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# Do Marketing Strategies Impact Condom Sales in Uganda?

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Abstract: What attracts people to buy condoms? HIV/AIDS remain one of the biggest health dangers of the world, especially in Sub-Saharan Africa. A lot of efforts have been pursued in the past two decades to drastically reduce prevalence of HIV and increase awareness about preventive mechanisms. In order to prevent relapse of success achieved so far, it is important to recognize transformation of consumer behavior due to growth in social networks, education and awareness over time. There are a lot of behavioral triggers captured by social marketing interventions in the field of public health. In an attempt to investigate the role of marketing strategies in condom uptake we conduct a randomized control trial in Kampala, Uganda with two different promotion techniques of selling condoms – Fear versus Pleasure, to see which has a higher impact on growth of condom sales. These strategies will be randomly assigned to BRAC's Peer Educator (PEs) hired exclusively to sell condoms by means of regular sales trainings. We wish to see whether the growth in sales is influenced by the gender of the seller. We find that pleasure marketing demonstrates a positive growth in sales over time. Males have a mediating role in adding value in pleasure based marketing, while the opposite trend can be seen for females.

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## **1. Introduction**

Despite highly sophisticated advancements in the field of healthcare development, HIV/AIDS is still one of the most undefeated health perils in the world. 36.7 million people are living with HIV globally, including 1.8 million children (UNAIDS, 2016). Once broken down, the majority of such cases are in low and middle income countries. UNAIDS proposed an enhanced investment framework which is projected to avert 12.2 million new infections and 7.4 million HIV/AIDS related deaths between 2011 and 2020 (UNAIDS, 2011). The whole plan of action within this framework involves maximizing response to public health intervention by identifying the key population at risk, designing behavior triggering interventions, increasing condom promotion and distribution, better support facilities for people living with HIV and promoting male circumcision. To achieve the projection by 2020, the required investment amounts to US \$26.2 billion. To ensure effectiveness of such largely funded projects it is important to identify the population at highest risk and understand the mechanism underlying behavioral triggers to adoption of preventive practices such as usage of condoms and safe sex. Behavioral triggers directly impact perceived benefit or risk associated with take up of any durable preventive healthcare good.

This study looks at the impact of marketing strategies on selling condoms using two randomly assigned marketing strategies i.e. testing out two types of framed messages– pleasure vs fear inducing, on monthly condom sales growth to peer educators in BRAC Uganda. In addition, we attempt to identify whether gender influences this impact. It is important to recognize the role of inter temporal social dynamics and role of consumer behavior in making certain social marketing more relevant today. This would help design public health interventions with a more specific setup and target. We find that pleasure marketing, which is associated with a more positive message leads to a higher impact on growth of sales indicating higher marginal purchase of condoms. We also find that males play a driving role in making pleasure marketing more impactful.

## **2. Preventive Health, HIV/STI and Uganda**

### **2.1 Theory of Preventative Healthcare**

The main theory behind preventative health care goods is based of (Dupas, 2011) who modeled health behavior in developing countries. In her model, households maximize an intertemporal utility function of consumption of health, other goods and leisure. Health investments are made up of two main components, remedial healthcare and preventative healthcare. Remedial health investment restores a bad health shock and preventative health investment reduces its probability. This ties with the perception of the probabilistic nature of reduction of illness determining the investment. Only if people believe the use of condoms to reduce the probability of getting HIV/STI and unwanted pregnancies, will they readily invest in it. This behavior would be even more profound in developing countries (Dupas & Miguel, (2016)). There has also been prior work in modelling health behavior under risk and time preferences (Jamison &

Connell-Price, 2012)). In order to study the factors contributing to building a belief for a consumer, the potential of marketing is explored.

## **2.2 HIV/AIDS and Sub-Saharan Africa**

The host of over half of HIV related cases is in Sub-Saharan Africa (UNAIDS, 2011). There are a number of reasons pointing to the high prevalence of HIV in Sub-Saharan Africa. Africa was the first continent to be exposed to HIV with the first ever occurrences in Tanzania and Uganda. The rate of spread can be attributed political instability which caused war and violence which was a huge channel of transmission of the virus but also growth in social dynamism and modernity over time (Lau, 2004). Faria et al. (2014) explore the role of social changes and transport networks in spread of HIV in human populations in Democratic Republic of Congo. Using genetic diversity in HIV-1 sequence data they analyze the evolution of HIV-1 in group M (contains genetically distinguished virus sub-types and established pandemic spread) and in group O (mainly concentrated in Cameroon and neighboring countries, considered non-pandemic). They find that after 1960 the epidemic history of group M underwent major epidemiological transformation, outpacing group O and lead to the early outbreak of HIV being driven by increasing social and transport networks. Bulled (2015), examines the relationship between social environmental factors and onset of HIV in Lesotho. He finds that with the onset of modernity, growth in social networking channels through better transport, educational facilities, lower levels of social control are associated with HIV risk, as measured at an individual level, controlling for other factors that could contribute to the same.

## **2.3 Uganda's Success**

Uganda has been the leading example of a unique success story of bringing down HIV rates from 21%-9.8% within a time span of 7 years (1991-1998) (Low-Beer & Stoneburner (2004)). From 1984-2001 Kampala, on average had a highest HIV prevalence rate amongst pregnant women in the country (Ministry of Health, Uganda (2001)). One of the main contributing factors to this success were the health education campaigns implemented by the government of Uganda. (Konde-Lule JK et al., (1997)).

There are two main schools of thought under Uganda's success in bringing down HIV rates. First, reduction in risky, multi-partner casual sex and "zero-grazing" largely promoted by Ugandan government, NGOs and community based groups caused early declines HIV incidence rather than promotion of condom usage (Low-Beer, 2014), (Sheton et al., 2004), (Green, 2003), (Wilson, 2004). The second school of thought emphasizes on higher prevalence of prevention centered around promotion of condoms, HIV testing and structural factors like poverty, gender norms led to systematic behavior change (Fenton, 2004),( Halperin and Allen, 2000), (Singh et al., 2003), (Sheton et al., 2005). Therefore, it can be seen that the first school of thought emphasizes more on more traditional methods of prevention and the

second school of thought relied more upon broader and structurally dynamic factors. This debate is commonly referred to as the ABC debate, where A refers to 'Abstinence' versus C i.e. 'Condom Usage'.

Promotion of condoms was not the first remedy towards prevention of HIV due to political and religious resistance (Kaleeba et al. 2000). This led to a higher acceptance of change in sexual behavior i.e. Abstinence and safe sex (Allen and Herald, 2004). Condom social marketing and use has been relatively new to the Ugandan public, being introduced mainly around 1990's but picked up really fast by 2000. This indicates how prevention mechanisms update with availability and awareness of more tools in a more socially open and dynamic setup. From here we can see a trend in the nature of social intervention as communities find channels of education, empowering women, destigmatizing AIDS.

Uganda showed a high response to change in HIV/AIDS related behavior through social network and communication (Low-Beer & Stoneburner (2004)). Uganda currently has 1.5 million people living with HIV. 7.1% of adults currently have HIV and there are about 83,000 new infections in the year 2016. As socio-economic factors, political and demographic factors continually evolve in a complex society, it is important to keep revising policies and interventions that would mitigate a potential relapse and keep up with the dynamic social network.

### **3. Social Marketing and Behavioral Public Health Intervention**

As public health interventions follow the growth in social networks over time, there has been a lot of work done to understand the behavior of a consumer which is impacted by framing or signaling via marketing to persuade consumers to invest in a certain good (Dupas, 2009). The perception related to benefits to a marked extent, determines whether or not a consumer would choose to invest in the preventative health technology. The decision to buy a good like condom is an intersection of sociology, psychology and economics. Steiner MJ et al. (2006) actually find that options of different variety of condoms does not lead to a proportion uptake rate or does not alter prevalence estimates of rate of HIV/STI amongst men in Jamaica. This shows that the effective communication and marketing are the necessary tools to really trigger uptake.

