

The Impact of Social Marketing on Improving Condom Supply and Demand in Zimbabwe

Summary of findings



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ABBREVIATIONS

| | |
|-------|---|
| ATP | Ability to Pay |
| CSM | Condom Social Marketing |
| MoH | Ministry of Health |
| PP | Protector Plus |
| PSI | Population Services International |
| WTP | Willingness to Pay |
| ZNFPC | Zimbabwe National Family Planning Council |
| ZDHS | Zimbabwe Demographic and Health Survey |

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EXECUTIVE SUMMARY

| KEY FINDINGS | KEY TAKEAWAYS |
|---|--|
| <p>A data-driven price increase for Protector Plus (PP) in concert with more efficient distribution strategies led to 95% cost recovery.¹</p> | <p>→ Cost recovery on social marketed condoms is possible. Consumer willingness to pay (WTP), the appropriate price point, and the tradeoffs a price increase presents for consumers and the trade must be considered.²</p> |
| <p><i>Read more about the price increase and cost recovery results.</i></p> | |
| <p>Intensive demand generation activities in experimental districts led to more emotional attachment to the PP brand and better perceptions of condom efficacy.</p> | <p>→ It is essential that market actors use multiple methods to increase demand. When cost recovery is high, donor investments should shift to market facilitation and generating market-wide demand for condoms.</p> |
| <p><i>Read more about demand generation activities and consumer survey results.</i></p> | |
| <p>Preference for PP shifted to higher wealth quintiles after the price increase and repositioning.</p> | <p>→ Careful audience segmentation for public, social marketed, and commercial condoms is critical for healthy markets. Consumers assigned higher value to PP after the price increase and targeted marketing. Appropriate segmentation minimizes crowding out and maximizes market efficiency by ensuring free and subsidized condoms are benefitting consumers with no or less ability to pay (ATP).</p> |
| <p><i>Read more about PP preferences by quintile and market segmentation.</i></p> | |
| <p>Interventions for creating improved relationships with traders were unnecessary: ensuring acceptable profit margins is what matters most to the trade.</p> | <p>→ Setting condom prices according to consumer WTP stabilizes the market, builds trader confidence, and removes the need to over invest in trade relations to maintain volumes. When traders are happy with their margins, they will stock and sell the product.</p> |
| <p><i>Read more about the trader survey results and trade profit margins.</i></p> | |
| <p>Inconsistent public sector data made it impossible to assess the impact of activities for improving public sector condom distribution.</p> | <p>→ There is an urgent need to invest in improved market analytics, including the quality and consistency of public sector distribution data down to the district level to track subsidy and the targeting of free condoms.</p> |
| <p><i>Read more about issues with public sector data and lessons learned.</i></p> | |
| <p>Work with the public sector can be slow: it requires support on market stewardship and time for buy-in.</p> | <p>→ The principles of good social marketing can be applied to the public sector, but it takes time to gain buy-in, facilitate change, and shift focus from distribution figures to more meaningful analytics like condom use, equity, and source of supply.</p> |
| <p><i>Read more about activities with the public sector and lessons learned.</i></p> | |

¹ Cost recovery is the proportion of in-country direct operating costs (salaries, sales incentives, travel/transport, per diems, packaging, warehouse and a fair share of common direct costs) recovered. It does not include capital investment (e.g. vehicle purchase) or salaries for international management time (which are minimal).

² TRS, Pricing Research Report for HIV Products and Services, 2015

INTRODUCTION

Condom social marketing (CSM) has played an important role in HIV prevention since the 1980s.³ Like most social marketing programs, CSM's goal is to put lifesaving products into the hands of the people who need them. It uses marketing concepts, such as consumer insight gathered through research, product design, appropriate pricing, sales and distribution, and communications, to increase condom use and decrease the spread of HIV.

CSM programs account for more than two billion condoms sold each year and 265 million distributed free of charge. There were active CSM programs in 62 countries around the globe in 2016.⁴ CSM uses a disciplined approach for increasing supply and demand per the eight recognized benchmarks for social marketing programs. They must: 1) target a behavior; 2) be consumer oriented; 3) be based on theory; 4) be driven by consumer insight; 5) involve an exchange; 6) recognize the competition; 7) include audience segmentation; and 8) benefit from a mix of approaches. Programs that adhere to these benchmarks have been demonstrated to be more effective than more narrowly focused efforts.⁵

CSM has been documented in the literature as an effective means for increasing condom use.⁶ A systematic review found 37 studies that showed a positive association between social marketing and improvements in condom use. They demonstrated that CSM resulted in statistically significant improvements in HIV knowledge and other precursors to behavioral change, and statistically significant increases in the use of condoms, including use of condoms during last sex with regular and casual partners, consistent use of condoms with regular and casual partners, and condom use during high-risk sex sexual encounters.⁷

In recent years, stakeholders have questioned the financial sustainability of CSM and are asking whether programs are as efficient as they can be. At the same time, social marketing has become increasingly sophisticated and social marketers employ a more comprehensive total market approach (TMA) to help leverage an entire market (public and private) to meet consumers' health needs. Applying a TMA means understanding the dynamics of supply and demand so that all sectors can work together to deliver health choices for all population segments. Stakeholders believe that greater efficiency in the market is more likely to increase sustainability by better targeting public and social sector subsidies and decreasing "crowding out" of the commercial sector.

Zimbabwe has historically been one of the strongest condom programs in the southern Africa region and is one of only five countries to meet or exceed UNFPA's regional benchmark of 30 male condoms/man/year.^{8,9,10} Significant investments have been made in the public sector and social marketing. Population Services International (PSI) has one of its largest CSM programs in Zimbabwe, which has been operating since 1996.

Zimbabwe is an example of a strong condom program that is currently at risk due to economic challenges and decreasing funding levels. It faces an uncertain future in terms of condom funding levels,

³ Sweat et al., 2012

⁴ DKT International, 2017 (Contraceptive Social Marketing Statistics 1991-2016)

⁵ The National Social Marketing Centre, 2010B

⁶ Sweat et al., 2012; Noar et al., 2009

⁷ Firestone et al., 2016

⁸ Zimbabwe Ministry of Health (2016) "GARPR Zimbabwe Country Progress Report 2016"

⁹ UNAIDS (2016) Prevention Gap Report

¹⁰ Mann Global Health, Zimbabwe Case Study, 2017

as well as potential condom insecurity. Donors are focusing on the need to create a more self-sustaining condom market, specifically one that has a lower cost-of-entry for a broader range of commercial sector players.

A more sustainable condom market in Zimbabwe would include social marketed condoms operating at cost recovery, while still maintaining sales volumes. It would also require better targeting of free condoms to groups most in need, as well as room for the commercial sector to enter the market. This means that market actors, like PSI and the government, must navigate the tension between cost recovery while still increasing demand for condoms and ensuring that the appropriate “safety nets” are in place for the poorest populations. Market actors must understand the potential for and contribution of each sector in closing the gap in condom use by socioeconomic quintile.

In this report, we present:

- Results from an experimental study that measured the impact of CSM on increasing overall supply and demand for condoms
- Evidence that USAID can use to inform further investments in CSM
- Evidence on designing CSM programs to increase sustainability

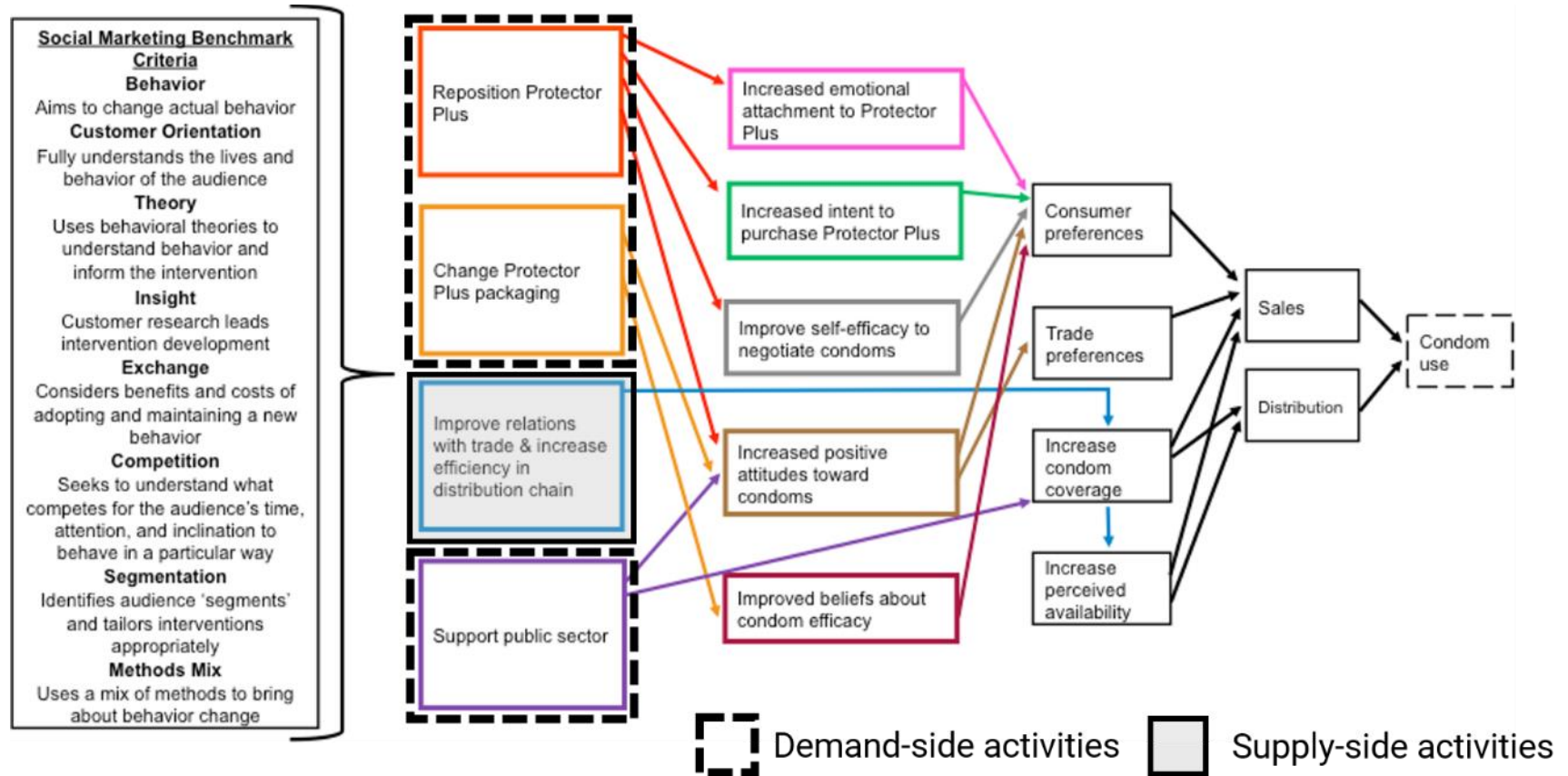
THEORY OF CHANGE

The “Social Marketing Benchmark Criteria” underlined all activities undertaken in this study. We hypothesised that adding an intensive social marketing intervention to a nationwide campaign that repositioned the social marketing brand, Protector Plus (PP) would increase demand and sales for PP. The intensive intervention included enhanced product visibility, community-based promotions, and improved trader relations. We also hypothesized that an increase in demand and sales would happen despite a significant increase in price aimed at improving the cost recovery for PP.

