THE DEMAND FOR MEDICAL MALE CIRCUMCISION

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Abstract

This paper measures the demand for adult medical male circumcision using an experiment that randomly offered varying-priced subsidies and comprehensive information to 1,600 uncircumcised men in urban Malawive find low demand for male circumcision: only three percent are cumcised over a three month period Despite the low overall level of takep, both price and information are significant determinants of circumcision. Still, the main barriers

Recently, three randomized control trials have found that medical male circumcision reduces the likelihood of contracting HIV for men by up to 60 percent (Auvert, et al., 2005; Bailey et al., 2007; Gray e2007).¹ Given these findings, in 2007 the WHO and UNAIDS officially recommended voluntary medical male circumcision (VMMC) as an importarIIV prevention strategy and called for scaleup in 14 high priority countries in Eastern and Southern Africa (WHO, 2007). Since then, there has been global mobilization for scaling up male circumcision in high HIV prevalence areas.

Results from simulations and mestaudies support the claim that male circumcision is one of the most coeffective HIV prevention interventions. The most recent simulations suggest that scaling up medical male circumcision to 80 percent coverage in priority countries could avert approximately 22 percent HIV infections through 2025, resulting in a net savings of \$16.51 billion (Njeuhmeli et al., 2011).² However, to reach this target, more than 20 million 15 to 49 year old men must be circumcised, by 2015. Given this ambitious goal, it is important to understand the demand for adult medical male circumcision in Africa.

Prior acceptability stdies have been limited to focus groups or surveys asking uncircumcised men whether they would be willing to get circumcised. Aggregate statistics of the number of men circumcised in a particular area also do not provide sufficient information to estimate demand because it is unknown how many men chose note get circumcised. Still, media reports impliging high demand for medical male circumcision and journalists of long lines at clinics

¹ The effectiveness of male circumcision ranged across the three countries: South Africa at 60 percent, Kenya at 53 percent, and 55 percent in Uganda. In Uganda, 45 percent of eligible men agreed to participate. After the close of the study, 80 percent of ren in the control group who were offered circumcision agreed to be circumcision and HIV (see for example, Mills and Siegfried (2006) r Dowsett and Couch (2007)).

² See also Williams et al. (2006) agelkerke et al. (2007), White et al. (2008), UNAIDS/WHO/SACEMA (2009), Hankins et al. (2011) and WHO (2011).

likelihood of takeup by almost two percentage poist There was no significant interaction between information and price.

Due to the small sample size of those who were circumcised, our ability to estimate which types of men select into the surgery is limited. However, we do find some suggestive evidence. Not surprisint some suggestive evidence is a modical circumcision. Men living closer to the clinic or who had heard totatershad beencircumcised at the clinic were more likely to get circumcise to the circumcision: men who dusecondom that last time they had sex and those who had fewer sex acts in the past month are more likely to get circumcised in our dataff men who are least trick of HIV are mostikely to adopt male circumcision, universal male circumcision or out campaigns will be less cost of the sample free more who take p circumcision

While price and informationwere important barriers for some meimpsly providing free medical circumcisions and comprehensive information was not enough to motivate most to get circumcised baseline, the most common reasonsmen cited were culturalor religious norms othe fear of pain from the surgery. While the information and price of circumcision significa**aff**ected attitudes towards future circumcisions along some dimensions, there were no impacts on views about norms or pain.

There are several important limitations to our finding stat, the studywas conducted during the initial phases of male circumcision supale-Malawi. It may be that future demand increases with more government support, information campaigns, and with increased male circumcision **addoid** by within the population. Second, our analyses measuring the determinants of talke are identified off of a small sample and the results should be interpreted with this in mind. Third, our results do not speak to the effect of negative prices of the study set of the effect of negative prices of the effect of the effect

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demandfor male circumcision which may be one way that would stimulate demandespecially given the physical and psychological costs of the surgery

Still, our results have significant policy implications and make important new contributions to the literature. First, the demand for medical male circumcision may be much lower than previous acceptability studies or media reports suggest. Second, isoply providing free medical male circumcisions and information about male circumcision and HIV transmission was not enough to generate sufficiently high demand that would induce significant population level benefits. Moreover, these interventions had no impact on chaggattitudes about culturaland religious norms about male circumcision or the fear of pain from the surgery. The implication of our results that reaching the goal of circumcising 80 percent of adult men by 2015 may be much more difficult than merely increasing the supply of free circumcisions.