#### **3.1 Theory and Empirical Evidence**

There are few agent based models in behavioral economics literature which talk about the factors that are key when the decision to 'buy' a certain good is made. Firstly, the belief that usage of condoms will certainly reduce the risk of getting HIV/STI and prevent unwanted pregnancy will trigger them to invest in it. Secondly, having a lower discount rate which means having less of a present bias in such investments which have prolonged benefits will reduce the myopia associated with investment in preventive health care as opposed to curative healthcare. Third, the nature of information dissemination

in terms of marketing of such tools will indeed trigger consumer behaviour. Combining all these theories, we can better understand the mechanism of take up of preventive healthcare tools like condoms. The probability of outcomes do in general affect the nature of framing too. This is drawing directly from the prospect theory (Kahneman & Tversky, (1979)) and explaining the impact of framing to a specific take up of consumer goods. The way consumer goods such as condoms are framed to people incite emotions in their decision making ability which persuades them to take a decision in one direction or another. In general, people would like to choose the option which is framed to provide them with a higher expected pleasure in general. Ritov, (1999) mentions about the subjective expected utility in which people opt for choices which give them more anticipated pleasure.

Social marketing is formally defined as the use of marketing strategies to cause a voluntary change in behavior (Grier & Bryant, (2004)). They design a formal model which involves the right mix of audience, comparative products and effective research on consumer orientation and research. A marketing message's appeal can be divided into three parts of behaviour in a consumer's mind – effect of message exposure, learning and action (Ray and Wilkie, 1970). Based on previously studied market research mechanisms, our main theory of change is inspired by a model devised Sweat et al. (2012). Market research leads to developments of brands, distribution and promotion of condoms. With an enhanced network of distribution, availability and accessibility increases. With targeted marketing, perceptions towards effectiveness of condoms change in terms of risk and benefits. This would lead to a higher demand giving rise to more condom sales. With sustained use of condoms, assuming all other factors to be constant, over time would lead to adoption of condoms as a preventive health care product.

In recent experimental works done to estimate demand and willingness to pay for a certain good, Duflo et al. (2016) conducted a randomized control trial in India to test the impact of different marketing strategies on adoption of iron fortified salt. They find that showing an educational movie and offering an incentive to retailers increased take up on iron fortified salt by 5.5 percentage points. In another framing study in Kenya, Dupas (2009) tests two different marketing strategies – health frame versus financial frame to test the demand for malaria preventing bed-nets and finds that it is quite sensitive to price differences but not so sensitive to other things tested. Galiani et al. (2014) conduct a massive social communication RCT in Peru to promote handwashing. They do find higher self-reported hand washing behavior but no significant change in prevalence of diarrhea and other health indicators. Therefore, social marketing has been largely used as a tool to uptake behavior and tools in the field of preventative healthcare.

### **3.2 Social Marketing for Condoms**

### **3.2.1 Role of Marketing Strategy**

Following from Uganda's success story, an important element of condom marketing and behavior change revolved around instilling fear and making Ugandans feel at risk of getting an infection (Kaleeba et al. 2000). Fear appeal – as the name suggests, is all about engendering a sense of risk, insecurity and threat in the consumer's mind in the absence of the product or behavior that is being marketed. Fear appeals can attribute 66% decline in the rate of HIV in Uganda during the period of the epidemic (1986-1991) (Shelton et al., 2004). Literature on theoretical models of fear appeal suggest that fear produces the desired behavior change given the intensity of the fear, the stronger will be the reaction (Boster and Mongeau, 1984), (Mongeau, 1998), (Sutton, 1982). Ray and Willkie (1970) discuss the potential of fear marketing. They discuss that fear at a moderate level can trigger desired response. Too strong or too weak of a fear appeal can either lead to avoidance or ignorance. Moderate level of fear results in a non-monotonic relationship between fear appeal and acceptance of the message. They suggest that fear could prove highly effective for those who have not yet identified with the cause of fear. For example, people who do not have HIV or who are sexually active but want to avoid pregnancy might be more responsive to a fear appeal and are more likely to be attracted to buy a condom under a fear invoking advertisement. Agha (2003) shows that people exposed to branded advertising in Kenya were more likely to consider themselves at a higher risk of getting HIV. Exposure to the branded messaging increased the belief of efficacy of condoms.

Fear might invoke exposure and learning, but if the action is to buy a product, Marchand & Filliatrault (2001) test the factors in a marketing message that actually make individuals buy it. They identify that emotional appeal – both negative and positive make consumers more personally aware about their behavior but a rational informative appeal invokes a general positive attitude towards utility by using that product. In contrast to fear, Philpott et al. (2006) review work done to promote condoms in a positive, pleasurable way. They recognize the need to advertise the benefits of using condoms like ensuring a healthier sex life in general in order to increase the uptake of condoms. Condoms have been marketed in Mongolia and Cambodia as a means to reduce displeasure during sex based on the local qualitative research (PSI, 2006). Marie Stopes International has seen a significant higher number of female condom sales when sold in a positive way in Uganda (2006). It is widely believed that positive appeal for the market of condoms has yet to be exploited to its fullest potential in developing societies.

### **3.2.2 Role of Gender, Culture**

In addition to branding and marketing, pre-existing cultural and social norms also determine the attitudes towards condoms. Ulin (1992) argues that campaigns and promotion regarding safe sex and

AIDS prevention so far do not account for socio economic factors and cultural factors which govern decisions relating to contraceptive use. Agha (1998) also shows that in Zambia due to more patriarchal gender norms, men are more likely drive and promote condom use. This shows that contingent upon preexisting cultural and gender norms, tapping the appropriate individual (maybe based on intra bargaining power in a relationship) in the appropriate way could lead to adoption of contraceptives.

This RCT is a unique contribution to the existing literature in two ways. First, we test whether take up of condoms which showed rapid increase since the 1990s (from the unique Ugandan ABC) is being affected by the appeal of fear or pleasure. This would enable us to understand the interactive nature of marketing condoms with tools of messaging very unique to Uganda's success in 1980s. This RCT provides us with a comparison of different promotions to a simple informative control. This would truly show the impact of marketing in the presence of an equally valid counterfactual. The results from this would indeed show whether the style of framing information attracts consumer behavior towards buying a contraceptive which can demonstrate purchasing preferences and intention to use.

## **4. Experimental Design**

This paper investigates the impact of two different marketing strategies on sales growth of condoms per seller. In addition to that, we look at the role of gender in influencing the impact. Our primary outcome variable is sales growth per seller per month, measured in Ugandan Shillings (UGX) i.e. revenue they earned on the sale of each pack of condoms.

### **4.1 Context – Kampala, Uganda**

According to the DHS Uganda (2011), most Ugandans have heard of HIV/AIDS but very few (38% females and 43% males) have knowledge about its prevention and transmission. 24.1% of Ugandans are in the age group of 15-30 which are bifurcated into 23.1% women and 25% men. Kampala is the capital city of Uganda with a population of 1.209 million. 99.7% of the population of Kampala have heard of HIV however, only 59.5% have a comprehensive knowledge of prevention and transmission of AIDS. About 43.9% individuals in the age group of 15-49 reported using condoms in their last sexual intercourse. Private not-for-profit organizations contribute to the available resources and facilities in terms of outpatient care and availability of drugs at a subsidized rate. 45% of such are concentrated in Kampala (World Bank, 2010). This gave us a motive to target Kampala for this RCT as a way to test impact of marketing strategies towards change in sales of male contraceptives.

### **4.2 The Intervention**

Figure1 summarizes the intervention. This RCT is a cluster randomization of different sales



marketing strategies. The marketing strategies were randomly assigned to local BRAC branches wherein sellers would convene to get training and condom stocks. Within the operating boundary of each branch, they were free to sell at any location. The branches were displaced far enough to ensure that there was no spillover of promotion across the unit of randomization.

Within the treatment groups, we had two marketing strategies—pleasure and fear. The pleasure frame was a way to sell condoms in an attractive way. The key selling message was that condoms ensure a happier, free of worry sex life. This would lead to a longer span of sexually active years in one’s life. That would lead to a more pleasurable life. Therefore, a man using condoms is perceived as more attractive relative to someone who doesn’t use condoms. The goal was to promote use of condoms as a ‘sexy’ status quo. In contrast, the second strategy was a fear frame. Under this treatment arm, customers were made to feel that they are at a high risk of getting HIV/STI or having an unwanted child if they don’t use a condom. The idea was to induce fear and increase in the belief that condoms reduce the probability of getting a life threatening infection and an unwanted offspring.

