations	972	245	965	242
Sample	Group 1-3	Group 2	Groups 1-3	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education / cash grant sample as well as treatment groups within the intervention. Standard errors are clustered at the 1998 school level.

Table 10: Storybook Take-Up (weighted)

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
High Subsidy (Price = KES 50)	-.04		-.044	
	(.03)		(.04)	
Medium Subsidy (Price = KES 100)	-.095**	-.18**	-.11**	-.17
	(.04)	(.08)	(.05)	(.11)
Low Subsidy (Price = KES 150)	-.11**	-.33***	-.13***	-.27***
	(.04)	(.09)	(.05)	(.10)
Urban			-.0052	.12*
			(.00)	(.07)
Urban x High Subsidy			.021*	
			(.01)	
Urban x Med Subsidy			.069*	-.047
			(.04)	(.18)
Urban x Low Subsidy			.078**	-.21
			(.04)	(.18)
Weights	Intensive	Intensive	Intensive	Intensive
F-test for Subsidy Level Terms (p-value)	.0012	.00026	.024	.3
Number Observations	972	245	965	242
Sample	Group 1-3	Group 2	Groups 1-3	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education / cash grant sample as well as treatment groups within the intervention. Specifications with weights take into account the two-stage tracking strategy of KLPS-Kids data collection. Standard errors are clustered at the 1998 school level.

Table 11: Take-Up: Interactions with PSDP

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
PSDP Treatment	-.0055	-.012	.18	.068
	(.01)	(.01)	(.13)	(.14)
High Subsidy x PSDP	.0065	.022		
	(.01)	(.02)		
Medium Subsidy x PSDP	-.043	-.02	-.047	-.078
	(.05)	(.03)	(.25)	(.23)
Low Subsidy x PSDP	.011	.052	-.16	-.07
	(.06)	(.06)	(.27)	(.23)
High Subsidy (Price = KES 50)	-.01	-.023		
	(.01)	(.01)		
Medium Subsidy (Price = KES 100)	-.045	-.032	-.26	-.21
	(.04)	(.02)	(.21)	(.17)
Low Subsidy (Price = KES 150)	-.11**	-.13**	-.51***	-.64***
	(.04)	(.06)	(.19)	(.15)
Weights	None	PSDP	None	PSDP
F-test Joint Significance P value	.8	.36	.55	.96
Number Observations	557	557	138	138
sample	Group 1-3	Group 1-3	Group 2	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: gender of KLPS parent, and baseline grade (1998) of KLPS parent. We also include a vector of controls used either to stratify the original PSDP sample, or in the sampling of the KLPS sample, as well as other key controls used in Baird et al. (2016, 2017). This vector comprises an indicator for gender of interviewer; month of interview fixed effects; the total density of primary school children in a 6 km radius around the parents' PSDP school in 1998; an indicator for inclusion in the vocational education / cash grant sample; indicator for geographic zone of parent's school in 1998; population of parent's school in 1998; indicator for participation in deworming cost-sharing in 2001 (Kremer and Miguel 2007); and average 1996 test score of parent's PSDP school. Specifications with weights include survey weights to maintain initial (baseline PSDP) population representativeness. We also take into account both the sampling for the KLPS and the two-stage tracking strategy of KLPS-Kids data collection. Standard errors are clustered at the 1998 school level.

Table 12: Take-Up: Heterogeneity by Earnings

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
Above Median Earnings	.00012	.001	.036	-.045
	(.01)	(.01)	(.10)	(.10)
Above Median Earnings x High Subsidy	.00028	-.00015		
	(.01)	(.01)		
Above Median Earnings x Med Subsidy	.061	.034	.009	.1
	(.05)	(.04)	(.18)	(.15)
Above Median Earnings x Low Subsidy	.0081	.037	.39*	.55**
	(.06)	(.07)	(.22)	(.22)
High Subsidy (Price = KES 50)	-.013	-.021		
	(.04)	(.04)		
Medium Subsidy (Price = KES 100)	-.11**	-.089*	-.24**	-.22**
	(.05)	(.05)	(.12)	(.10)
Low Subsidy (Price = KES 150)	-.12*	-.15*	-.7***	-.81***
	(.07)	(.09)	(.17)	(.18)
Weights	None	Intensive	None	Intensive
F-test Joint Significance P value				
Number Observations				
Sample	555	555	138	138
sample	Groups 1-3	Groups 1-3	Group 2	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education / cash grant sample as well as treatment groups within the intervention. Specifications with weights take into account the two-stage tracking strategy of KLPS-Kids data collection. Standard errors are clustered at the 1998 school level.