The paper proceeds as follows: Sectiopresents background information male circumcision and what is known about the determinants and barriers-to take up. Section 2presents the data and experiment. Sectiopresents the results on male circumcisiontake-up. Section 4 outlines the empirical strategy identify the effects of price and information on take. Results are presented in Section 5 Section 6 discusses other possible bartigetakeup and Section 7 concludes.

I. Background

A. Traditional Male Circumcision in Malawi

It is currently estimated that approximatelly percent of adults are infected with HIV in Malawi, giving the country theth9highest infection rate in the world (UNAIDS, 2010). Malawi was named as a high priority country for the supale of medical male circumcision not only because of its high HIV prevalence, but also because the majority of men (81 per)ceret not circumcise(MDHS, 2010) As in other African countries, he practice of male circumcision is deeply cultural

percent across countries (Westercamp and Bailey, 2007). Malawi, approximately 37 percemeported that they would be willing to get circumcised in 2010 (Bengo et al., 2010)However, it is difficult to infer true behavior from hypothetical answers about the willingness to get circumcils/adul(a, 2007; Westercamp and Bailey, 2007).

Another approach to quantify the demand for male circumcision is to simply count the number of medical male circumcisions conducted within a country or region. By the end of 2010, just over 555,000 medical circumcisions were performed for HIV prevention in the 14 priority countries, representing approximately 2.7 percent of the target Malawi, one estimate provided by the Ministry of Health reports that 119 medical male circumcisions were conducted infacilities across the country between 2008 and 2010 (WHO, 2011). However, many of the circumcisions may be substituting for traditional circumcisions Records of the circumcisions conducted at health facilities in 2010 found that only 14.8 percent were adults; the remaining constituted infants, children and adolescents (Bengo et al., 2010).

These statistics may suggest fairly low demand for male circumcision alternatively theymay reflect limited supply access Moreover, facility based reports of the number of men circumcised do not provide sufficient mation to estimate how many men chose troget circumcised hose statistics are missing the denominator that is needed to estimate demand.

³ Households were sampled across selected districts baseted expected prevalence male circumcision using the

results of 2004 Malawi Demographic and Health Survey (MDHS 2004). The survey included men older than 18. Initially,

⁸¹ percent of men reported being opposed to circc 0 Twe of 2004(h)-3(e)15()]TJ 7(en)-18tssinS6 o g to c34(i)2(r)13(18ts)1(s)1(inSn7)16(

C. Determinants of and Barriers to Take-

Previous studies have explored possible barriers to upkef medical male circumcision, the majority however, as discussed above, useypothetical acceptances a measure of demand rather to baserving actual circumcisions addition, most are unable to determine causal relationships due to omitted variables that may be correlated to both demand and other factors.

Perceptions of theostsof a medical male circumcision have been reported as barriers to take p. These include the perception of a long healing period, perceived pain associated with the surgery, lost wages, or the cost of the circumcision procedure it fe (Lukobo and Bailey, 2007; Herma Roloff et al., 2011; Westercamp et al., 20).

The belief or knowledge that circumcision is protectageainst HIV may also be an important determinant of hypothetical demand (Bengo et, 2010; Albert et al., 2011; Westercamp et al., 2012) a paper most similar to ours, Godlonton, Munthali, and Thornton

priority compared to other surgical procedures and atereadily available. To conduct our study, we partnered with a private provider that had begum offeri circumcisions in 2010, becoming a leader in **phie**ate provision of medical male circumcision in Malawi¹⁰. The clinic, which

enumeration areas as defined by the Malawian National Statistics Office. Each enumeration area was subdivided into a total of 114 neighborhood blocks which were demarcated using roads and rivers as natural dividing lines. Blocks were randomly skected into the study, stratified by enumeration *a*Correaverage there were 4 blocks per enumeration area.