In order to test the impact of the above mentioned strategies, the control arm was a generic sales message of condoms. The PEs under this arm were trained in the 4Ws i.e. What, Why, Where and When. The goal was to inform the buyer completely about meaning and usage of condoms to enable them to make an informed decision. It is important to make a distinction about the emphasis of marketing messages here. Though it is not possible to isolate the HIV and unwanted pregnancy while marketing condoms, the emphasis of each of the marketing strategies is on ‘pleasurable lifestyle’ versus ‘fear of HIV/STI’. At the end of every month, a peer educator from every branch was awarded ‘Star seller of the month’ and was rewarded with a prize worth 1,500 UGX (0.41 USD). The goal of the star seller was to incentivize the sellers to try to make maximum sales using the training being provided to them.

<b>Treatment</b>	<b>BRAC Branch</b>
Pleasure Group	Kasubi, Wakiso N(sellers)= 18
Fear Group	Kasangati, Kisaasi N(sellers)= 22
Control Group	Bulenga, Kyengera, Nansana N(sellers)=31

Figure 1. Cluster randomization of treatment assignment

### 4.3 Experimental Framework

We worked with Bridging Resources Across Communities (BRAC) based in Kampala, Uganda. BRAC Uganda has local branches around the capital city of Kampala where the sales training of peer educators (PE) i.e. condom sellers was conducted. These branches are set up in semi-rural sub counties surrounding Kampala. The RCT was conducted by means of sales training where the promotion strategies were randomly assigned to branches. We focused on seven such branches namely Kasangati, Kasubi, Kisaase, Bulenga, Wakiso and Nansana.

The peer educators are mostly college students and earn a commission of 200 UGX (0.05 USD) on every condom they sell. This program distributed two brands of condoms – Trust and O<sup>1</sup>. Trust is a well-known East African brand of condoms. O is a newly introduced brand in Uganda. Trust was sold at a pack for 800 UGX (0.21 USD) and O was sold for a pack for 1000 UGX (0.30 USD). These condoms are sold below market price i.e. 2300 UGX (0.63 USD) for Trust and 2500 UGX (0.70 USD) for O. They were given a calculated stock of condoms at the end of every month and were free to sell anywhere based on their convenience and comfort. There was no restriction or targeted customer base as well. They were required to record details of the sale made in a log book post the transaction. They earned a commission of 200 UGX (0.05 USD) on every condom they sell. In terms of purchasing parity, 200 UGX can buy an individual a snack or soda.

## 5. Methodology

### 5.1 Data

#### *Log book*

After each sale the PE was required to record the details of the transaction in a log book. The log book records the date of the sale, sex of the customer, age, relationship with the seller, the comfort experienced by the seller on a scale of 1-5, number of condoms sold, brand sold, whether the customer is a BRAC ELA (Empowerment and Livelihood of Adolescents) member, whether the customer is a returning customer and other important notes about the transaction. There are 1,008 sales transactions recorded over 7 branches and 70 PEs. The data from this will be used to analyze the impact of buyer and seller characteristics on sales from the period of June through September. Table I provide a balance on the means on all these captured independent variables across treatment and control arms.

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<sup>1</sup> Both brands were of male condoms. Only male condoms were being sold for this study.

## Youth Survey

Data for the sexual health and preferences analysis has been drawn from baseline, midline and end-line youth surveys in March, July and October 2016 respectively. The sample collected has 3900 observations of both. This information is collected from random youth captured at locations where youth usually hangout. In the context of Kampala, these interviews were held at football pitches and trading centers. This data is important as it provides our project a contextual setup. We track their notions about safe sex and condom usage from March 2016 to October 2016. We also conducted a mid-line phone survey in July 2016 to check-up on only their condom usage and see if they are aware of BRAC peer educators selling condoms. We aim to show that the survey sample is statistically similar to the sample of buyers so as to reflect perceptions on condom usage and safe sex. The random youth data can be divided into three sub-samples—First, the random youth interviewed at football pitches and trading centers. This was to get a snapshot of general youth around central Uganda and understand the common trends related to sexual health and condom usage. Second, in addition to the youth, BRAC has Empowerment and Livelihoods of Adolescents (ELA) clubs all around Uganda for young boys and girls to help them build livelihood and vocational skills. They are a sub-sample of about 900 observations in the entire sample. They were interviewed at the club. The third sub-sample of our entire sample were the condom sellers. Since they are the ones selling, their perceptions about condom usage, sexual health and practices were tracked.

## 5.2 Empirical Specification

First, we analyze the marketing experiment by comparing the different strategies' impact on sales growth of condoms per seller by ordinary least squares (OLS). In this basic specification, the outcome variable  $y_{it}$  is the log of monthly sales for seller  $i$  in month  $t$ . Therefore, our first regression is as follows:

$$y_{it} = \beta_0 + \beta_1 \text{Pleasure}_i + \beta_2 \text{Fear}_i + X' \beta_3 + \epsilon_{it} \quad (1)$$

Here,  $\text{Pleasure}_i$  is a dummy equal to 1 if the seller was in pleasure treatment group, 0 if in control group. Similarly,  $\text{Fear}_i$  is a dummy equal to 1 if the seller was in the fear group, 0 if in control.  $X' \beta_3$  is the vector of control variables (sex of buyer, sex of seller, age, brand sold, relationship of buyer with seller). The controls are mainly for the variables which were statistically imbalanced across treatment and control. In order to absorb time invariant characteristics for every seller, we have individual seller level fixed effects. The baseline month of the intervention is May and June. The main intervention was put in effect from July.  $\epsilon_{it}$  are individual seller level characteristics that correlate within all months of sales.

Second, we relax the assumption of a linear trend of marketing strategies' impact on sales across

months. This is mainly done to allow for time that sellers might actually take to imbibe the marketing strategy in practice and put it to effect. This is consistent with literature on relationship of marketing and sales over time. There also exist differences in average sales per seller per month across treatment and control at baseline which motivate the analysis of a monthly trend. Therefore, we use a difference-in-differences regression to test the difference between growth in sales from treatment to control between months of intervention to baseline. Therefore, our model for that is as follows:

$$\begin{aligned}
y_{it} = & \beta_0 + \beta_1 \text{Pleasure}_i + \beta_2 \text{Fear}_i + \beta_3 \sum_{t=3}^5 \text{month}_t + \beta_4 \left( \text{Pleasure}_i * \sum_{t=3}^5 \text{month}_t \right) \\
& + \beta_5 \left( \text{Fear}_i * \sum_{t=3}^5 \text{month}_t \right) + X' \beta_6 + \epsilon_{it}
\end{aligned} \tag{2}$$

In equation (2),  $\sum_{t=3}^5 \text{month}_t$  are dummy variables that take value of 1 for the months of intervention i.e. July, August, September and 0 for baseline.  $\text{Pleasure}_i * \sum_{t=3}^5 \text{month}_t$  are dummy variables which take value 1 if the sale made by the PE  $i$  was in the pleasure group in each of the months of intervention i.e.  $\sum_{t=3}^5 \text{month}_t$  and 0 if the sale was in the control group at baseline. Therefore, the difference is sales growth for PE  $i$  in treatment and control, at baseline to each treatment  $\text{month}_t$ . This model allows for us to capture a month by month trend of change in sales. We assume that, had there been no marketing intervention, the trend in sales would have been parallel all throughout the months of this study.