For the public sector, we hypothesised that supporting positioning for Panther, the free public sector condom, would improve attitudes toward condoms, increase public sector condom distribution, improve perceived availability of public sector condoms among consumers, and increase coverage for public sector condoms. As a result, free condoms would benefit from increased demand. In addition, increased positive marketing of PP would create a halo effect not only for free Panther but also for commercial brands, helping “all boats to rise.”

To the best of our knowledge, this is the first experimental study conducted within a larger TMA context. Most TMA studies have used a retrospective approach to learn about markets and the performance of each sector over time. This study tests the impact of an intensive CSM intervention and support to the public sector on overall market supply and demand. It does so within the context of a price increase, a rapidly deteriorating economic and political environment, and the pressure to reach sustainability.

FIGURE 1: THE STUDY'S THEORY OF CHANGE HYPOTHESIZED HOW INVESTMENTS IN CSM AND SUPPORT TO THE PUBLIC SECTOR COULD INCREASE OVERALL SUPPLY AND DEMAND FOR CONDOMS



BACKGROUND: THE CONDOM MARKET IN ZIMBABWE

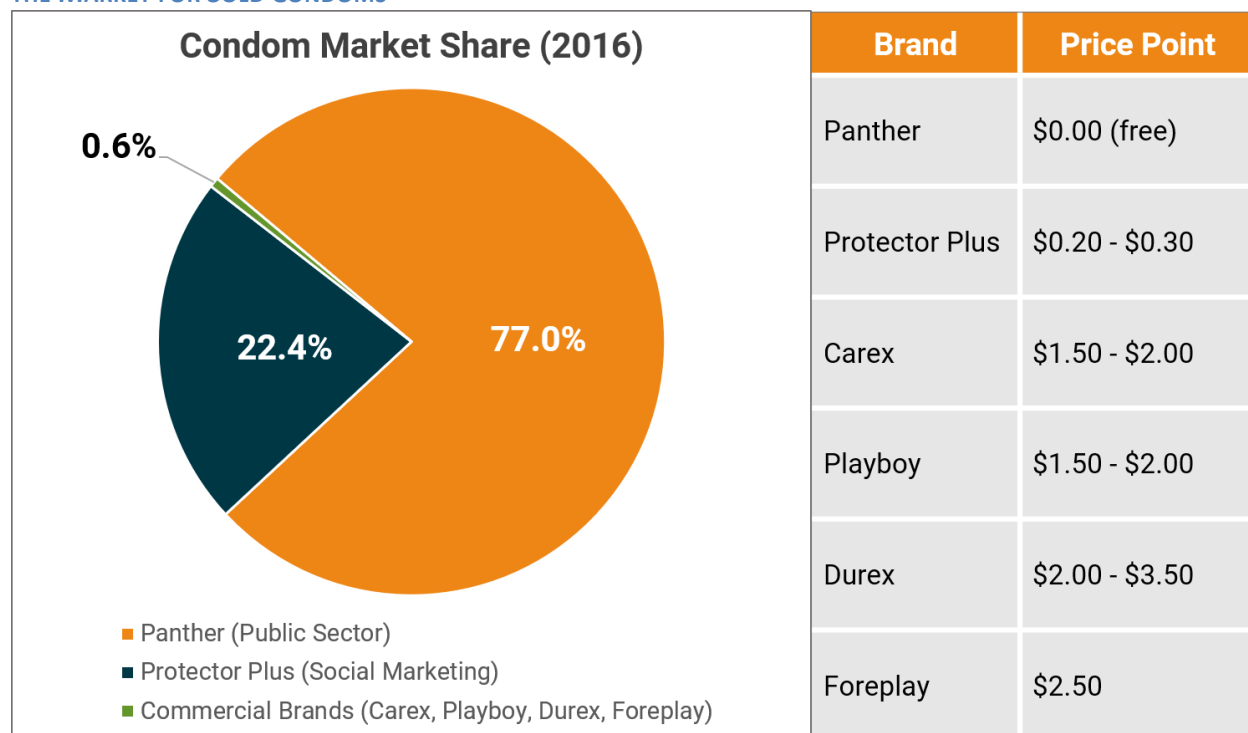
In Zimbabwe, HIV prevalence is estimated at 13.5% among men and women of reproductive age.¹¹ Thus, male condoms are an important part of the national HIV prevention strategy.

Since 1996, PSI/Zimbabwe (PSI/Z) has been responsible for generating demand for condoms across all sectors, among all socioeconomic groups, and for ensuring accessibility to its branded condom, PP. Over the years, PP has become synonymous with condoms, with consumers referring to PP when discussing the overall condom category. This gives the PP brand the potential power to create a “halo effect” for the market and help promote the overall condom category.

Condom Supply

In 2016, a total of 113 million condoms were distributed in Zimbabwe.¹² The condom market is described in Figure 2. The public-sector brand, Panther, made up approximately 77% of the market, PP condoms 22%, and the commercial sector was negligible at 0.6%.¹³ Panther condoms are free and, in 2016, PP condoms were sold at a price of \$0.20¹⁴ for a pack of 4 PP Original condoms and \$0.30 for the PP Scented variety. Commercial sector condom prices ranged from \$1.50/pack for the Carex brand up to \$3.50/pack for some varieties of Durex condoms. There was a large price gap between \$0.30 for PP Scented and the lowest priced commercial brand at \$1.50.

FIGURE 2. THE PUBLIC AND SOCIAL MARKETING SECTORS WERE MARKET DOMINANT, WITH LARGE PRICE GAPS IN THE MARKET FOR SOLD CONDOMS



¹¹ UNAIDS 2016 (<http://www.unaids.org/en/regionscountries/countries/zimbabwe>)

¹² Quarterly distribution reports; ZNFPC 2017

¹³ Quarterly distribution reports; ZNFPC 2017

¹⁴ Prices are quoted in USD

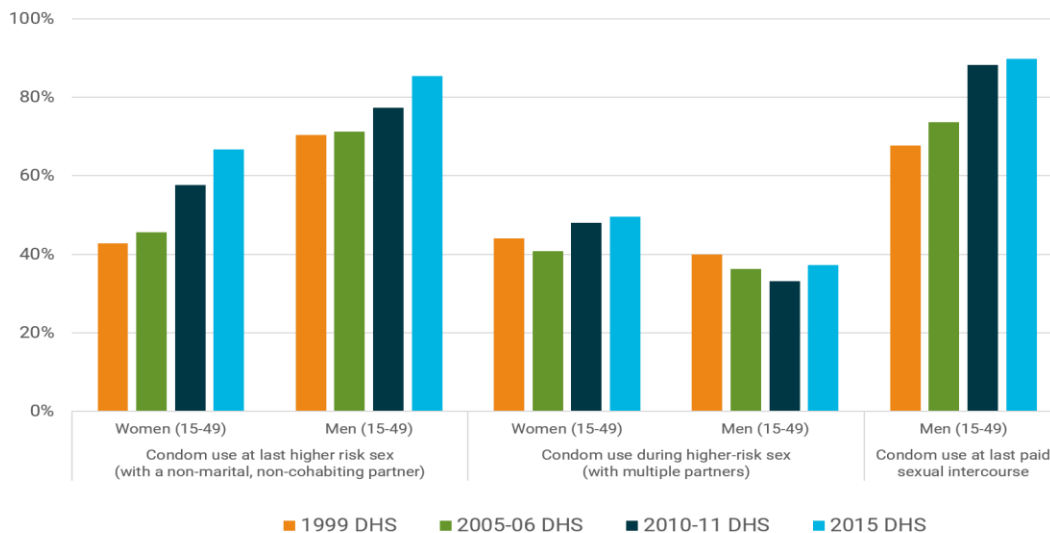
It is important to keep the following in mind when interpreting 2016 condom market share data for Zimbabwe:

- Public sector distribution data were based on commodities “pushed” from central stores, not “pulled” from decentralized sites. Distribution data were also inconsistent across sources, making it impossible to monitor the effect of the intervention at the district level.
- Even though Panther had the majority market share, there were challenges with perceived quality: some consumers reported that Panther condoms were poor quality and smelly.¹⁵
- Because the public sector uses distribution-only targets, there may be an oversupply of free condoms on the market. A WTP study estimated that supply for Panther exceeded demand by nearly 2 to 1.¹⁶
- The commercial sector was reluctant to enter the market and had difficulty achieving economies of scale because of the shrinking economy, specifically forex shortages to import condoms, cash shortages among distributors, outlet closures, and ongoing economic instability. (See [Economic Context](#) section.)

Condom Demand

While overall rates of condom use increased significantly during the past two decades for some groups, use in some groups, such as men with multiple sexual partners, declined.¹⁷ Rates of use were also too low to adequately protect the sexually active population from HIV infection. (See Figure 3.) Additionally, there were alarming trends in other risk behaviors, such as the percentage of men reporting multiple sexual partners, which increased from 10.6 to 14.3% between 2010 and 2015.¹⁸ Trends like this highlight the need for consistent condom marketing and promotion to ensure that all high-risk sexual encounters are protected.

FIGURE 3. CONDOM USE INCREASED OVER TIME FOR MOST GROUPS, BUT DECREASED FOR MEN WITH MULTIPLE PARTNERS



**Adapted from Figure 6, Mann Global Health, Zimbabwe Case Study, 2017.*

¹⁵ Moyo, P. et al. Public Sector Condom Acceptability Among Youth in Zimbabwe, 2015

¹⁶ Ganesan R, Tuchman J, and Hartel L, Willingness to Pay for Condoms in Five Countries: Kenya, Nigeria, South Africa, Zambia, and Zimbabwe, 2018.

¹⁷ ZDHS, 2015

¹⁸ ZDHS, 2015

Economic and Political Context in Zimbabwe

This study was not designed to measure the impact of the economic or political context on trends in condom supply or demand; however, they are important to consider within the context of this report. When the study was designed, the economic situation in Zimbabwe was stable and robust. However, both the economic and political context deteriorated rapidly in the lead up to the intervention. By the time the baseline surveys were completed and the donor authorized PSI/Z to move forward on the grant (on March 1, 2017), the economy had deteriorated to such an extent that several intervention activities were delayed or disrupted.