Within each selected block, a household census was conducted in which men who were eligible for the study were identified. Eligibility was defined as any man – regardless of circumcisiostatus –who was a permanent resident in the householdandbetween the ages **0**B and 35 years In households with more than one eligible man, one man was randomly sele**sted** to target responde¹At

After the selection of an eligible respondent and obtaining informed consent, the baseline survey would commence, first witquestions to determine the respondent'scircumcision status The full survey was only administered to uncircumcised men. In total 1,634 uncircumcised men completbedseline surveys. Fdlow-up surveys were conducted in 2011, approximately one year after the baseline which 77 percent of the men who were interviewed at baseline were reinterviewed¹³ We use two samples in our analysis, the full sample of 1,634 men interviewed at both the baseline and the follow-up sample of 1,252 men who were interviewed at both the baseline and the follow.

C. Randomization

Immediately after the baseline survepach respondent was given a voucher for a subsidized circumcision at the partner clinic branvethid for approximately three months Vouchers contained a voucher ID that could be linked to each

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¹² Data from the Demographic and Health Survey of Malawi finds that 23 percent of men living in urban areas in the Central Region (where Lilongwe is located) were circumcised. This just higher than the 19 percent male circumcision prevalences the entire country.

¹³ The attrition rate is relatively higher than other panel studies in rural Africa mainly due to the high mobility of men living in an urban area (Anglewicz et al., 2009)

D. Sample

Table 1, Column 1 presest the summary statistics for the full sample of the 1,634 men interviewed at baseline. The sample consists of men who are on average almost 27 years old and relatively well educated, letimpeleven years of school. Individuals spend approximately \$1(22),325MK) per month on various expenses (median of \$99) Justmore than 17 percent of the respondents are from a circumcising tribe, defined a tribe with over 20 percent circumcised men in the Demographic and Health Survey (MDHS, 209 Most men in the sample have ever had sex (87.5 percent; not shawdhave hadapproximately 4.2 sexual acts in the past month. Just less than half of the menp(efficent) report abstaining from sex in the past monthath almost 6 percent reporting having multiple partnersOf those who hadsex in the last month 395 percent report using a condom thest time they had sex. On average.7 percent of the samplereport they have a high likelihood of being currently Holdsitive. Just under half 48 percent have ever had an HIV test.

We asked a number of questions to elicit perceptions about male circumcision. When asked about their beliefs about male circumcissing HIV, 49 percenthad the correct prior belief thatircumcised men were less likely to contract H1V. Almost half of themen (49 percent) reported that they were willing to be

¹⁸ Our sample is generally similar to other studiesducted in urban Malawi. For example, urban men living in the Central region in the MHS (2010) had on average 7.7 years of education, 25 percent had used a condom at last sex, and 55.6 percent had ever been tested for HIN/e ethnic composition of respondents is not representative of the study area due to the fact that only uncircumcised men were eligible for the saperoximately one third of the men are Chewa (34.6 percent), 24.7 percent Ngoni, 13.5 percent Lomwe, 12.8 percent Turabdkhe remaining 15 percent include Nkhonde, Nyanja, Tonga, Yao and others (not shown).

¹⁹ Expenditures categories were: Clothes, fabric, or shoes, Medical expenses at a clinic, doctor, pharmacy, or traditional doctor, Food: maize, meat, vegetablesingaout, transportation costs, and cell phone minutesreport predevaluation prices ²⁰ This includes the Yao, Mang'anja, Nyanja, and Lomwe.