Finally, as a heterogeneous treatment effect, we explore the mediating role of gender of the seller on the impact on sales growth we augment model (2) and incorporate a third difference of the gender of the PE using triple difference in differences strategy. Here, the difference is between sales growth between treatment and control, in each month of treatment to baseline, by a female PE  $i$  to male PE.

$$\begin{aligned}
y_{it} = & \beta_0 + \beta_1 (\text{Pleasure}_i * \text{FemalePE}_i \\
& * \sum_{t=3}^5 \text{month}_t) + \beta_2 (\text{Fear}_i * \text{FemalePE}_i \\
& * \sum_{t=3}^5 \text{month}_t) + \beta_3 (\text{Pleasure}_i * \text{FemalePE}_i) + \beta_4 (\text{Fear}_i * \text{FemalePE}_i) + \beta_5 (\text{Pleasure}_i \\
& * \sum_{t=3}^5 \text{month}_t) + \beta_6 (\text{Fear}_i * \sum_{t=3}^5 \text{month}_t) + \beta_7 (\text{FemalePE}_i * \sum_{t=3}^5 \text{month}_t) + X' \beta_8 + \epsilon_{it}
\end{aligned} \tag{3}$$

The term  $(\text{Pleasure}_i * \text{FemalePE}_i * \sum_{t=3}^5 \text{month}_t)$  are dummy variables that take the value one when a

female PE is assigned the pleasure group in month  $t$ . The double interaction terms allow for change in trend between treatment and month. This would highlight the mediating effect of the gender of the seller. The main coefficients of interest in this model are  $\beta_1$  which shows the change in growth of condom sales to a female seller in the pleasure group in month  $t$  relative to a male seller in control group at baseline period. Analogous to that,  $\beta_2$  shows the change in growth of condom sales to a female seller in the fear group in month  $t$  relative to a male seller in control group at baseline. This model also absorbs individual seller characteristics invariant with time which could impact change in sales. On the basis of the above specifications, we test the null hypothesis that different marketing strategies do not have any impact on sales growth of condoms per seller.

One concern with this estimation strategy is the issue of having too few clusters. We have seven branches over which we cluster randomized treatment assignment. This means that the sales across all branches could suffer from high intra-cluster correlation. This could give us smaller confidence intervals and therefore, higher likelihood of making a type-II error. This is a concerning issue because it would alter the inference of our estimates. In other words, our coefficients could be a bit too optimistic. Using cluster robust test statistics could over reject the null hypothesis (Conley & Taber, 2011). In dealing with the issue of inference of the coefficients and their significance under few clusters, we briefly discuss three methods of inference and their appropriate use based on MacKinnon and Webb (2016).

#### *Wild Cluster Bootstrapping (WCR)*

This method is based on testing the hypothesis that the coefficient of main independent variable of interest  $\beta = 0$ . Subject to this restriction a standard OLS with cluster robust standard errors is carried out to obtain the restricted residuals. Bootstrap replications of the restricted regressions are permuted. Based on the bootstrapped residuals we calculate the t-statistics and generate p-value as:

$$\text{P-value} = 1/B \sum_{b=1}^B |t^{*b}| > |\widehat{t}_k|$$

Here  $B$  is the number of bootstrap replications being run. The whole idea here is to run replications on restricted parameter estimates and restricted residuals. However, with very few clusters the restrictive nature of this estimation can cause severe under rejection of null. Therefore, MacKinnon and Webb (2016) discuss another technique that relies on comparison of distribution.

#### *Randomization Inference (RI)*

In RI, the idea is to compare the distribution of a statistic by re-randomizing the assignment of treatment. RI compares the distribution of the observed coefficient to the estimated coefficient using

treatment as randomly assigned repeatedly. The underlying assumption here is that treatment is the only random variable and the randomization creates a reference distribution for the coefficient to compare to the observed value. If the t statistic of the observed sample lies in the tails of the distribution, that gives us evidence against the null of no treatment effect. There are two main ways of applying RI procedures to inference with few clusters (Conley and Taber, 2011). Both the procedures require the construction of an empirical distribution by re-randomizing the treatment and control and comparing it with the observed distribution. First way to do that is having the construction of the estimate  $\beta$ . This is called RI- $\beta$  estimation. This follows a strong assumption that both the observed and empirical distribution of  $\beta$  are the same. RI methods are highly sensitive to the unbalanced clusters; therefore, this assumption might not always hold. The second method is to compute and compare cluster robust the  $t$ -statistics corresponding to the  $\beta$ , termed as RI- $t$ . Conceptually, RI- $t$  also gives unreliable inference because of unconditional distribution and varied distribution if treated clusters are small. Under both RI methods, construction of the P-values is similar to that of WCR method i.e. p-value is calculated as:

$$P_1\text{-value} = 1/S \sum_{j=1}^S I(|t_j^*| > |\hat{t}|)$$

$$P_2\text{-value} = 1/(S+1) (1 + \sum_{j=1}^S I(|t_j^*| > |\hat{t}|))$$

Where S is the number of simulations based on clusters. It is clear from here that as S increases, the interval of P value narrows and both  $P_1$  and  $P_2$  converge. However, with few clusters, rejection frequencies of both can be very different. This gives rise to an interval of P value rather than a point estimate. One way to deal with this is by making the number of Bootstraps with the desired significance level of the test equivalent to the simulations to reduce the interval gap between the two P-values. This approach is widely used in Wild Bootstrap Randomization Inference.

#### *Wild Bootstrap Randomization Inference (WBRI)*

This method nests the empirical modelling in the framework of randomization inference. Basically, it means running the randomization procedure on the wild cluster bootstrapped restricted regression. Therefore, the  $t_b^*$  statistic of the cluster robust bootstrapped sample is compared with the observed  $\hat{t}$ . As the number of bootstrapping increases, the problem of narrow P-intervals is overcome. However, when the clusters are heterogeneous, the fundamental procedure of RI- $t$  is still unreliable. For the purposes of this study, we will present estimates based on all three of the above mentioned procedures and shall discuss the relevance of each based on this RCT's framework.

### **5.3 Balance**

Table I present some summary statistics for the sample of buyers. We have a total of 912 sales observations over May-September, the first two months being baseline months before the marketing intervention began. The average age of the sample of buyers is about 22 years, consisting of male and female buyers. Half of the buyers were in social network of the PE as an acquaintance or friend or family. One of the goals of this study was to promote the use of active social networks. In order to test whether the sales were balanced on all observable characteristics, we conduct an orthogonality analysis of the key observables across treatment and control groups comparing the difference in means. There are a few significant differences across treatment and control. We control for this in our regression.

## **5.4 Youth Survey**

In order to better understand the current condom usage, sexual health and attitudes towards partners if they refuse to use contraceptives, we present the main findings from the youth survey taken before the intervention. We had 2,946 respondents with a 4:6 female-male ratio. 60% of the individuals in the sample were in the age group 18-30. We found that 69.24% of the people were currently sexually active. Since prevalence of HIV is most common amongst individuals involved in risky sex<sup>2</sup>, we find a self-reported 29.4% individuals who are engaged in multiple sexual relationships. One of the main goals for baseline was to assess the lack of a market for condoms. In the whole survey sample, we find male condoms as the most preferred methods of family planning from 71.65% individuals. The government of Uganda provides free condoms by Marie Stopes International and USAID at health centers, universities and pharmacies, however we find that 20.95% individuals aware of that and 29.58% people mainly aware of drug shops to purchase condoms. Only 17.42% people avail the free condoms. This gave us the channel and market to sell subsidized condoms and test how framing impacts the willingness to pay for condoms.

## **6. Results**

### **6.1 Marketing strategies and sales growth**

Our main hypothesis tests the impact of different marketing strategies on sales growth per seller. We use a regular OLS to first examine the nature of relationship between marketing strategies and sales growth per seller shown in equation (1). It is important to note here that our comparison is not between purchasing and not purchasing, it is between growth in purchasing and marketing. The estimates are presented in table (II). The OLS findings suggest that both marketing strategies – fear and pleasure have a negative impact on sales growth of condoms per seller. Being in the fear group reduced sales growth by 30.4% per seller and being in the pleasure group reduces the sales growth by 6.9%. Though the direction

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<sup>2</sup> We define risky sex as sexual intercourse with someone other than spouse or co-habiting partner or having multiple sexual partners.

of relationship is negative for both fear and pleasure, we see that the magnitude of impact under pleasure treatment is much less than that of fear. This can be seen in Figure (II). However, the effect size is not statistically significant for the pleasure group therefore, we cannot reject the null of no difference in marketing strategies. We control for the fact that some sellers could have time invariant characteristics, like communication skills, selling skill, experience, social networking that could affect the growth in sales by employing individual seller fixed effects. These results are unchanged with the inclusion of characteristics of buyers and sellers that were systematically different across treatment and control. Standard errors are not clustered at branch level because we will be showing more accurate estimates of standard errors and p-values using WCR, RI-*t* and WBRI. A few insights can be inferred explaining the results. First, there exists huge differences in sales per seller at the time of intervention across treatment arms as shown in Figure (I). That could be majorly driving the negative trend on an average. Second, the take-up of contraceptives from a NGO community based distributor is very low as inferred from youth surveys this could possibly explain the consistent negative trend regardless of marketing strategy. However, we wish to understand which marketing strategy leads to higher growth of sales per seller over time. The huge differences that exist at baseline could bias our results under classic OLS assumptions. In addition, it is possible for sellers to take time to adapt the selling style and imbibe the marketing strategy to put in full effect. The effect of learning the marketing strategy could take some time to manifest itself in terms of sales for every seller. This is consistent with literature on marketing and its relationship with sales following a non-linear relationship (Stone, 1954), (Nakanishi and Cooper, 1974). This motivated us to conduct a more detailed analysis of growth in sales for every seller per month. We therefore, relax the assumption of a linear relationship between treatment and sales growth and employ a difference in differences (DD) approach to track the change in sales per seller per month as explained below.