The challenges began in 2016. At this time, U.S. dollars (USD) had become the dominant currency in Zimbabwe and the economy was facing liquidity challenges.^{19,20} In response, the Zimbabwean central bank began printing bond notes, with an official exchange rate pegged to \$1 USD. The bond notes entered circulation in November 2016 to improve overall liquidity in the market. At the same time, consumers could use electronic forms of payment, such as mobile money, to purchase goods. There was a widespread belief among the trade that the bond notes and electronic payments were not backed by hard USD currency reserves, so merchants started practicing an illegal, but common “three-tiered pricing system,” in which prices for consumer goods varied depending on how consumers paid for them. While base prices were in USD, the trade inflated electronic payments and bond notes with margins as high as 90%.²¹ This rate of inflation for electronic payments and bond notes reached a peak in November 2017, when the political context changed, and a military-assisted political transition to new leadership took place.²²

There were shortages of consumer goods throughout 2017. Consumers and the trade had less purchasing power and faced hard economic choices. The increased price of PP was now on par with a half loaf of bread or a bottle of Coke, very high-value products which usually take precedent in the consumer purchasing context.

The economic crisis also affected suppliers. Forex shortages²³ made it nearly impossible for suppliers to import goods or raw materials, like paper and ink, critical for PP packaging and getting the product onto the market. There were periodic stock outs throughout the intervention as a result.

PSI/Z considered several strategies to remedy the forex shortage problem, including direct importation of paper on behalf of packaging producers and leveraging banking relationships to provide suppliers with access to forex to pay importation rates. By the end of the intervention window, the PSI/Z team had shifted packaging production to a South African manufacturer to stabilize supply. This new relationship has been established and there is a stable and consistent condom supply in place for 2018.

¹⁹ In response to hyperinflation, Zimbabwe made the decision to retire the national currency in 2009 and switch to a multi-currency system accepting a variety of different currencies, including the South African rand, euros and U.S. dollars (USD). Source: Bloomberg News, [Zimbabwe Dollar Dearth Causes Shortages, Return of Inflation](#), 2 Oct. 2017

²⁰ Reserve Bank of Zimbabwe, [Press Statement on Measures to Deal with Cash Shortages](#), 4 May 2016

²¹ Quartz, [Thanks to a cash crisis, one US dollar in Zimbabwe now has three different values](#), 7 Sept. 2017.

²² Reuters, [Devalued 'Zollars'](#), 2018

²³ BusinessDay, [Shortages of basic goods finally moves Zimbabwe to allow imports](#), 13 Nov. 2017

STUDY DESIGN

This study was designed as a nine-month randomized control trial comparing experimental and control districts. Ten districts (n=10) in 10 provinces were randomized and assigned to each study arm.

- Control districts: Chikomba, Gweru, Masvingo, Mutare, Mwenezi
- Experimental districts: Bulawayo, Chitungwize, Harare, Makonde, Mt. Darwin

We conducted baseline and follow-up trader and consumer surveys, with the baseline taking place in November and December 2016²⁴ prior to the launch of the intervention in March 2017 and the follow up surveys conducted nine months later. Routine sales and distribution figures were also collected and analyzed for the public and social marketing sectors.

Additional details about the study design are included in [Appendix I](#).

The Experiment

Since PP has been an integral part of the Zimbabwean market since 1996, PSI/Z was obligated to act responsibly and ensure an adequate supply of condoms throughout the country, maintaining status quo in control areas. Thus, the following activities were implemented nationwide and present in the control and experimental arms, and included in the approved design:

- A price increase for PP
- Improvements to distribution
- Repositioning and repackaging for PP
- Mass media promotion
- Support to the public sector

The experimental arm received an enhanced set of CSM activities: additional in-store, onsite, and interpersonal activities to trigger sales and increase demand:

- Increased product visibility in stockist, wholesale outlets, and retailers
- Extra in-store PP promotions
- Community-level interventions in high-risk venues
- Activities to improve relationships with the trade

The following tables detail the activities and the rationale behind them. Table 1 presents all activities in the control and experimental arms. Table 2 presents activities exclusive to the experimental arm.

²⁴ Non-USAID funding sources supported the baseline surveys.

TABLE 1. ACTIVITIES IN CONTROL AND EXPERIMENTAL ARMS; RATIONALE FOR ACTIVITIES

| RATIONALE FOR ACTIVITIES | |
|---|--|
| CONTROL AND EXPERIMENTAL ARMS | |
| ACTIVITY | RATIONALE |
| Price increase for consumers from \$0.20 to \$0.50 for PP Original and \$0.30 to \$0.50 for PP Scented ²⁵ | Increase cost recovery through higher revenue; align costs for all PP variants; overcome perception among consumers that PP is “cheap” ²⁶ |
| Price increase for traders from \$2.50 to \$7.50 for PP Original, and from \$5.00 to \$7.50 for PP Scented. | Increase cost recovery through higher revenue; align costs for all PP variants |
| Improvements to distribution | Increase cost recovery through more efficient distribution strategies |
| <ul style="list-style-type: none"> • Focused PP distribution in 35/59 high-volume districts²⁷ | <ul style="list-style-type: none"> • Prioritize sales representatives’ efforts on areas with a higher concentration of commercial distribution networks and higher HIV prevalence |
| <ul style="list-style-type: none"> • Increased use of stockists and wholesalers as suppliers for small outlets | <ul style="list-style-type: none"> • Reduce number of sales visits by PP representatives to retailers and associated expenses |
| <ul style="list-style-type: none"> • Engaged a pharmaceutical wholesaler | <ul style="list-style-type: none"> • Reduce number of sales visits by PP representatives to pharmacies and associated expenses |
| <ul style="list-style-type: none"> • Removed trade discounts for key account customers | <ul style="list-style-type: none"> • Decrease revenue lost through discounts |
| <ul style="list-style-type: none"> • Reduced number of PP sales representatives employed | <ul style="list-style-type: none"> • Create savings in salaries and per diems |
| <ul style="list-style-type: none"> • Fully adopted mobile sales system | <ul style="list-style-type: none"> • Ensure real-time data and efficient schedule management by supervisors; focus the team on the most productive, highest revenue sales routes |
| Repositioning and repackaging for PP | Increase demand for PP among consumers with some ATP; increase emotional attachment to PP; justify price increase in the mind of the consumer |
| <ul style="list-style-type: none"> • Used audience segmentation research to reposition PP to appeal to “caring and loving” audience segment (see Appendix III-A) | <ul style="list-style-type: none"> • Improve audience segmentation to better target PP; complement the positioning of public and commercial sector condoms; avoided crowding out public and commercial sectors |
| <ul style="list-style-type: none"> • Repackaged PP in rebranded and tamper-proof packaging (see Appendix III-B) | <ul style="list-style-type: none"> • Improve perceptions of PP quality and value; increase positive attitudes toward condoms; increase demand by printing fun sex tips on inside of packaging; appease customer concerns of pilferage |

²⁵ A PSI-supported WTP study (TRS, Pricing Research Report for HIV Products and Services, 2015) indicated the optimal price as \$0.50: consumers perceived the \$0.50 price point as neither too expensive nor too cheap. Another WTP study (Ganesan R, Tuchman J, and Hartel L, Willingness to Pay for Condoms in Five Countries: Kenya, Nigeria, South Africa, Zambia, and Zimbabwe, 2018) also indicated that PP could tolerate a price increase to \$0.40.

²⁶ TNS, Project Chitenga Report, 2016.

²⁷ CSM programs in other countries had made similar changes to their distribution systems years prior. Until 2016, PSI/Z could not follow suit because: 1) DFID had co-funded the condom program and had very strict equity requirements, which meant that PSI/Z had to reach the poorest of the poor in rural Zimbabwe; and 2) the wholesale channel virtually collapsed during the hyperinflation period between 2008 and 2009. It took some years for the country to rebuild the channel and for retailers to regain confidence in wholesalers.

RATIONALE FOR ACTIVITIES

CONTROL AND EXPERIMENTAL ARMS

| ACTIVITY | RATIONALE |
|--|---|
| Mass media promotion | Create a “backdrop” for PP promotion; promote the overall condom category by capitalizing on consumers’ perception that PP is synonymous with condoms |
| <ul style="list-style-type: none"> • <i>Launched Maximize the Moment radio campaign</i> | <ul style="list-style-type: none"> • <i>Increase consumer awareness and generate demand</i> |
| <ul style="list-style-type: none"> • <i>Promoted PP through social media: popular websites, Facebook, Instagram, and Twitter</i> | <ul style="list-style-type: none"> • <i>Increase consumer awareness and generate demand</i> |
| <ul style="list-style-type: none"> • <i>Leveraged specific events and holidays for media bursts</i> | <ul style="list-style-type: none"> • <i>Increase demand around holidays like Valentine’s Day and Father’s Day</i> |
| <ul style="list-style-type: none"> • <i>Employed additional media: DJ mentions, press-based advertisements</i> | <ul style="list-style-type: none"> • <i>Increase consumer awareness and generate demand</i> |
| Distribution support to the public sector | Increase positive attitudes toward Panther; increase Panther coverage |
| <ul style="list-style-type: none"> • <i>Transitioned smaller/rural markets to public sector</i> | <ul style="list-style-type: none"> • <i>Make Panther available to poorer and remote populations</i> |
| <ul style="list-style-type: none"> • <i>Encouraged outlets to display Panther alongside PP</i> | <ul style="list-style-type: none"> • <i>Provide consumers a choice of condoms and at different price points</i> |
| Repositioning and repackaging for Panther (currently underway) ²⁸ (see Appendix III-C) | Increase demand for Panther among consumers with no ATP; increase positive attitudes toward condoms |
| <ul style="list-style-type: none"> • <i>Using market acceptability study results to reposition Panther to appeal to “safe fun” audience segment</i> | <ul style="list-style-type: none"> • <i>Complement the positioning of social marketed and commercial sector condoms</i> |
| <ul style="list-style-type: none"> • <i>Updating inner foil pack</i> | <ul style="list-style-type: none"> • <i>Improve perceptions of Panther quality</i> |

²⁸ This activity was supposed to be a part of the original intervention but was delayed. PSI/Z worked with the MoH to reposition and repackage Panther after the conclusion of this study.