²¹To elicit these beliefs, respondents were askedne-18(o)-4(n)-3(F d)-1 pesr s5(o)-4(r)-6 exp L17(s)-100(er)-6(-18(i)-2(t)-2(i)-6(s)-1a o)-3(e5(s)-1

circumcised. This is slightly lower than the median acceptability rate of 65 percent from circumcision acceptability studies across-**Salha**ran Africa (Westercamp and Bailey, 2007), but higher than the Malawi Situational Analysis from Lilongwe where 37 percenteported the willingness to get circumcised (Bengo et al., 2010)On average, men lived approximately one kilometer away from the partner clinic and 19 percent had ever heard of someone getting circumcised there.

that 43 vouchers were redeemed, take-up rate of 2.63percent (Panel A). Restricting the sample to the 1,252 nwebro were also interviewed at the follow up, the take-up rate was 3.3 percents measured by redeemed social, and psychological costs associated with the surgery. On the other hand, some men did get circumcised; understanding the determinants **ediptakea**y provide insights that could benefit medical male circumcision **supale**fforts. Because **pice** and comprehensive informationence randomly allocated at the baseline,we can measure the causal effecthese factors. We also examine how various personal characteristics are correlated with **up**keemportantly, because of the low overall rate of takep, the results in this section should interpreted as suggestive, as they may not be generalizable to other settings or in caseahe0 ()Tj 0.15 variables X, include: age, age squared, logged totalperxditures, years of schooling, indicators of belonging to a circumcising tribe, beixrighting to be circumcised believing his risk of having HIV was high, having ver had an HIV

equality of the average values of the baseline characteristicss information treatment group Similarly, Column 3 presents thevalue of an Rest of joint equality of the mean values of each baseline characteristics or andomly assigned prices For almost all of the baseline characteristics or annot reject equality suggesting that the respondents in the information group sach drice group are balanced on key observable characteristics total, we tested 50 baseline characteristics and percent were statistically significant at the 10 percent level across the different assigned prices percentwere statistically significant across the information treatment or control groups

In addition, here are alsono significant differences inoflow-up survey completion across the information treatment groups assigned prices the p value of the joint test of significance for having a complete follow survey is 0.705 or 0.964, respectively (not shown) attrition also does not differentially vary across price or information by baseline characteristics. To test this, we run separate regressions of being surveyed at the follow neachbaseline characteristic, indicators for each information treatm(price), and interactions between the baseline variable and each information treatment indi(partoe indicator).

declines monotonically thereafter with increasing price. No one was circumcised who had to pay the highest amount.

Table 3, Columns 1through 4 presents regression estimates from equation 1 of the effects of price on actual circumcisions as measured by the clinical records Those offered a free circumcision wrefree (3.Tw 5.48 0 Td f d

responses to "negative prices" or financial incențiv**fes**ure research offering compensation in either cash or kind may be an important next step.

B. Information

One possibleeason follow circumcision takeup even when the procedure was free is that men did not know or understand the medical benefits of male circumcision. Recall that at baseline only 49

Baseline beliefs about the relationship between male circumcision and HIV infection may be important to consider when examining the impact of knowledge on takeup. Wilson et b (2013) found that men who had different beliefs about male circumcision and HIV responded differentially after getting a circumcision in terms of their sexual behavior. Similarly, it may be possible that only those receiving new information may respond in this studyhile/baseline beliefs are correlated with takeep, there is no additional effect of the comprehensive information (not shown)

C. Other Determinants – NoRandomized Results

Table5 presents how baseline characteristics are correlated with the ep of male circumcision and having interaction with the clinic. It is important to note that these variables were not randomized at baseline and thus do not represent causal estimates. However, they can provide some insights into additional important factors for the demand for male circumcision.

One of the most important predictors of getting circumcised was openness to a circumcision defined as eporting willingness to be circumcised the baseline. Those who reported being willing to circuise at the baseline were between and 3.1 percentage points more likely to receive a circumcise by the clinic, and almost 9 percentage points more likely to have had any interaction with the clinic

There is no statistically significant effect of age on actual tackedespite the large proportion of men who stated being "too old" was a reason to not get circumcised at baseline.rcued

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interacted with having a prior HIV test are signatifiedly associated with getting a circumcision.