## **6.2 Pleasure or Fear?**

To study the change in sales growth over time across treatment and control, we use specification [\(9\)](#). This difference in differences estimation requires the interaction of each of the month dummy variables with the dummy variable for treatment. Therefore, we look at the marginal impact of a seller in treatment in each month to control group at baseline period in Table III. We assume that had there been no marketing intervention, the trend in sales would have remained unchanged. The main coefficient of interest in this estimation is the interaction term of treatment and month. From the previous analysis we find that pleasure and fear group both have a negative impact on growth in sales. However, from the difference in differences estimation we actually find that as time passes we can see the learning effect of pleasure group in growth in sales. The significant and negative coefficient on pleasure group in table III tells us that sales in the pleasure group are much lower than control at baseline period i.e. month of May and June. But, over the months, we see that marginal impact on sales growth per seller in the pleasure



treatment starts getting positive relative to control group at baseline. We find this positive trend consistent and statistically significant through all the months of intervention relative to control. While the opposite seems to be happening for the fear group. Fear seems to be doing worse off than control once we look at monthly trend. The negative trend that we found in the basic OLS seems to persist and at the same time lose significance. In contrast, the pleasure marketing keeps performing better, having a marginal increase of 85% in September negating the overall impact of pleasure marketing in September to a positive and statistically significant one. This directs to the inference that a positive appeal might be more attractive amongst Ugandan youth relative to a simple informative one. Due to the massive efforts to reduce HIV rates in the past, it could be the case that fear appeal does not necessarily add value in the consumer's mindset anymore in terms of new information. Thinking about a healthy and pleasurable lifestyle seems to gather the attention of the buyers more. This is consistent with the finding of Marchand & Filliatraut, (2001), who emphasize the idea that in order to make a consumer buy something, it is necessary to generate a positive attitude towards it. This also points out the impact of effective learning over time. It is to be noted here that the month dummy coefficients are still negative i.e. the baseline months were specifically higher in sales for the control group. The months of baseline – May and June were months when the schools and colleges were closed due to summer vacation. This could have led to higher enthusiasm and effort at baseline explaining these huge differences in sales across treatment and control group. It is also noteworthy that our primary concern is consistency in the trend of marketing. In order to remove randomness from our analysis in terms of sales just being particularly good for a certain month, we focus more on the underlying month-to-month trend that can really capture growth of sellers in treatment groups through every month. This motivates the use of Difference-in Difference approach as more appropriate. These results show impact of marketing on sales requires time for it to take form into effective practice by sellers and then develop. We can reject the null hypothesis for the pleasure group to be different from zero as it is statistically significant and positive for all months' post intervention.

### **6.3 Does gender of the seller mediate this impact?**

The above analysis gives us strong evidence that pleasure marketing is a more appealing way of selling condoms as compared to fear marketing. In addition to marketing strategies' impact, as a heterogeneous treatment effect, we wish to see whether gender of the seller has any influencing role in accentuating the impact of the marketing strategy. This question roots from the existing literature on role of gender in social marketing. Since the previous model demonstrated the month-by-month impact of marketing strategies relative to control, we will use a triple difference in differences (DDD) to look at the differential impact of a female seller in treatment relative to male seller in control at baseline as shown in Table IV. We use equation (3) to estimate the model. We find that, on average, being a male seller in pleasure treatment increases sales growth relative to being a female seller in control at baseline. Even

though the coefficient on the triple interaction of gender of seller, month and treatment is positive for the first month of the treatment, it turns negative 83% for the next month and is consistent and significant for the remaining two months of the intervention. The opposite trend can be seen in the fear group. Being a female seller in the fear group actually increases sales relative to a male seller in the control group. However, the point estimate for the interaction of *Fear X Female X August* is too high, despite being statistically significant which could point to a lot of noise being captured by possible omitted unobservables. Therefore, this effect seems too optimistic. But the positive trend in the coefficient is consistent. This could be because females could feel shy and uncomfortable in discussing and talking about condoms in pleasurable manner, especially when the condoms being sold are male condoms. The differences for male sellers performing better than female sellers in the pleasure group is statistically significant and consistent even with the addition of controls at the one percent level. When marketing is based on fear and risk of HIV and unwanted pregnancy, female sellers plausibly have an impact in increasing the growth of sales relative to male sellers. In contrast, when marketing is based on pleasure seeking approach, male sellers drive the growth relative to female. This really indicates the need to structure the right mix of tools to target social marketing public health intervention.

#### **6.4 End-line**

After the completion of the study, one of the parameters of interest was the reach of the Peer Educator within the community. Though the period of the study was short to establish close connection, it was sufficient to for them to establish their presence. We tracked the same individuals from the youth survey and conducted an end-line survey on awareness about PE and perceptions about condom usage. The main findings of the survey are in table (V). It is to be remembered here that these people were randomly found at the youth spots before the intervention and were tracked post intervention. They are not the sample of buyers. We however find that 5% of the individuals from the end-line survey actually bought a condom from a PE. This We find that over the span of four months, 38% of the individuals surveyed at the beginning had heard of a BRAC PE. This is interesting because these are survey respondents from the initial youth survey who just happened to also buy condoms from a PE. The area of the survey and PE's diameter of selling was around the operational boundary of each of the branches. We also find that 23% of the respondents feel they can talk to a friend about buying condoms from a PE. This is important because it is a channel of future expansion. If PE's have a considerable mark in the local community, they can be even stronger agents of age, bridging the gap of access and availability of preventative health goods. 11% of respondents have at least one other friend who knows a BRAC PE. This is interesting because as we see from table I, across all treatment arms, half of the sales transactions are made to friends. This highlights the potential of using informal social networks as a channel to promote condoms. In terms of any visible impact of marketing strategies, respondents were asked whether

their perception was affected after conversing with a PE. 16% of the respondents feel that condoms ensure a pleasurable lifestyle after talking with a PE. These estimates could be optimistic because of many unobservables in terms of knowledge and awareness about condoms and other advertisements for every individual.

## 6.5 Inference with few clusters

Addressing the issue of too few clusters, in table (VI) we present the WCR, RI- $\beta$ , RI- $t$  and WBRI p-value estimates to establish the closest area of rejection of null with p-values. This study has two clusters per treatment being compared to three clusters in control group. First, we look at the cluster robust specification. The CR- $t$  stat suggests that fear marketing has had a significant negative impact on growth. However, because we have very few clusters, all the cluster robust variance estimators are too large. Therefore, they can severely over-reject the null of no effect. In contrast, the regular Wild cluster bootstrap and Wild-Cluster bootstrap with 6-point distribution under-reject the null, and are a lot more conservative than the cluster robust variance estimators. With Randomization Inference, intervals for p-values are very wide since control clusters are three. However, based on MacKinnon (2014), the use of Wild-Cluster Bootstrap 6 point enumeration and Wild Bootstrap Randomization Inference is more appropriate in order to generate sufficient repetitions of  $t^*$ . The Wild-Cluster 6pt yields conservative but still significant rejection of null. In order to get the closest approximation Mackinnon and Webb (2014) suggest nesting the 6 point weighted distribution into the wild bootstrap randomization inference. This is shown in column (6) of table VI. We see that even the WBRI and WCR-6pt by themselves were too optimistic and in fact for the pleasure treatment, the  $p^*$  under WBRI-6pt almost doubles. It is to be kept in mind having heterogeneous clusters still makes the above measures unreliable. But given the small number of clusters, a combination of Wild-cluster 6-point enumeration and Wild Bootstrap Randomization Inference could provide closest approximation of results.