TABLE 2. ACTIVITIES IN EXPERIMENTAL ARM ONLY; RATIONALE FOR ACTIVITIES

| RATIONALE FOR ACTIVITIES | |
|--|---|
| EXPERIMENTAL ARM ONLY | |
| ACTIVITY | RATIONALE |
| Increased product visibility in retail, stockist, and wholesale outlets with posters, shelf talkers, category dividers, bunting, merchandising units, standard planograms, merchandisers to maintain in-store presence, and other point-of-sale material (see Appendix III-D) | Attract the attention of retailers to prompt PP purchase; compete with other high-demand products like alcohol; use product visibility as the final trigger for in-store purchases |
| Sponsored in-store promotions for retailers at stockist and wholesale outlets | Intercept retailers at outlet entrance and encourage them to stock PP; avoid wholesalers delisting PP by boosting sales and linkages to retailers who frequent wholesalers |
| Hosted community-based condom promotional events, like Protector Plus Pleasure Nights, in and around high-risk venues | Provide consumer-oriented “edutainment” to complement mass media; engage the target audience on a personal level, unpack the product offering, increase familiarity and self-efficacy to negotiate condom use, lead to PP purchase and trial behaviors. Pleasure nights also created more business for traders, motivating them to increase condom orders. Non-stocking traders were also inspired to stock the product in anticipation of events |
| Improved relationships with traders through personal contact | Increase positive attitudes among retailers for PP despite price increase; increase coverage and sales of PP |
| <ul style="list-style-type: none"> • Standardized industry average margin at 15% | <ul style="list-style-type: none"> • Eliminate differential pricing to consumer; guarantee set margin to wholesalers and retailers |
| <ul style="list-style-type: none"> • Conducted 15 business review meetings | <ul style="list-style-type: none"> • Build relationship with trade; understand motivations and barriers to selling PP |
| <ul style="list-style-type: none"> • Conducted 10 “sales blitzes” at key business centers; increased PP sales team coverage | <ul style="list-style-type: none"> • Create excitement around the brand, engage with stockists and wholesalers; replenish stocks; improve product visibility in stores to prompt sales |
| <ul style="list-style-type: none"> • Implemented 153 volume-based in-store promotions with stockists and wholesalers | <ul style="list-style-type: none"> • Encourage traders to stock PP to better serve customers; explain profit margin |
| <ul style="list-style-type: none"> • Conducted two sales promotions | <ul style="list-style-type: none"> • Increase product shelf offtake |

Study Outcomes

The following study outcomes were the focus of the study. They are linked to the Theory of Change and measure the impact of CSM on increasing overall supply and demand for condoms.

FIGURE 4. PRIMARY AND SECONDARY STUDY OUTCOMES LINK TO THE THEORY OF CHANGE AND WERE THE FOCUS OF THE STUDY

| SUPPLY-SIDE | PRIMARY OUTCOMES | DEMAND-SIDE | SECONDARY OUTCOMES |
|-------------|--|-------------|--|
| | Increase in PP condom sales volumes Increase in public sector condom distribution | | Increased perceived availability of PP among consumers Increased coverage for public sector condoms Increased perceived availability of public sector condoms among consumers Increased coverage for PP |

RESULTS: SUPPLY SIDE

PP Sales Volumes

An increase in sales volume for PP was a primary outcome for this study. Results are presented in Figure 5.²⁹ They have been standardized to provide estimates for monthly distribution in experimental and control areas across all study months.³⁰ Overall PP sales rebounded after the price increase and repositioning, and remained strong through 2017. The standardized sales volumes of PP mirror each other quite closely in the experimental and control arms of the study, which suggests that the intervention had no impact on PP sales. There is, however, much to be learned from tracking sales over the course of the intervention. We hypothesize that if stockouts had not been a problem in experimental districts, sales would have been higher.

March and April 2017 were used to dry up the pipeline of the old PP packaging and allow rebranded PP condoms to move quickly to the shelf once introduced. However, forex limitations hampered local paper print suppliers from importing paper at the required volumes, which resulted in printing delays for the new packaging and smaller-than-expected quantities produced. This made PP availability inconsistent and created periodic stockouts during the 9-month intervention period. By May 2017, the new PP packaging had been fully introduced and intervention activities, such as strengthening relationships with traders, increasing PP visibility at points of sale and condom nights, had begun.

²⁹ Monthly sales data from PP retailers was standardized by controlling for estimated population sizes in control and experimental areas.

³⁰ Despite multiple requests, monthly distribution figures were not available. We received only quarterly distribution figures from Chemonics and an annual distribution figure from the MoH and the figures differed according to source. We took the annual MoH figure, standardized it to reflect the population of the study areas and divided it between the 12 study months to obtain the results presented in Figure 5. They are similar to Panther distribution figures for 2016.

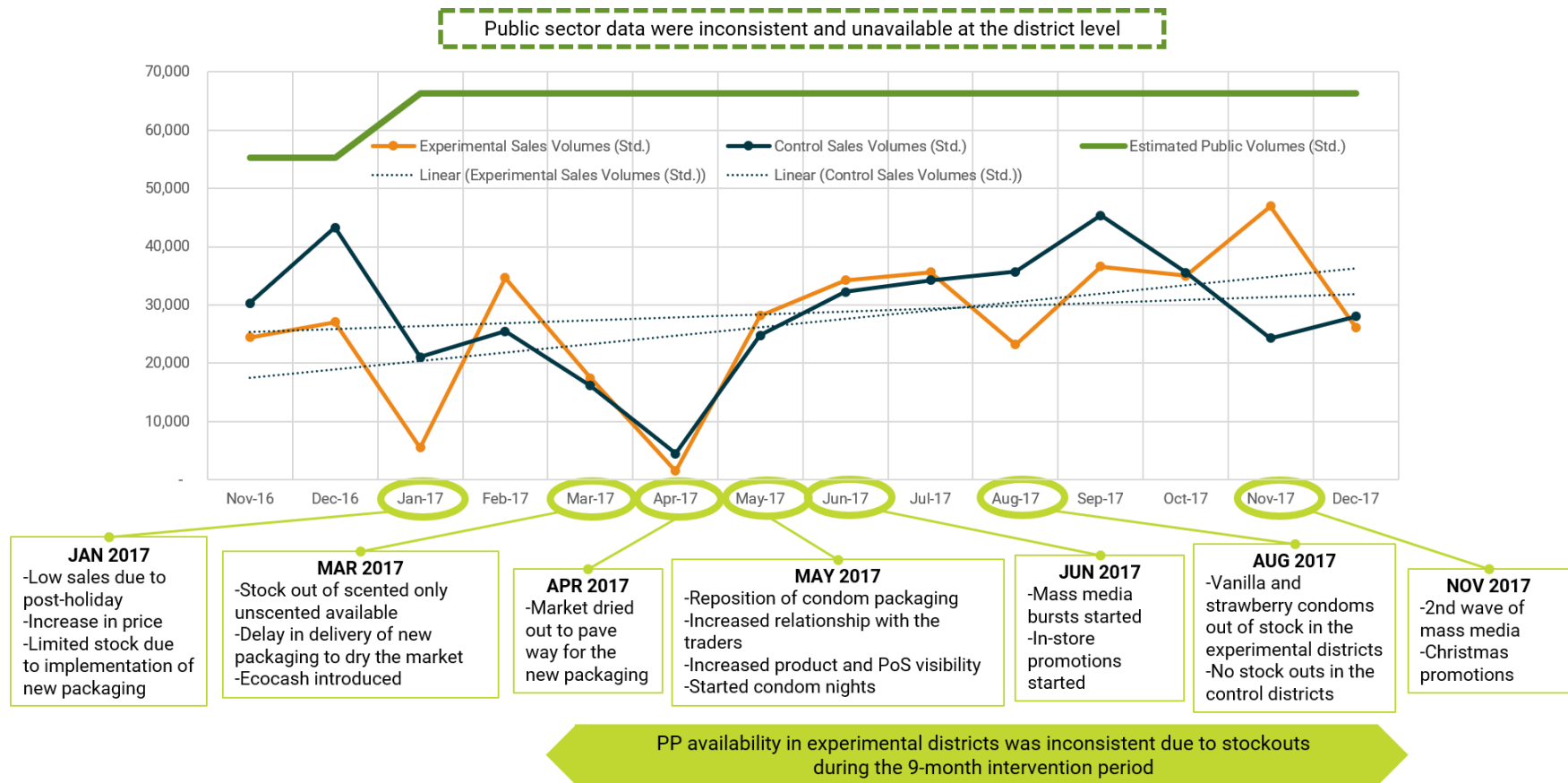
Overall, sales of PP were strong despite the price increase: sales of PP rebounded in May 2017 and continued into June and July, corresponding with the beginning of mass media promotions for PP. The decrease in sales in the experimental arm in August 2017 is most likely due to a stock out of several PP Scented variants: the volume of PP Scented condoms allocated to sales agents in experimental districts moved faster than anticipated. PSI/Z adjusted these volumes for sales agents in experimental districts in subsequent study months to prevent additional stockouts. There were no stockouts of PP Scented in the control arm because the sales estimates reflected the stock required to serve demand on the ground. We hypothesize that sales volumes would have continued to increase in both study arms had there not been stockouts due to paper and ink shortages for packaging. We also hypothesize that, had we monitored the intervention longer than 9 months, we would have seen increases in sales that were adversely affected by economic “shocks” during the study period.

Panther Distribution Volumes

An increase in Panther distribution volumes was a primary outcome for this study and public distribution figures are featured in Figure 5. Unfortunately, inconsistent data quality made it impossible to assess whether activities to improve public sector condom distribution worked. We took national distribution figures and simply divided them by the number of months evaluated. As a result, we could not measure the impact of the two activities aimed at increasing Panther coverage: 1) transitioning smaller/rural markets to public sector condoms; and 2) encouraging outlets to display Panther alongside PP.

We sought data from three sources: 1) National Condom Program at the Ministry of Health and Childcare; 2) Chemonics (the prime on the USAID PFSCM); and 3) NatPharm (the national supply chain system). All three data sources differed, providing an inconsistent picture of the volume of condoms “pushed” at the national level from central stores and condoms “pulled” at the district and facility levels. In addition, district data was often missing.

FIGURE 5. THE STUDY SHOWED NO IMPACT ON PP SALES, LIKELY DUE TO STOCKOUTS. NO CONCLUSIONS CAN BE DRAWN ABOUT PANTHER DISTRIBUTION.



Trader Survey Results

Through a trader-based survey, we measured the impact of the intervention on the following secondary study outcomes:

- Increased coverage of PP
- Increases in traders' preferences for PP as demonstrated through: perceptions of brand quality, brand leadership, and brand value; brand loyalty towards PP; and satisfaction with PP profits

We also examined trader willingness to purchase PP from stockists or wholesalers as a measure of gains in efficiency.

There was a decrease in the median number of packs in stock in both the control and experimental arms (60 to 30 median packs in stock in the control arm, 90 to 49 median packs in stock in the experimental arm).³¹ Decreases in stock could be due to stockouts from the paper and ink shortages for packaging. Decreases could also be due to the trade having limited access to capital to restock PP.