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opportunity costs were lower. Additionally, there were some reports that men were unable to schedule a time at the clinic when the clinician was available. This speaks to the importance of the need to promote both demand and ensure supply of male circumcision service Among those men who made any contact with the clinic, they made an average f 2.25 calls to the clinic 2.12 visits, and 1.9 attempts for surgery. Even among those who eventually got circumcised it took some effort; these men made 1.75 call \$3 visits, and 2 surgery attempts

VII. Conclusion

This paper measures the demand for medical male circumcision and the response to pricend information using a randomized trial. No prior study, to our knowledge, has measured the demand for male circumcision. Overall, the demand was relatively low rangingrom 2.6 to 8.9 percent usinglinic and selfreported data respectively This is particularly lowwhen compared to the arget of 80 percentset for male circumcision rodut strategies.

Price was not the only barrier to receiving a male circumcision, but certainly was for some addition, information – while a significant factor -is not the main barrier to takep. Openness to male circumcision, –v()]TJ-2(w)]TJ-0.004 Tc 0.218w

effectiveness estimations Njeuhmeli et al (2011) which were calculated using the Decision Makers' Program Planning Tool (DMPPT) developed by USAID and UNAIDS. This model accounts for markyey parameters such as demographic, epidemiological, and cost factors but doest take into account possible population-level spillovers from increased take. If spillovers are important for HIV incidence, coseffectiveness estimates would underestimate the savings lost from low take

Riordan 1991; Riley 2001) or those who pay for a good **wineay** the investment as a sunk cost and therefore be more likely to use it (Thaler 1980; Arkes and Blumer 1985). Despite these arguments a number of ot high priority. However, there must be joint efforts on both increasing demand particularly among high risk groups and ensuring reliable supplyuality services during scaller. Reducing price or providing information may be one way to reach targeted levels of male circumcision coverage, but clearly is not the only strategy needed how to incentivize high risk adult men in endemic areas to get circumcised is an important question for future research.

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Figure 1: Reasons against circumcision

Notes: Sample include \$34 men interviewed at baseline. Circumcision is measured by clinical records. Averagente wa 2.6 percent.



Figure 2: Medical Male Circumcision and Price of Circumcision

Notes: Sample include **\$3**4 men interviewed at baseline. Circumcision is measured by clinical records. Averagente wa **2**.6 percent.



Figure 3: Medical Male Circumcision and Information

Notes: Sample include **\$3**4 men interviewed at baseline. Circumcision is measured by clinical records.

Figure 4: Medical Male Circumcision, Price and Information



Notes: Sample include **\$3**4 men interviewed at baseline. Circumcision is measured by clinical records.

			Balar	nce	Attrition	
	Mean, SD		Information	Prices	Information	Prices
	(1	1)	(2)	(3)	(4)	(5)
Age	26.686	[5.783]	0.739	0.777	0.198	0.250
Years of schooling	11.055	[2.466]	0.320	0.164	0.073	0.848
Expenditures	21,325.05	[27,371.47]	0.718	0.534	0.727	0.177
Circumcising tribe	0.171	[0.376]	0.717	0.784	0.199	0.465
Num sex acts last month	4.205	[7.251]	0.884	0.902	0.949	0.843
Multiple partners in past month	0.058	[0.234]	0.003	0.037	0.147	0.931
Abstinence last month	0.461	[0.499]	0.656	0.169	0.614	0.971
Condom use at last sex	0.395	[0.489]	0.040	0.304	0.418	0.393
Belief of high likelihood HIV	0.217	[0.413]	0.959	0.699	0.598	0.256
Ever had an HIV test	0.482	[0.500]	0.873	0.771	0.798	0.044
Willingness to circumcise	0.493	[0.500]	0.058	0.884	0.150	0.098
Circumcision is protective	0.488	[0.500]	0.207	0.978	0.338	0.587
Heard of anyone circumcised at clinic	0.196	[0.397]	0.046	0.491	0.218	0.113
Distance to the clinic (in km)	0.969	[0.442]	0.044	0.316	0.922	0.169

Table 1: Sample Statistics - Full Sample

Notes:

Notes: Sample consists of 1634 men who were interviewed at baseline. Expenditures categories were: Clothes, fabric, or shoes, Medical expense doctor, pharmacy, or traditional doctor, Food: maizes, meat, vegetables, eating out, transportation costs, and cell phone minutes. Median expenditures were 12,000 Kwacha. Believing circumcision is protective is generated from two questions that asked: i) "If 100 circumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"; and ii) "If 100 uncircumcised men each slept with a woman who is HIV positive last night, how many of them do you think would get HIV?"