## 7. Conclusion and Way Forward

This behavioral public health intervention was setup to test consumer buying behavior when posed with two different styles of selling – Fear versus Pleasure. This would show consumer purchasing behavior under distinguished appeals. This also highlights the relevance of deep rooted success by promoting abstinence and fear appeal in Uganda at the time of the epidemic in the present time of habitual condom use (75-83%, UDHS 2011) because of accessibility and availability. Using a difference-in-differences analysis we have a suggestive indication that pleasure marketing positively increases over time. This method of estimation allows us to see the variation of treatment impact over every month. Though on average neither of the marketing strategies have an increasing marginal effect on growth of

sales overall, once broken down by month, it is easy to see that pleasure marketing begins to have a positive marginal growth rate, though the effect is not statistically significant. This can point to theories in marketing which emphasize the role of developing a positive attitude towards a product to attract consumers to buy it. It also points to the fact that owing to the efforts of the government, people seem to be aware of the risk associated with unprotected or risky sex. However, with enhanced social networks in the society and more modern approach, as people actively and increasingly use condoms, maybe consumers are more attracted towards thinking about a healthy and pleasurable lifestyle when thinking about buying condoms. This, in a way modifies the Ugandan ABC approach and fits it in a more relevant setup. We see the effect of learning when sellers fully understand adapt to a style of selling using the difference in differences approach. In order to get a statistically robust result, this study requires a bigger framework with more number of balanced clusters.

In addition, we also find that women have a higher positive marginal impact on growth of sales using fear marketing. In contrast, males perform better when selling using pleasure marketing. There does not exist significant correlation between sex of seller and buyer therefore, it is possible women just feel more comfortable talking about risk of not using condoms but men can add more value discussing the aspect of pleasure in lifestyle and condoms. These findings suggest that capturing triggers to consumer behavior are key when planning or revising public health interventions for policy makers and development practitioners in order to ensure sustained impact of large scale public health programs. With a good idea of consumer orientation, nature of social networks and contextual setup social marketing can prove to be a very attractive tool in promoting uptake of preventative health goods and health behavior.

## References:

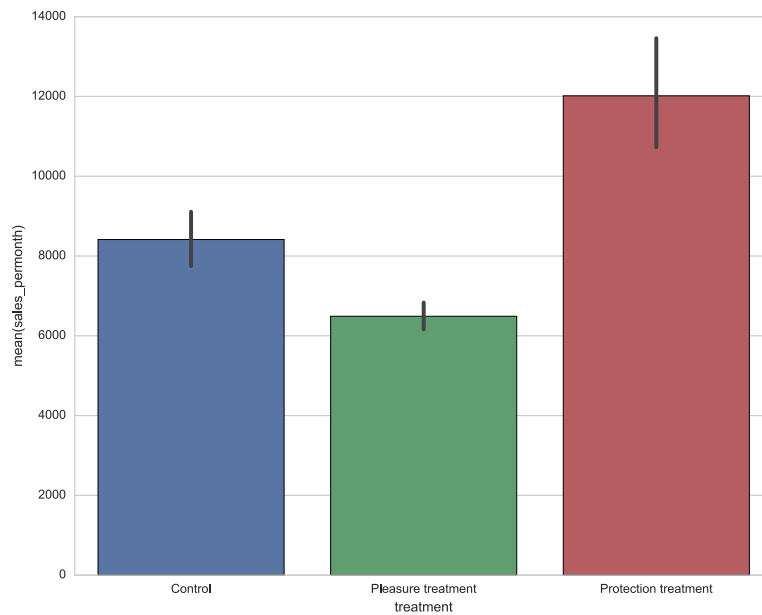
1. Agha, S. (2001). The impact of the Kenya social marketing program on personal risk perception perceived self-efficacy and on other behavioral predictors.
2. Agha, S. (2003). The impact of a mass media campaign on personal risk perception, perceived self-efficacy and on other behavioural predictors. *AIDS care*, 15(6), 749-762.
3. Angrist, Joshua D., and Jörn-Steffen Pischke. Mostly harmless econometrics: An empiricist's companion. Princeton university press, 2008.
4. Banerjee, Abhijit, Sharon Barnhardt, and Esther Duflo. Movies, Margins and Marketing: Encouraging the Adoption of Iron-Fortified Salt. No. w21616. National Bureau of Economic Research, 2015.
5. Bulled, N. L. (2015). Social models of HIV risk among young adults in Lesotho. *African Journal of AIDS Research*, 14(3), 239-254.
6. Conley, T. G., & Taber, C. R. (2011). Inference with "difference in differences" with a small number of policy changes. *The Review of Economics and Statistics*, 93(1), 113-125.
7. Cunningham, Marc, et al. "Estimating Contraceptive Prevalence Using Logistics Data for Short-Acting Methods: Analysis Across 30 Countries." *Global Health: Science and Practice* 3.3 (2015): 462-481.
8. Demographic, U. (2015). health survey (UDHS) 2011. Uganda Bureau of Statistics Kampala, Uganda.
9. Faria, N. R., Rambaut, A., Suchard, M. A., Baele, G., Bedford, T., Ward, M. J., ... & Posada, D. (2014). The early spread and epidemic ignition of HIV-1 in human populations. *Science*, 346(6205), 56-61.
10. Fenton, L. (2004). Preventing HIV/AIDS through poverty reduction: the only sustainable solution?. *The Lancet*, 364(9440), 1186.
11. Galiani, S., Gertler, P. J., & Orsola-Vidal, A. (2012). Promoting handwashing behavior in Peru: The effect of large-scale mass-media and community level interventions.
12. Green, E. C., Halperin, D. T., Nantulya, V., & Hogle, J. A. (2006). Uganda's HIV prevention success: the role of sexual behavior change and the national response. *AIDS and Behavior*, 10(4), 335-346.
13. Green, E. C., Halperin, D. T., Nantulya, V., & Hogle, J. A. (2006). Uganda's HIV prevention success: the role of sexual behavior change and the national response. *AIDS and Behavior*, 10(4), 335-346.
14. Grier, Sonya, and Carol A. Bryant. "Social marketing in public health." *Annu. Rev. Public Health* 26 (2005): 319-339.
15. Halperin, D. T., Steiner, M. J., Cassell, M. M., Green, E. C., Hearst, N., Kirby, D., ... & Cates, W. (2004). The time has come for common ground on preventing sexual transmission of HIV. *The Lancet*, 364(9449), 1913-1915.
16. Hearst, N., & Chen, S. (2004). Condom promotion for AIDS prevention in the developing world: is it working?. *Studies in family planning*, 35(1), 39-47.
17. Kahneman, Daniel, and Amos Tversky. "Prospect theory: An analysis of decision under risk." *Econometrica: Journal of the econometric society* (1979): 263-291.

18. Kaleeba, N., Kalibala, S., Kaseje, M., Ssebhanja, P., Anderson, S., Praag, E. V., ... & Katabira, E. (1997). Participatory evaluation of counselling, medical and social services of The AIDS Support Organization (TASO) in Uganda. *AIDS care*, 9(1), 13-26.
19. Kühberger, Anton, Michael Schulte-Mecklenbeck, and Josef Perner. "The effects of framing, reflection, probability, and payoff on risk preference in choice tasks." *Organizational behavior and human decision processes* 78.3 (1999): 204-231.
20. Laibson, David. "Golden eggs and hyperbolic discounting." *The Quarterly Journal of Economics* (1997): 443-477.
21. Lau, Corey, and Adamson S. Muula. "HIV/AIDS in sub-Saharan Africa." (2004): 402-414.
22. MacKinnon, J. (2015). Wild cluster bootstrap confidence intervals. *L'Actualité économique*, 91(1-2), 11-33.
23. MacKinnon, J. G., & Webb, M. D. (2016). Wild bootstrap inference for wildly different cluster sizes. *Journal of Applied Econometrics*.
24. Marchand, J., & Filiatrault, P. (2002). AIDS prevention advertising: Different message strategies for different communication objectives. *International Journal of Nonprofit and Voluntary Sector Marketing*, 7(3), 271-287.
25. Mongeau, P. A. (1998). Another look at fear-arousing persuasive appeals. *Persuasion: Advances through meta-analysis*, 53-68.
26. Ngatia, M. (2011). Social interactions and individual reproductive decisions. *Unpublished Working Paper*, 2.
27. Oster, E. (2012). HIV and sexual behavior change: Why not Africa?. *Journal of Health Economics*, 31(1), 35-49.
28. Philpott, A., Knerr, W., & Boydell, V. (2006). Pleasure and prevention: when good sex is safer sex. *Reproductive health matters*, 14(28), 23-31.
29. Philpott, A., Knerr, W., & Maher, D. (2006). Promoting protection and pleasure: amplifying the effectiveness of barriers against sexually transmitted infections and pregnancy. *The Lancet*, 368(9551), 2028-2031.
30. Plautz, A., & Meekers, D. (2007). Evaluation of the reach and impact of the 100% Jeune youth social marketing program in Cameroon: findings from three cross-sectional surveys. *Reproductive health*, 4(1), 1.
31. Ray, M. L., & Wilkie, W. L. (1970). Fear: The potential of an appeal neglected by marketing. *The Journal of Marketing*, 54-62.
32. Singh, S., Darroch, J. E., & Bankole, A. (2004). A, B and C in Uganda: the roles of abstinence, monogamy and condom use in HIV decline. *Reproductive Health Matters*, 12(23), 129-135.
33. Steiner, M. J., Hylton-Kong, T., Figueroa, J. P., Hobbs, M. M., Behets, F., Smikle, M., ... & Brathwaite, A. (2006). Does a choice of condoms impact sexually transmitted infection incidence? A randomized, controlled trial. *Sexually transmitted diseases*, 33(1), 31-35.