For the data displayed in Table 3, we used difference-in-differences analyses.³² The intervention did not have any significant impact on outcomes in the experimental group when compared to the control group. There was no overall change in the proportion of traders with PP in stock between the study groups during the follow-up survey. There were also no significant differences between baseline and follow up on perceptions of the PP brand or satisfaction with sales and profits. The only measure that bordered on significance was the outcome "willing to purchase condoms from a stockist or wholesaler" ($p=0.102$), a measure of efficiency.

³¹ Data not shown

³² A difference-in-difference framework allows us to determine if there are significant changes in outcomes between the groups. Due to significant shifts in the composition of the control and experimental arms between baseline and follow up, we controlled for retailer type and for clustering by district.

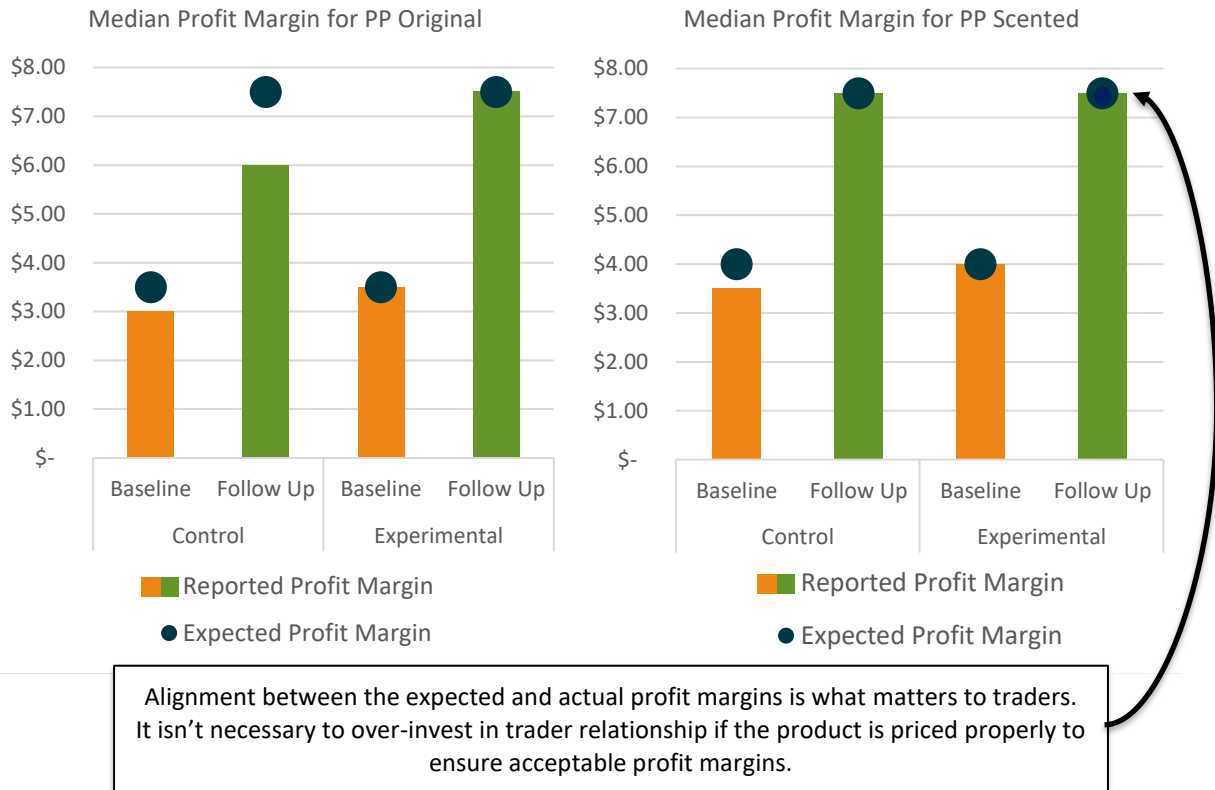
TABLE 3: IMPROVING RELATIONS WITH THE TRADE DID NOT HAVE A SIGNIFICANT IMPACT ON TRADERS' PREFERENCES FOR PP³³

| Variable | Control | | Experimental | | Difference in Difference | p |
|---|----------|-----------|--------------|-----------|--------------------------|-------|
| | Baseline | Follow Up | Baseline | Follow Up | | |
| PP currently stocked | 0.91 | 0.98 | 0.97 | 0.98 | -0.059 | 0.386 |
| Perception of brand quality among traders to PP | 3.29 | 3.10 | 3.22 | 3.11 | 0.086 | 0.524 |
| Feelings of brand loyalty among traders to PP | 3.28 | 3.10 | 3.20 | 3.10 | 0.085 | 0.482 |
| Perception of brand leadership among trader to PP | 3.28 | 3.18 | 3.28 | 3.19 | 0.015 | 0.909 |
| Perception of brand value of PP among traders | 3.09 | 2.99 | 3.10 | 2.94 | -0.055 | 0.592 |
| Satisfied with profit from PP Original | 0.75 | 0.69 | 0.80 | 0.82 | 0.077 | 0.338 |
| Satisfied with profit from PP Scented | 0.78 | 0.88 | 0.72 | 0.91 | 0.100 | 0.223 |
| Satisfied with PP Original sales volume | 0.81 | 0.73 | 0.73 | 0.78 | 0.130 | 0.296 |
| Satisfied with PP Scented sales volume | 0.82 | 0.83 | 0.71 | 0.89 | 0.168 | 0.125 |
| Willing to purchase PP from a wholesaler | 0.52 | 0.60 | 0.50 | 0.64 | 0.064 | 0.410 |
| Purchases PP from stockist/wholesaler | 0.47 | 0.44 | 0.44 | 0.53 | 0.123 | 0.102 |

³³ In initial analysis, there were significant differences between groups for trader satisfaction with PP Scented profits and trader satisfaction with sales volume for both PP variants. However, when clustering was accounted for, these differences were no longer found to be significant.

To explore the profit-driven nature of retailers and gains in efficiency in the new PP pricing structure, we examined the alignment between actual and expected profit margins. (See Figure 6.) Prior to the price increase, some retailers had been selling PP at more than the recommended consumer price and earning as much as 140% in margins. After standardizing all PP variants at \$0.50, we see good alignment between median profit margins as reported by retailers and their expected profit margins.

FIGURE 6. WHAT MATTERS MOST TO THE TRADE IS PROFIT MARGINS



RESULTS: DEMAND SIDE

Consumer Survey Results

Through a consumer-based survey, we measured the impact of the intervention on the following secondary outcomes:

- Self-reported increases in consumer preferences for PP as demonstrated through:
 - Emotional attachment to the PP brand
 - Intent to purchase PP condoms
 - Self-efficacy to negotiate condoms with partners
 - Positive attitudes toward condoms
 - Improved beliefs about condom efficacy
- Increased perceived availability of PP among consumers

We analyzed the change in preferences between the control and experimental arms between baseline and follow up using a difference-in-difference framework³⁴. As indicated in Table 4, the intervention had inconsistent results across the secondary outcomes.

The enhanced package of CSM activities was successful in creating greater emotional attachment to PP and improving beliefs about condom efficacy in the experimental group as compared to the control group. We observed an increase in self-reported emotional attachment to both PP Original and PP Scented condoms among the experimental arm as compared to the control arm ($p=0.007$ for PP Original and $p=0.025$ for PP Scented). There was also a significant increase in beliefs about the efficacy of both PP Original and PP Scented condoms in the experimental arm as compared to the control arm ($p=0.001$ for PP Original and $p=0.004$ for PP Scented).

However, there were no noticeable differences between the experimental and control group for the other secondary outcomes, including intention to purchase condoms, self-efficacy to negotiate condoms with partners, positive attitudes towards condoms, and perceived availability of PP condoms.

³⁴ A difference-in-difference framework allows us to determine if there are significant changes in outcomes between the groups. Due to significant differences in group composition between baseline and follow up, we controlled for gender, wealth quintile and marital status, and accounted for clustering in the different experimental areas.