Table 13: Take-Up: Heterogeneity by Gender of Child

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
Child Female	-.0013	-.00081	-.04	-.016
	(.00)	(.00)	(.10)	(.09)
Child Female x High Subsidy	-.015	-.0075		
	(.01)	(.01)		
Child Female x Med Subsidy	-.025	-.034	-.18	-.11
	(.04)	(.04)	(.18)	(.17)
Child Female x Low Subsidy	-.028	-.062	.21	.15
	(.04)	(.05)	(.17)	(.17)
High Subsidy (Price = KES 50)	-.04	-.032		
	(.03)	(.03)		
Medium Subsidy (Price = KES 100)	-.096**	-.076**	-.11	-.13
	(.04)	(.04)	(.11)	(.10)
Low Subsidy (Price = KES 150)	-.11**	-.077*	-.43***	-.41***
	(.05)	(.04)	(.12)	(.12)
Weights	None	Intensive	None	Intensive
F-test Joint Significance P value				
Number Observations				
Sample	972	972	245	245
sample	Groups 1-3	Groups 1-3	Group 2	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education / cash grant sample as well as treatment groups within the intervention. Specifications with weights take into account the two-stage tracking strategy of KLPS-Kids data collection. Standard errors are clustered at the 1998 school level.

Table 14: Take-Up: Heterogeneity by Gender of Parent

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
FR Female	.001	.0017	-.027	-.028
	(.00)	(.00)	(.11)	(.09)
Female x High Subsidy	.0074	.0026		
	(.02)	(.01)		
Female x Med Subsidy	.03	.036	.16	.17
	(.04)	(.04)	(.18)	(.18)
Female x Low Subsidy	-.0063	.0097	-.17	-.18
	(.05)	(.05)	(.18)	(.18)
High Subsidy (Price = KES 50)	-.054	-.041		
	(.04)	(.04)		
Medium Subsidy (Price = KES 100)	-.13**	-.11**	-.27*	-.26**
	(.05)	(.05)	(.14)	(.13)
Low Subsidy (Price = KES 150)	-.12***	-.12**	-.22*	-.23**
	(.04)	(.05)	(.13)	(.12)
FR Female	0	0		
	(.)	(.)		
FR Female			0	
			(.)	
FR Female				0
				(.)
Weights	None	Intensive	None	Intensive
F-test Joint Significance P value				
Number Observations				
Sample	972	972	245	245
sample	Groups 1-3	Groups 1-3	Group 2	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education / cash grant sample as well as treatment groups within the intervention. Specifications with weights take into account the two-stage tracking strategy of KLPS-Kids data collection. Standard errors are clustered at the 1998 school level.

Table 15: Take-Up: Heterogeneity by Number of Children in Household

	(1) Take-Up	(2) # Books	(3) Take-Up	(4) # Books
Number of Children	.0002	.00085	.046	.052*
	(.00)	(.00)	(.04)	(.03)
Number of Children x High Subsidy	.0014	.0012		
	(.01)	(.00)		
Number of Children x Med Subsidy	-.0025	.0016	-.067	-.049
	(.01)	(.01)	(.05)	(.04)
Number of Children x Low Subsidy	-.001	.0066	-.052	-.024
	(.01)	(.01)	(.05)	(.05)
High Subsidy (Price = KES 50)	-.051	-.045		
	(.04)	(.04)		
Medium Subsidy (Price = KES 100)	-.079	-.08	.076	.033
	(.05)	(.05)	(.17)	(.15)
Low Subsidy (Price = KES 150)	-.13**	-.14**	-.22	-.34*
	(.05)	(.07)	(.17)	(.18)
Weights	None	Intensive	None	Intensive
F-test Joint Significance P value				
Number Observations				
Sample	816	816	206	206
sample	Groups 1-3	Groups 1-3	Group 2	Group 2

Notes: Standard errors in parentheses, * (p<.10), ** (p<.05), *** (p<.01). Specifications control for the variables used for stratification during storybook treatment randomization: PSDP or GSP treatment group, gender of KLPS parent, and baseline (1998) grade of KLPS parent. We also include an indicator for PSDP or GSP program participation, gender of interviewer; months elapsed since the start of the survey wave; and an indicator for inclusion in the vocational education / cash grant sample as well as treatment groups within the intervention. Specifications with weights take into account the two-stage tracking strategy of KLPS-Kids data collection. Standard errors are clustered at the 1998 school level.