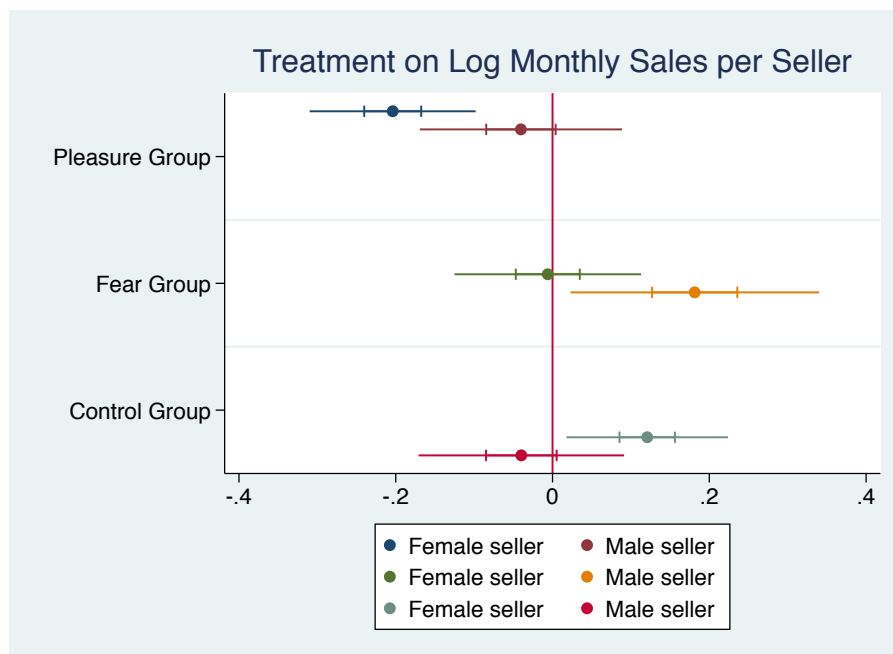
34. Stone, R. (1954). Linear expenditure systems and demand analysis: an application to the pattern of British demand. *The Economic Journal*, 64(255), 511-527.
35. Sweat, Michael D et al. "Effects of Condom Social Marketing on Condom Use in Developing Countries: A Systematic Review and Meta-Analysis, 1990–2010." *Bulletin of the World Health Organization* 90.8 (2012): 613–622A. PMC. Web. 4 Dec. 2016
36. UNAIDS, Global AIDS. "Update. ht tp." (2016).
37. UNAIDS, J. (2010). Global report: UNAIDS report on the global AIDS epidemic 2010. *Geneva: UNAIDS*.
38. UNAIDS, J. (2010). Global report: UNAIDS report on the global AIDS epidemic 2010. *Geneva: UNAIDS*.
39. Youde, J. R. (2007). Ideology's Role in AIDS Policies in South Africa and Uganda'. *Global Health Governance*, 1(1).

## Figures and Tables:

**Figure 1. Average Sales per Seller by Treatment**

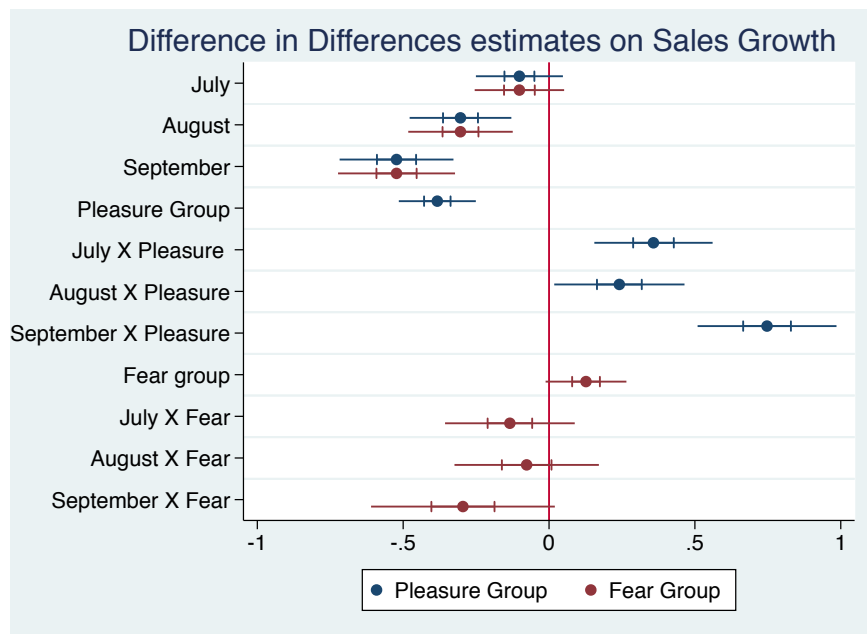


**Figure 2. Marketing Strategies on Sales Growth (OLS estimates)**





**Figure 3. Marketing Strategies on Sales Growth (DD estimates)**



**Tables:**

**Table I: Summary Statistics of Buyers**

Variable	Control	Treatment		P-value
		Pleasure treatment	Protection treatment	
Brand (T/O)	0.445 (0.031)	0.433 (0.025)	0.528 (0.032)	0.049
Female Seller	0.574 (0.030)	0.458 (0.025)	0.520 (0.032)	0.013
Female Buyer	0.313 (0.029)	0.304 (0.023)	0.206 (0.026)	0.009
Friend	0.540 (0.031)	0.595 (0.025)	0.607 (0.031)	0.237
Acquaintance	0.060 (0.015)	0.109 (0.016)	0.143 (0.022)	0.008
Family	0.106 (0.019)	0.106 (0.016)	0.147 (0.022)	0.232
Partner	0.094 (0.018)	0.033 (0.009)	0.024 (0.010)	0.000
Age of Buyer	23.200 (0.300)	21.513 (0.168)	25.599 (1.480)	0.000
Returning customer	0.415 (0.030)	0.426 (0.025)	0.234 (0.027)	0.000
N	265	395	252	

Notes:

1. Standard errors in Parentheses

**Table II: Effect of Marketing on Sales Growth (OLS Estimates)**

	Log Monthly Sales per Seller			
	(1)	(2)	(3)	(4)
Fear Group	-0.304*** (0.101)		-0.242** (0.103)	
Pleasure Group		-0.0694 (0.0829)		-0.0328 (0.0877)
Female Seller			0.334*** (0.0973)	0.0382 (0.0749)
Female Buyer			0.00501 (0.0613)	0.0229 (0.0507)
Returning Customer			0.116* (0.0678)	0.00759 (0.0515)
Age of buyer			0.00186 (0.00145)	-0.00994 (0.00614)
Brand (T/O)			0.130** (0.0581)	-0.0101 (0.0496)
Acquaintance			0.0920 (0.0898)	0.0715 (0.0831)
Family			0.0717 (0.0902)	0.0901 (0.0785)
Partner			0.0546 (0.116)	0.000112 (0.106)
Stranger			0.129 (0.0923)	0.145** (0.0718)
Self			-0.288 (0.317)	0.0996 (0.240)
Constant	8.830*** (0.0529)	8.745*** (0.0562)	8.387*** (0.102)	8.886*** (0.168)
Controls	N	N	Y	Y
Individual Seller Fixed Effects	Y	Y	Y	Y
N	297	429	297	422
R-squared	0.421	0.295	0.482	0.302