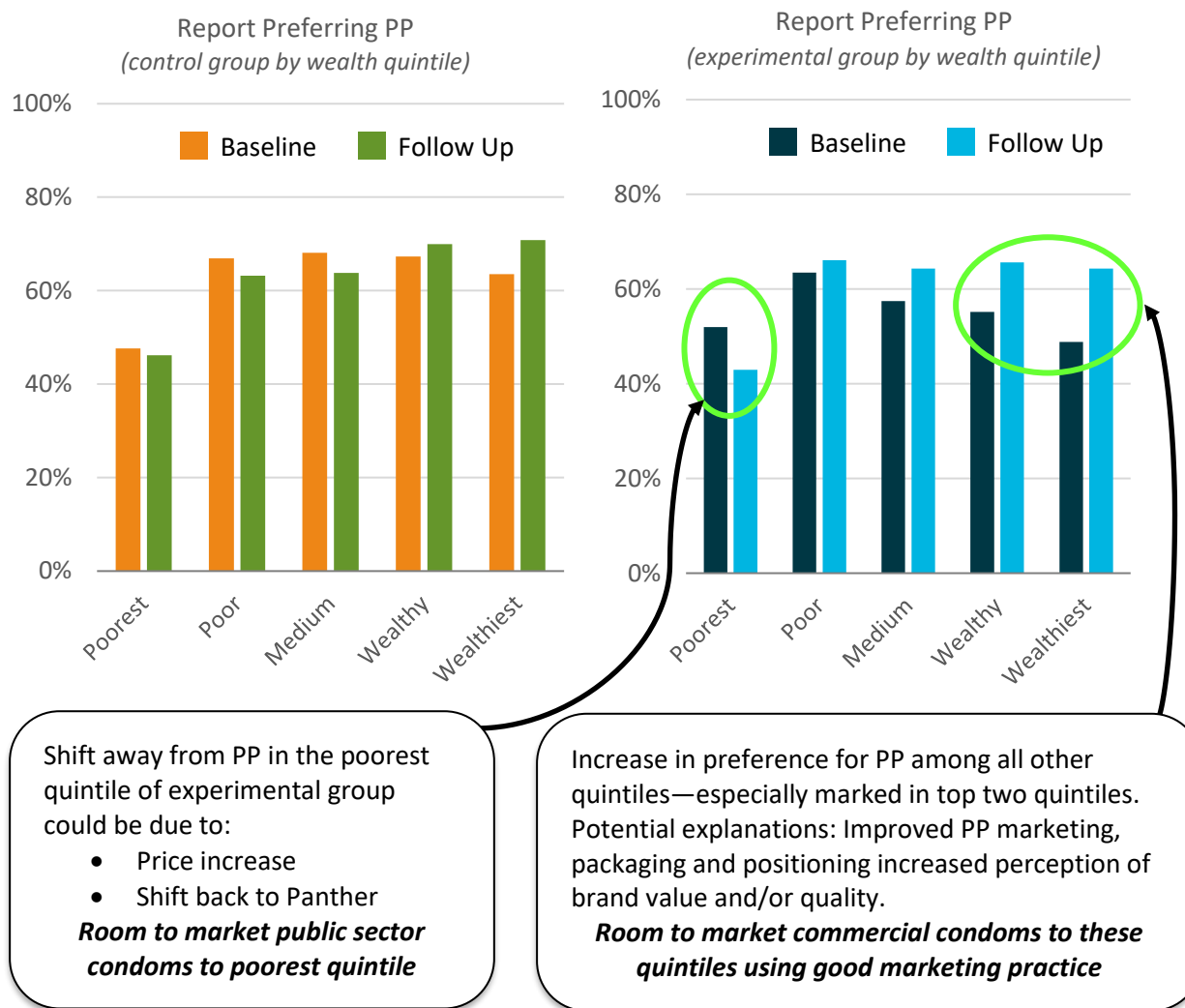
TABLE 4: DIFFERENCES IN SELF-REPORTED CONSUMER OUTCOMES FOR PP CONDOMS

| Variable | Control | | Experimental | | Diff-in-diff | P |
|---|----------|-----------|--------------|-----------|--------------|-------|
| | Baseline | Follow Up | Baseline | Follow Up | | |
| Emotional attachment to the PP Original brand | 3.01 | 2.95 | 2.95 | 3.04 | 0.147 | 0.007 |
| Emotional attachment to the PP Scented brand | 3.01 | 2.96 | 2.95 | 3.01 | 0.117 | 0.025 |
| Intention to purchase PP condoms in the next month | 0.34 | 0.30 | 0.36 | 0.31 | -0.002 | 0.996 |
| Self-efficacy to negotiate condoms with partners | 3.06 | 2.95 | 3.01 | 2.99 | 0.084 | 0.389 |
| Positive attitudes toward condoms | 2.67 | 2.73 | 2.61 | 2.75 | 0.073 | 0.174 |
| Improved beliefs about PP Original condom efficacy | 3.00 | 2.96 | 2.95 | 3.08 | 0.173 | 0.001 |
| Improved beliefs about PP Scented condom efficacy | 2.98 | 2.98 | 2.93 | 3.07 | 0.142 | 0.004 |
| Increased perceived availability of PP Original among consumers | 2.84 | 2.74 | 2.83 | 2.77 | 0.036 | 0.584 |
| Increased perceived availability of PP Scented among consumers | 2.80 | 2.77 | 2.75 | 2.74 | 0.015 | 0.813 |

Since an important objective of TMA is to better target public and social sector subsidies, we explored the impact of socioeconomic status on preference for condom brands. While there was not a significant shift in preference for PP between baseline and follow-up, this indicator is useful for identifying areas for further research. To test the effect of the PP price increase on consumer preferences, we stratified our analysis by wealth quintile. In Figure 7, we see that preference for PP declined slightly in the lowest three wealth quintiles in the control group, while it increased in the upper two quintiles. This would be expected given the price increase and implementation of only the basic CSM package in control areas.

In the experimental group, we see a larger decrease in consumer preference for PP in the poorest quintile with an increase in preference for PP among all other quintiles. This is an encouraging finding since one of the goals for raising the price of PP and repositioning the brand was to shift PP from being a condom for “the poor” to one that is for consumers with some ATP. That shift appears to have been successful in the experimental arm of the intervention, which received the enhanced CSM package.

FIGURE 7. A PRICE INCREASE AND IMPROVED AUDIENCE SEGMENTATION CAN TARGET SUBSIDY TO THE RIGHT QUINTILES



SUMMARY OF RESULTS

This study examined the impact of social marketing on overall condom supply and demand. Figures 8 and 9 summarize the changes in primary and secondary outcomes.

For supply-side results, more efficient distribution systems meant that PP reached in-country operating cost recovery, an increase from 29% to 95%. While the results for PP sales volumes were not significantly different between the control and experimental arms, the rebound of PP sales after the price increase and repositioning is promising. We hypothesize that if stockouts had not been a problem, sales would have been higher in experimental districts. We were limited by poor public sector data and could draw no conclusions about the impact of the intervention on free condom distribution. The study showed no impact on perceived availability of PP among consumers.

For demand-side results, there were two significant findings: the enhanced CSM intervention resulted in higher emotional attachment to the PP brand and improved beliefs about condom efficacy. We also found that interventions for creating improved relationships with traders were unnecessary: ensuring acceptable profit margins is what matters most to the trade. The study showed no impact on the other demand-side outcomes: intent to purchase PP, positive attitudes toward condoms, or self-efficacy to negotiate condoms.

Additional analyses revealed that consumer preference for PP shifted to higher wealth quintiles after the price increase and repositioning. PP went from being a condom for “the poor” to one for consumers with ATP. This implies that by creating sufficient space between the PP price point and free condoms, PSI/Z changed the perception that PP condoms are cheap and low-quality. Likewise, consumers with the least ATP expressed increased interest in Panther, the free condom. This implies that when PP became too expensive for the lowest quintiles, their preferences shifted back to free condoms.

FIGURE 8. SUPPLY-SIDE KEY FINDINGS

| | | |
|-------------|---|---|
| SUPPLY-SIDE | PRIMARY OUTCOMES | <p>PP sales rebounded after price increase and repositioning, and remained strong through 2017.</p> |
| | <p>Increase in PP condom sales volumes</p> <p>Increase in public sector condom distribution</p> | |
| | SECONDARY OUTCOMES | <p>Cost recovery mechanisms were successful: in-country essential operating cost recovery increased from 29% to 95%</p> |
| | <p>Increased perceived availability of PP among consumers</p> <p>Increased coverage for public sector condoms</p> <p>Increased perceived availability of public sector condoms among consumers</p> <p>Increased coverage for PP</p> | |

FIGURE 9. DEMAND-SIDE KEY FINDINGS

| | | |
|-------------|---|---------------------|
| DEMAND-SIDE | SECONDARY OUTCOMES | KEY FINDINGS |
| | <p>Self-reported increase in consumer preferences for PP as demonstrated through:</p> <ul style="list-style-type: none"> • <i>Emotional attachment to the PP brand</i> • <i>Intent to purchase PP condoms</i> • <i>Positive attitudes toward condoms</i> • <i>Self-efficacy to negotiate condoms with partners</i> • <i>Improved beliefs about condom efficacy</i> <p>Self-reported increase in traders' preferences for PP as demonstrated through:</p> <ul style="list-style-type: none"> • <i>Positive attitudes toward PP</i> | |

DISCUSSION

CSM has played an important role in HIV prevention for more than 30 years, and continues to be part of a comprehensive prevention strategy as well as a TMA. Zimbabwe, like many countries, faces an uncertain future in terms of condom funding and potential condom insecurity as donors focus on sustainability and cost recovery. There were several key takeaways from this study that USAID can use to inform further investments in CSM and that other donors and implementers can use to increase the sustainability of CSM programs.

For cost recovery, using a data-driven approach to inform the price increase for PP was essential. PSI/Z relied on its own WTP study and other resources to identify \$0.50 as the appropriate price point for both PP Original and PP Scented.³⁵ That price increase along with more efficient distribution strategies led to 95% in-country operating cost recovery.³⁶ When cost recovery is high, essential in-country operating costs can be covered out of sales revenues, and donor investments can shift to market facilitation and demand generation.

PP supported a substantial price increase: a 150% price increase for PP Original and a 67% price increase for PP Scented. PSI/Z could maintain volumes and absorb this substantial price increase when the right investments were made in branding and marketing. The value of PP increased in the mind of the consumer with the price increase and intensive in-person demand generation. Demand generation is also essential for increasing perceptions of condom efficacy and growing the market. It requires genuine insight and a consumer-centred approach where the promise of the product is clear and multiple methods of promotion are used. Mass media alone cannot trigger purchase for complex products like condoms: there is need to engage the consumer on a personal level.

Setting condom prices according to WTP stabilizes the market, builds trader confidence, and removes the need to over-invest in trade relations to maintain volumes. When traders are happy with their margins, they will sell the product. Costs spent on traders can be reallocated to market facilitation and demand creation.

There is a tension between equity and sustainability. PP sales rebounded after the price increase and total market value increased due to increased PP revenue generation. The price increase appears to have shifted the PP consumer base toward the upper quintiles and the poorest consumers to the free condom, Panther. In this case, the public sector is better positioned to serve rural and weaker portions of the market than PSI/Z. Reaching the bottom end of the market with PP would require heavily assisted and more expensive direct sales to maintain a retail presence, which would undermine sustainability. It remains to be seen if the public sector can successfully serve the bottom end of the market and increase equity.

Working with the public sector can be slow. The principles of good social marketing can be applied to the public sector, but it takes time to gain buy-in and to facilitate change. For example, the public sector uses simple, distribution-only performance indicators, which are more a reflection of condoms “pushed” from central stores to the field rather than “pulled” based on decentralized demand. As a result, decision making about where Panther is needed most to serve the bottom of the market is hampered by

³⁵ A USAID-supported WTP had also concluded that PP would be able to sustain a price increase without harming the overall condom market, although that study identified a lower optimal price than the PSI study.

³⁶ Cost recovery is the proportion of in-country direct operating costs (salaries, sales incentives, travel/transport, per diems, packaging, warehouse and a fair share of common direct costs) recovered. It does not include capital investment (e.g. vehicle purchase) or salaries for international management time (which tend to focus on the donor funded condom market facilitation and demand creation activities, not on the day-to-day operating costs of selling, distributing and promoting condoms on the market).

poor market analytics. Success will also require a cohesive strategy for strengthening the public sector and encouraging health promoters who serve low-end retail outlets to actively supply condoms.

PSI/Z is now supporting the MoH to reposition Panther as the “safe fun” brand and launch a new foil pack to improve perceptions of quality. The MoH has suggested launching a social marketed condom at the \$0.20 price point to members of condom technical working groups. Such a move would fill the price point vacated by PP, but could also undermine the success of PP’s price increase and repositioning. Another risk is that the public sector would regain the image of being the “cheap and low quality” condom (when compared to the \$0.20 condom) among lower-income consumers, an image that appeared to improve over the course of this study. Likewise, introducing another social marketed condom that is priced too low would compete with Panther and target consumers who would be best served by free condoms. Finally, the subsidy required and the cost of making condoms available on the market at the \$0.20 price point would require a substantial investment in subsidies, funds that might otherwise be better spent on overall market facilitation and improving the positioning and distribution for Panther.