B Storybook Intervention Materials

Information Script A

Please put storybooks away for the Information Script. Keep the respondent engaged during the information script by making eye contact and using a dynamic voice. Read out loud. Now I would like to give you some information about reading with your children. Research has shown that reading to your young children, especially those who are not yet reading themselves, can help them love books and love learning. It also gives you and your children something special to do together. Try to read with your children every day - even 10 or 15 minutes is good. Pick a time when your children are not tired or hungry, and when you can give them your full attention. When reading together, you can sit side-by-side or with your children on your lap.

When you read the story, point to the words as your read. Stop and talk about the words, and point to where the words are in the picture. Even if you cannot read yourself, you can still use the pictures to create your own story. If some of your children know a word, let them sound it out. Listen to your children and encourage them to talk about the story. Make the experience interactive by asking them questions about the story. For example: "What do you see here in this picture?", "Where have you seen these things before?", "What is this person feeling?", "Why do they feel that way?", "What is this person doing?", "Who is your favorite character?".

When your children respond, repeat what your children say and add more details. Connect what is happening in the story to previous experiences for your children. It is normal for your children to want to read the story over and over again, so be patient. When you have fun, your children will have fun too! Books are precious, so you should keep this storybook in the house and make sure your children treat it with care. If you like this storybook, you can get more storybooks just like this at your nearest bookstore. If you have a smart phone or tablet you can also download stories for free by visiting the African Storybook website. Here is a poster with a link to the African Storybook website and some information about reading, that you can hang on your wall as a reminder. Give respondent poster. To summarize:

- Remember to read with your children every day! Reading will help them to love learning.
- Even 10 to 15 minutes is good.
- Ask your children questions about the story, and point to where the words are in the picture.

Information Script B

Please put storybooks away for the Information Script. Keep the respondent engaged during the information script by making eye contact and using a dynamic voice. Read out loud. We would like to give you some information about reading with your children just for your reference. Research has shown that reading to your young children, especially those who are not yet reading themselves, can help them love books and love learning. It also gives you and your children something special to do together. Try to read with your children every day - even 10 or 15 minutes is good. Pick a time when your children are not tired or hungry, and when you can give them your full attention. When reading together, you can sit side-by-side or with your children on your lap.

When you read a storybook, point to the words as your read. Stop and talk about the words, and point to where the words are in the picture. Even if you cannot read yourself, you can still use the pictures to create your own story. If some of your children know a word, let them sound it out. Listen to your children and encourage them to talk about the story. Make the experience interactive by asking them questions about the story. For example: "What do you see here in this picture?", "Where have you seen these things before?", "What is this person feeling?", "Why do they feel that way?", "What is this person doing?", "Who is your favorite character?". When your children respond, repeat what your children say and add more details. Connect what is happening in the story to previous experiences for your children. It is normal for your children to want to read a story over and over again, so be patient. When you have fun, your children will have fun too!

Books are precious, so you should keep any storybooks in the house and make sure your children treat them with care. If you decide to purchase a storybook later, you can get other storybooks just like these at your nearest bookstore. If you have a smart phone or tablet you can also download stories for free by visiting the African Storybook website. Here is a poster with a link to the African Storybook website and some information about reading, that you can hang on your wall as a reminder. Give respondent poster.

To summarize:

- Remember to read with your children every day! Reading will help them to love learning.
- Even 10 to 15 minutes is good.
- Ask your children questions about the story, and point to where the words are in the picture.

Figure 2: Intervention Poster

English Translation: "Remember to read with your children today. Reading with your children helps them love learning. Ask your children questions about the story: When? Where? Who? How? What? Point to where the words are in the picture Even 10 to 15 minutes is good"

SMS Reminder Text

"Habari! Huu ni ujumbe wa bure kutoka IPA. Tafadhali usijibu. Tungependa kukukumbusha kusoma pamoja na watoto wako leo. Kusoma pamoja na watoto wako huwasaidia kupenda masomo. Hata dakika 10 hadi 15 ni nzuri!" English Translation: “Hello! This is a free message from IPA. Please do not respond. We would like to remind you to read with your children today. Reading together with your children helps them love learning. Even 10 or 15 minutes is good!”