Notes:

1.The model being represented here is:  $y_{it} = \beta_0 + \beta_1Pleasure_i + \beta_2Fear_i + X'\beta_3 + \epsilon_{it}$

2.Standard errors in parentheses

3.\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

4.All amounts in outcome are in Ugandan Shillings (UGX)

5.Model 1 and 2 are without controls; 3 and 4 are with

**Table III: Impact of Marketing Strategies on Sales Growth (DD Estimates)**

	Log Monthly Sales per Seller			
	(1)	(2)	(3)	(4)
July X Pleasure	0.375*** (0.0955)		0.385*** (0.0969)	
August X Pleasure	0.271** (0.106)		0.233** (0.106)	
September X Pleasure	0.851*** (0.117)		0.876*** (0.117)	
July X Fear		0.0457 (0.102)		-0.0569 (0.108)
August X Fear		-0.0535 (0.115)		-0.127 (0.119)
September X Fear		-0.266* (0.149)		-0.348** (0.157)
Pleasure Group	-0.502*** (0.0835)		-0.467*** (0.0833)	
Fear Group		-0.0488 (0.0917)		0.0577 (0.104)
July	-0.147** (0.0702)	-0.176** (0.0700)	-0.155** (0.0711)	-0.151** (0.0718)
August	-0.255*** (0.0828)	-0.253*** (0.0824)	-0.227*** (0.0831)	-0.244*** (0.0837)
September	-0.483*** (0.0934)	-0.475*** (0.0917)	-0.476*** (0.0932)	-0.468*** (0.0923)
Female Seller			0.109* (0.0578)	0.150** (0.0659)
Constant	8.991*** (0.0562)	9.011*** (0.0573)	8.926*** (0.129)	8.817*** (0.0838)
Controls	N	N	Y	Y
Individual FE	Y	Y	Y	Y
Observations	660	517	656	517
R-squared	0.307	0.407	0.328	0.422

Notes:

1. This table represents model:  $y_{it} = \beta_0 + \beta_1 Pleasure_i + \beta_2 Fear_i + \beta_3 \sum_{t=3}^5 month_t + \beta_4 (Pleasure_i * \sum_{t=3}^5 month_t) +$

$\beta_5 (Fear_i * \sum_{t=3}^5 month_t) + X' \beta_6 + \epsilon_{it}$

2. Standard errors in parentheses

3. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

4. All amounts in outcome are in Ugandan Shillings (UGX)

5. Model 1 and 2 without controls, 3 and 4 with controls.

**Table IV: Heterogeneous Treatment Effects (Triple DDD Estimates)**

	Log Monthly Sales per Seller			
	(1)	(2)	(3)	(4)
Female X Pleasure X August	0.104 (0.209)		0.161 (0.210)	
Female X Pleasure X September	-0.836*** (0.227)		-0.893*** (0.229)	
Female X Pleasure X July	-0.626*** (0.189)		-0.588*** (0.190)	
Female X Fear X August		1.327*** (0.225)		1.327*** (0.227)
Female X Fear X September		0.226 (0.355)		0.257 (0.363)
Female X Fear X July		0.506** (0.203)		0.568*** (0.209)
Female X Pleasure	0.526*** (0.148)		0.483*** (0.149)	
Female X Fear		-0.185 (0.148)		-0.230 (0.154)
Pleasure Group	-0.824*** (0.129)		-0.752*** (0.130)	
Fear Group		0.115 (0.124)		0.130 (0.127)
Female Seller	-0.110 (0.113)	-0.00529 (0.109)	-0.114 (0.114)	0.0108 (0.112)
July X Pleasure	0.698*** (0.135)		0.665*** (0.137)	
August X Pleasure	0.211 (0.158)		0.148 (0.159)	
September X Pleasure	1.279*** (0.166)		1.372*** (0.169)	
July X Fear		-0.297* (0.154)		-0.342** (0.159)
August X Fear		-0.909*** (0.175)		-0.902*** (0.177)
September X Fear		-0.512* (0.305)		-0.497 (0.309)
July	-0.246**	-0.275***	-0.239**	-0.239**

	(0.105)	(0.0993)	(0.108)	(0.105)
August	-0.157	-0.142	-0.124	-0.132
	(0.130)	(0.125)	(0.130)	(0.127)
September	-0.724***	-0.743***	-0.711***	-0.731***
	(0.138)	(0.131)	(0.138)	(0.133)
Female Seller X July	0.162	0.208	0.148	0.180
	(0.140)	(0.133)	(0.142)	(0.137)
Female Seller X August	-0.156	-0.176	-0.160	-0.176
	(0.166)	(0.159)	(0.168)	(0.162)
Female Seller X September	0.460**	0.486***	0.432**	0.474***
	(0.187)	(0.176)	(0.188)	(0.181)
Constant	9.081***	8.959***	9.089***	8.871***
	(0.0910)	(0.0903)	(0.141)	(0.100)
Controls	N	N	Y	Y
Individual Seller FE	Y	Y	Y	Y
Observations	660	517	652	517
R-squared	0.348	0.490	0.363	0.497

Notes:

1. This table presents the following model:  $y_{it} = \beta_0 + \beta_1(Pleasure_i * FemalePE_i * \sum_{t=3}^5 month_t) + \beta_2(Fear_i * FemalePE_i * \sum_{t=3}^5 month_t) + \beta_3(Pleasure_i * FemalePE_i) + \beta_4(Fear_i * FemalePE_i) + \beta_5(Pleasure_i * \sum_{t=3}^5 month_t) + \beta_6(Fear_i * \sum_{t=3}^5 month_t) + \beta_7(FemalePE_i * \sum_{t=3}^5 month_t) + X'\beta_8 + \epsilon_{it}$

2. Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

3. All amounts in the outcome are measured in Ugandan Shillings (UGX).

4. Model 1 and 2 are without controls; Model 3 and 4 with controls

**Table V: Summary Statistics on End-line survey**

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Relevant Parameters of Peer Educator in community	
Aware of presence of BRAC PE	0.38 (0.487)
Purchased condoms from BRAC PE	0.05 (0.230)
After talking to PE, feel that condoms add pleasure to lifestyle	0.16 (0.371)
After talking to PE, feel that condoms prevent risk of HIV and unwanted pregnancy	0.28 (0.450)
Can easily talk to friends about PE (recommend PE)	0.23 (0.424)
At-least one other friend knows a BRAC PE	0.11 (0.32)
Can refuse sex if man does not use condom	0.25 (0.433)
Can refuse sex if woman does not use condom	0.4 (0.491)
Favorite Condom Trust	0.12 (0.33)
Favorite condom O	0.069 (0.25)
Use Free Condoms	0.33 (0.41)
N	2,417

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**Notes:** 1. Standard deviation in parentheses;

2.Survey responses were taken in November 2016, after the study was complete;

3.Locations and respondents same as baseline

**Table VI: Effect of Marketing Strategies on Sales Growth**

		(1)	(2)	(3)	(4)	(5)	(6)
	Coeff.	OLS p*	Robust p*	CRSE p*	WCR-6 pt p*	WBRI p*	WBRI 6-pt p*
Pleasure	-0.383	0.000	0.000	0.01	0.01	0.07	0.16
Jul X Pleasure	0.358	0.0005	0.000	0.11	0.02	0.78	0.82
August X Pleasure	0.241	0.033	0.023	0.18	0.03	0.69	0.74
September X Pleasure	0.747	0.000	0.000	0.15	0.69	0.82	0.82
Fear	0.127	0.07	0.05	0.53	0.04	0.27	0.32
Fear X July	-0.134	0.235	0.238	0.50	0.04	0.16	0.18
Fear X August	0.0767	0.54	0.52	0.65	0.044	0.17	0.23
Fear X September	-0.295	0.065	0.14	0.48	0.05	0.16	0.18