There is also an urgent need to invest in market analytics, including improving the quality and consistency of free condom distribution data by district and across the various data sources. That way, condom actors can have a more accurate picture of the condom volumes pulled from central stores down to a district and site level. Current data sources are inconsistent and market actors cannot reconcile the number of condoms “pushed” from central stores with the demand that might “pull” those condoms down to the district and site levels. The condom technical working group, led by the MoHCC, should also shift from a reliance on distribution figures to more meaningful market analytics, like condom use, equity, unmet need for condoms by socioeconomic quintile, and source of supply for decision making. Doing so would increase the capacity and performance of each sector to fulfill unmet need.

There is room at the high end of the market for a more robust commercial sector, where wealthier consumers can purchase non-subsidized condoms. During the study, a new commercial condom at the \$0.50 price point was introduced on the market. The main challenge for the commercial sector will be economies of scale, since the commercial sector cannot lower prices and cover costs without higher volumes. Potential solutions would be to reduce barriers to entry, such as import duties and testing regulations. Likewise, if all three sectors - public, social marketed, and commercial would use a category-wide approach to encourage condom purchase, appropriately segment audiences, and distribute efficiently, the condom category could grow overall and the market will be more sustainable

Finally, economic context cannot be ignored. During this study, economic and political stability rapidly deteriorated. Suppliers were unable to import goods and raw materials, so stockouts were a problem. Wholesalers and retailers had limited access to capital and struggled to restock PP³⁷, and consumers had less purchasing power. Anecdotal data from commercial distributors of Carex-branded condoms indicated how close they came to shutting down their operations due to the cost and complexity of doing business, and their inability to access forex. In such contexts, market actors must navigate the tension between cost recovery while still increasing demand for condoms and ensuring that the appropriate “safety nets” are in place for the poorest populations. Market actors must understand the potential for and contribution of each sector in closing the gap in condom use by socioeconomic quintile.

³⁷ Data not shown.

APPENDIX I. FULL METHODOLOGY

A. Study Design

This study was designed as a randomized control trial comparing experimental and control districts. Ten districts (n=10) in 10 provinces were randomized to control (n=5) and intervention (n=5) arms.

TABLE I-1: STUDY DISTRICTS

| Control Districts | Experimental Districts |
|-------------------|------------------------|
| Chikomba | Bulawayo |
| Gweru | Chitungwize |
| Masvingo | Harare |
| Mutare | Makonde |
| Mwenezi | Mt. Darwin |

Baseline and follow up consumer and trader surveys were conducted – with baseline taking place before the intervention was started.

The study arms were as follows:

- Experimental: Radio + social media + basic distribution of PP + media bursts + increased product visibility in stores + extra PP promotions + community-level interventions + improved relationships with the trade
- Control: Radio + social media + basic distribution of PP + media bursts

The comprehensive CSM strategy included three key elements meeting social marketing benchmark criteria and lessons from literature:

1. Reposition PP to complement the public and commercial sectors and reduce overlap
2. Change PP packaging to increase appeal and denote quality
3. Improve relations with the trade and increase efficiency along the distribution chain

The original study design called for the experimental arm to also include collaboration with the Ministry of Health to increase demand for and distribution of public sector condoms. Public sector efforts were delayed.

B. Consumer Survey

A cross-sectional survey among adult consumers ages 18 to 49 years was conducted across participating districts. Eligibility criteria for participants were:

1. Sexually active (defined as those who would have had sex in the last month preceding the date of the interview)
2. Live in the selected household (for at least 6 months)
3. Consent to participating in the survey

After randomization of districts into control and intervention arms, a multi-stage cluster sampling approach was used. At the first stage, 100 (90 urban/peri-urban and 10 rural) enumeration areas from

study districts were selected. This was conducted separately for intervention and control districts. The second stage then included randomly selecting households. For each household, an adult 18-49 years old was interviewed. Where multiple eligible respondents were found in a household, a Kish grid was used to randomly pick one interviewee.

A structured questionnaire was administered to each eligible and consented individual who met the eligibility criteria. The questionnaire collected socio-demographic information, information regarding condom purchase, preferences, use, sexual behavior, attitudes and beliefs regarding condoms, communication with sexual partners, and brand equity. The baseline was conducted in November 2016, and the follow up was conducted between November and December of 2017.

C. Trader Survey

For the trader survey, a census of all traders was conducted in the selected enumeration areas for the consumer survey above. A structured questionnaire was administered to each eligible and consenting trader. The questionnaire collected information about traders' past and current experience selling PP, current stock volumes, attitudes toward PP, and motivations for and barriers to stocking the brand. The trader surveys were conducted at the same times as the consumer surveys, during the baseline and follow up.

D. Ethical Considerations

This study was approved by the Medical Research Council of Zimbabwe (MRCZ) ethics review board whose procedures adhere to the U.S. federal guidelines for human subjects as set forth in the Title 45, Part 46 of the Code of Federal Regulations (Department of Health and Human Services 1991). All study participants were consented before data collection.

E. Data Analysis

PP sales data were analyzed using simple longitudinal analysis of sales volumes, comparing test and control districts, and considering key events such as media bursts, promotions, and stock-outs. The available Panther distribution data were figures for annual distribution. This data was standardized by the population of study area and divided by twelve to estimate a monthly distribution figure as a comparison for the PP sales data.

For consumer and trader data, multivariate difference-in-difference analyses were conducted using linear and logistic regression models to determine the impact of the intervention while controlling for the effects of time, and demographics. Difference-in-difference is a form of analysis that examines the differences between measures in the control and experimental groups at baseline and follow-up to detect if there was a significant shift in one group

$$\text{Outcome} = \alpha(\text{Exposed Group}) + \gamma(\text{After Intervention}) + \delta(\text{Exposed Group} * \text{After Intervention})$$

Data were analyzed using Stata Version 14. Randomization checks were performed at baseline through bivariate analysis to ensure comparability between control and experimental groups and detect any difference in demographic variables between groups that may need to be controlled for in multivariate analysis.

F. Sample Size Calculation

In calculating sample size for each arm, PP brand preference (%) was used as the outcome of interest. Prior to baseline, brand preference was 59%. The desired minimum increase in brand preference was 5% with 80% power at 95% significance.

Due to the trial being clustered at district level, the sample size must account for intra-class correlation (ICC) within districts. However, no information on magnitude of ICC was found on previous studies, therefore the sample size was sure to account for clustering.

TABLE I-2: SAMPLE SIZE DETERMINATION

| Parameter | Value |
|--|--------------|
| Current Protector Plus Preference | 59% |
| Expected effect size to be detected | 5% |
| Significance level | 0.05 |
| Estimated sample size for two-sample comparison of proportions | 1,526 |
| Design effect | 2 |
| Total # of interviews needed | 3,052 |
| Total # of interview corrected for 90% response rate | 3,392 |

Based on these calculations, a total minimum sample size of 3,392 individuals for the consumer survey was reached. at baseline. This yielded a total of 340 individuals to be interviewed per district in a total of 10 districts. The same sample size was reached at follow up.

APPENDIX II. PARTICIPANT CHARACTERISTICS

A. Trader Characteristics

Table II-1 below shows various outlet types by arm of the study. In the control group, bottle stores (22% and 23%) and general dealers (25% and 26%) were the most prevalent types of outlets at baseline and follow up. In the experimental group, supermarkets (28%) and bottle stores (21%) were the most prevalent trader types at baseline. At follow up, pharmacies (24%) were the most prevalent type of outlet. Nightclubs, a key point for sales due to high risk activities were also equally represented in the control group (4% of the sample in the control at both baseline and follow up) and intervention group (4% at baseline, 5% at follow up). Bottle stores represented about one-fifth of the samples of both groups at both times. Pharmacies represented 6% of the control group at baseline and 12% at follow up. In the experimental group, pharmacies were 7% of the sample at baseline and 24% at follow up. The differences in group composition were found to be significant ($p < 0.001$)—therefore, we controlled for outlet type in multivariate analyses.

TABLE II-1: TRADER CHARACTERISTICS IN BASELINE AND FOLLOW UP SAMPLES

| Variable | Control | | Experimental | |
|--------------------|---------------------|----------------------|---------------------|----------------------|
| | Baseline (n=209) | Follow Up (n=245) | Baseline (n=395) | Follow Up (n=383) |
| Outlet type | | | | |
| Wholesaler | 10 (5%) | 9 (4%) | 23 (6%) | 11 (3%) |
| Stockist | 0 (0%) | 2 (1%) | 7 (2%) | 0 (0%) |
| Supermarket | 42 (20%) | 23 (9%) | 110 (28%) | 76 (20%) |
| Bottle store | 45 (22%) | 57 (23%) | 81 (21%) | 77 (20%) |
| Night club | 9 (4%) | 11 (4%) | 17 (4%) | 21 (5%) |
| Service station | 7 (3%) | 7 (3%) | 3 (1%) | 25 (7%) |
| General dealer | 53 (25%) | 64 (26%) | 63 (16%) | 30 (8%) |
| Pharmacy | 12 (6%) | 29 (12%) | 29 (7%) | 92 (24%) |
| Sportsbar | 14 (7%) | 14 (6%) | 32 (8%) | 30 (8%) |
| Other | 3 (1%) | 18 (7%) | 4 (1%) | 12 (3%) |
| Location | | | | |
| Rural | 38 (18%) | 34 (14%) | 7 (2%) | 15 (4%) |
| Urban | 171 (82%) | 211 (86%) | 388 (98%) | 368 (96%) |

B. Consumer Characteristics

Table II-2 below shows various characteristics of consumers by study arm and time. allowing for randomization checks and understanding of the study population. In both groups at both times, the majority of participants fell within the 18–24 age category. At baseline, the mean age in the control group was 29.3 (CI: 28.9–29.7) and the mean age in the experimental group was 29.8 years-old (CI: 29.5–30.2). At follow up, mean age in the control group was 29.9 (CI: 29.5–30.2) and mean age in the experimental group was 30.5 (CI: 30.1–30.8). As expected, about 90% of participants in both arms at both time periods were urban.

Women made up over 50% of respondents in both arms at both times. However, the gender composition did vary over by time. At baseline, women made up 59.6% of the control group respondents and 59.8% of experimental group respondents. At follow up, women represented 67.3% of the control group and 56% of the experimental group. Due to this significant difference ($p<0.001$) in group composition, we controlled for gender in the final model.

There were, however, differences in the married/cohabitating categories, 58.3% were married or cohabitating in the control group at baseline compared to 63.8% in the experimental group ($p<0.001$). As marital status can impact condom purchasing and preferencing, we controlled for marital status in the multivariate analysis. In addition, there were significant differences between the groups in terms of composition by wealth quintile. At baseline, 32% of respondents in the control group were categorized as being in the bottom two wealth quintiles as compared to 46% of respondents in the experimental group ($p<0.001$). We therefore controlled for quintile in the multivariate analysis.

TABLE II-2: CONSUMER CHARACTERISTICS IN BASELINE AND FOLLOW UP SAMPLES

| Variable | Control | | Experimental | |
|------------------------|-----------------------|------------------------|-----------------------|------------------------|
| | Baseline (n=1,677) | Follow Up (n=1,726) | Baseline (n=1,680) | Follow Up (n=1,715) |
| Gender | | | | |
| Male | 677 (40.4%) | 550 (32.7%) | 694 (40.2%) | 754 (44.0%) |
| Female | 1,000 (59.6%) | 1130 (67.3%) | 1,032 (59.8%) | 961 (56.0%) |
| Age | | | | |
| 18-24 | 532 (31.7%) | 465 (27.7%) | 494 (28.6%) | 435 (25.4%) |
| 25-29 | 425 (25.3%) | 423 (25.2%) | 442 (25.6%) | 409 (23.9%) |
| 30-34 | 293 (17.5%) | 319 (19.0%) | 307 (17.8%) | 350 (20.4%) |
| 35-39 | 238 (14.2%) | 252 (15.0%) | 250 (14.5%) | 265 (15.5%) |
| 40-44 | 108 (6.4%) | 144 (8.6%) | 149 (8.6%) | 154 (9.0%) |
| 45-49 | 81 (4.8%) | 77 (4.6%) | 84 (4.8%) | 102 (6.0%) |
| Wealth Quintile | | | | |
| Poorest | 281 (16.7%) | 269 (16.0%) | 434 (25.1%) | 376 (21.9%) |
| Poor | 252 (15.0%) | 385 (22.9%) | 360 (20.9%) | 363 (21.2%) |
| Medium | 317 (18.9%) | 390 (23.2%) | 333 (19.3%) | 341 (19.9%) |
| Wealthy | 406 (24.2%) | 382 (22.7%) | 278 (16.1%) | 280 (16.3%) |
| Wealthiest | 421 (25.0%) | 254 (15.1%) | 321 (18.6%) | 355 (20.7%) |
| Residence | | | | |
| Rural | 149 (8.9%) | 155 (9.2%) | 190 (11.0%) | 186 (10.9%) |
| Urban | 1,528 (91.1%) | 1,525 (90.8%) | 1,536 (89.0%) | 1,529 (89.2%) |
| Marital Status | | | | |
| Married/cohabitating | 978 (58.3%) | 1,032 (61.4%) | 1,101 (63.8%) | 1,093 (63.7%) |
| Never married | 538 (32.1%) | 456 (27.1%) | 426 (24.7%) | 447 (26.1%) |
| Widowed | 40 (2.4%) | 40 (2.4%) | 46 (2.7%) | 32 (1.9%) |
| Divorced | 60 (3.6%) | 64 (3.8%) | 65 (3.8%) | 57 (3.3%) |
| Separated | 61 (3.6%) | 88 (5.2%) | 88 (5.1%) | 86 (5.0%) |

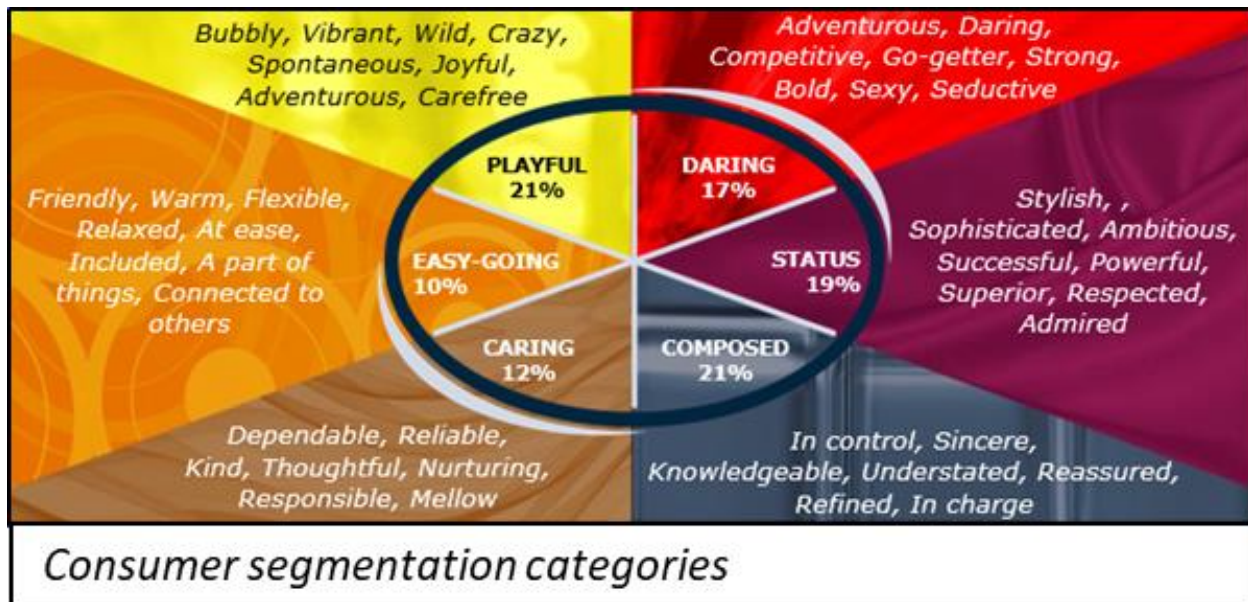
APPENDIX III. EXPANDED ACTIVITY DESCRIPTIONS

A. Consumer Insight for Repositioning PP

Prior to repositioning PP, PSI/Z conducted in-depth consumer research to better understand the different condom market segments in Zimbabwe.³⁸ PSI/Z examined market share size, emotional appeal strategies, and the brand positions of the commercial, public, and social marketed sector condoms. Results showed distinct segments for each sector:

- A “status and conquering” segment for the commercial sector;
- A “playful” segment associated with the public sector; and
- A “caring and loving” and “easy-going” segment associated with the social marketed sector

Despite the distinct segments, the research demonstrated that condom brands from the three different sectors were positioned in the same “status and conquering” space. This meant that condom brands from different sectors were competing for the same consumers rather than capitalizing on unmet needs in other segments. PSI/Z decided to reposition PP as the “caring and loving” and “easy going” segment to appeal to people who view sex in terms of intimacy and caring.



³⁸TNS, Project Chitenga Report, 2016.

PROTECTOR PLUS Archetype
Caring and Easy Going
- Mike

Mike is 25 and lives in Chitungwiza. He is an informal trader with secondary education and makes an average of \$150 per month. Mike leaves work at 1600hrs, goes to his part-time vending project then later sometimes has drinks and braai with his friends. He likes to play soccer, and enjoys talking to attractive ladies. Sometimes Mike and his friends pick up partners at the bar/club and are likely to have sex with them using condoms. Mike uses condoms more often than not, to enjoy the peace that comes with protected sex. He aspires to use Carex but uses Protector Plus which is readily available and affordable to him. His friends tell him condoms help prevent STI's but some of them are smelly, and can reduce sensitivity.

When he has no money, he resorts to Panther. Mike values his health and knows that condoms prevent STIs and HIV/AIDS. Mike respects his parents and values their opinions. He works hard to improve his financial status. He also values his friends because they are supportive and helpful during difficult times. Mike fears not having money so he worries about getting a better education and employment at a proper company that can give him a fixed salary. He also aspires to buy nice clothes, smart phone, a car and later provide for his family when he gets married. Mike trusts his mother, friends and uncle.

Key Insights: Mike is unlikely to have an open discussion about sex or condoms but he is know that wearing one is responsible, however he doesn't always wear one and stresses afterwards, especially if the sex he has had is with a non regular partner.



"Protector Plus will let me enjoy loving moments filled with fewer risks, and without sacrificing pleasure for me or her."

- Wants to belong and be liked
- Acts in moderation as he is a responsible and risk adverse
- Having a stress free life is important
- Has low risk behavior
- Sex is about making love
- Knows the benefits of wearing a condom, but does get conflicting information

B. New PP Packaging

Along with repositioning the brand, PSI/Z refreshed the look of the PP packaging to improve perceptions of quality and value, and help justify the price increase in the mind of the consumer. The new packaging included quality stamps to reinforce a quality message and a range of fun sexual positions on the inside of the foil pack to improve the consumer brand experience and to encourage repeat purchases. In addition, PSI/Z also made the packaging tamper-proof to assuage quality concerns among traders of packaging disintegrating on the shelf.

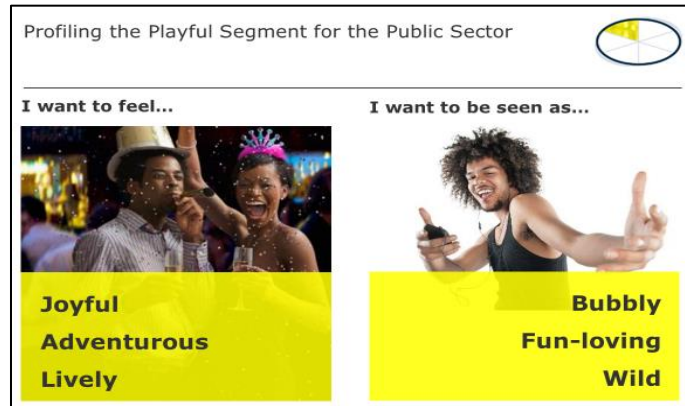


C. Support the MoH to better market public sector condoms

By supporting Panther, PSI/Z hypothesized it could increase public sector condom distribution, improve perceived availability of public sector condoms among consumers, and increase coverage for public sector condoms.

Repositioning Panther

PSI/Z supported the MoH to improve the marketing of public sector condoms and mitigate negative perceptions of Panther as cheap and low-quality. They started by working with USAID and the MoH to replace the old inner foil pack, which young people thought denoted “low-quality,” with a new foil pack. The newly-designed pack aligned with the “playful” consumer segment for the public sector. PSI/Z secured additional funding outside the HC3 project to conduct a market acceptability study for the inner pack on behalf of the MoH. This ongoing study will determine its appeal among consumers who value “safe fun.”



D. Increased Product Visibility in Retail, Stockist and Wholesale Outlets

New POS materials were displayed in retail outlets to increase PP’s brand visibility and drive impulse purchases. Increased shelf presence was supported by approaches such as shelf interrupters³⁹, posters, category dividers, shelf-talkers, bunting, and



PP posters in trade outlets

merchandising units, In-store visibility initiatives were focused on where there were high sales volumes and potential for growth was greatest.



Price talkers in supermarkets

³⁹ Shelf interrupters are signage that affix to store shelf edges and protrude out from the shelving unit