Columns 2 and 3 present the p-values from separate regressions testing the difference in each baseline variable across the information treatment (2), or circumcision price (Column 3). Columns 4 and 5 present the p-values from separate regressions of being in the follow-up sample on each baseline variable interacted with information treatment indicator (Column 4) or an indicator of each price (Column 5). The p-values are either on the interaction of information and baseline variable, or the joint test of the interactions of each price and the baseline variable.

		Number of	% of Full	
		Men	Sample	
<u>Panel A: Full Sample (N=163</u> 4)		(1)	(2)	
Clinic Data	Circumcised	43	0.0263	
		Number of		
		Men	0.739	0.7772
Panel B: Follow-up S	Sample (N=1252)	(1)	(2)	(3)
Clinic Data	Circumcised	41	0.033	0.369

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Circumcised at non-partner clinic	25	0.020	0.225
Circumcised at partner clinic after validity period	9	0.007	0.081
Circumcised at partner clinic during validity period	36	0.029	0.324

Total (clinic or survey) Circumcised

Dependent Variable:	Circumcised (Clinic)		Circumcised (Clinic)		Circumcised (Self-Report: Valid Clinic + Non-expired Clinic)		Any clinic interaction (Self- Report)	
	Full S	ample				Follow-up Sample		
_	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Free	0.031***	0.026**	0.036***	0.030**	0.065***	0.054***	0.108**	0.107**
	[0.012]	[0.011]	[0.013]	[0.013]	[0.018]	[0.019]	[0.050]	[0.052]
50 MKW	0.041***	0.038***	0.053***	0.051***	0.080***	0.066***	0.132**	0.140**
	[0.010]	[0.010]	[0.013]	[0.014]	[0.019]	[0.016]	[0.055]	[0.055]
100 MKW	0.032**	0.026*	0.035**	0.027	0.063***	0.050**	0.142**	0.142**
	[0.014]	[0.013]	[0.017]	[0.017]	[0.023]	[0.022]	[0.057]	[0.058]
200 MKW	0.023**	0.023**	0.031**	0.029**	0.042**	0.042**	0.104**	0.102**
	[0.010]	[0.010]	[0.013]	[0.013]	[0.018]	[0.018]	[0.050]	[0.051]
500 MKW	0.009	0.006	0.012	0.010	0.029	0.025	0.086	0.077
	[0.007]	[0.008]	[0.009]	[0.011]	[0.018]	[0.017]	[0.063]	[0.063]
Observations	1,634	1,634	1,252	1,252	1,252	1,252	1,252	1,252
R-squared	0.007	0.034	0.009	0.040	0.011	0.049	0.008	0.067
Incl. controls?	Ν	Y	Ν	Y	Ν	Y	Ν	Y
Ave of dep variable (900 MKW)	0.0	000	0.0	000	0	.008	0.	157

Table 3: Voluntary Medical Male Circumcision Take-Up and Price

Notes:

Robust standard errors clustered by block and interview date. Control variables include: age, age squared, logged total expenditures, years of schooli respondent is of a circumcising tribe, whether the respondent reported he was willing to be circumcised, if the respondent thought his risk of having HIV was high, if the respondent ever had an HIV test, the interaction of belief of high risk and having an HIV test, if the respondent had heard of anyone who circumcised at the partner clinic, if the respondent correctly believed that circumcision was associated with lower risk of HIV, distance to the clinic, number of sex acts in the last month, and indicators for whether the respondent used a condom at last sex, abstinence in the last month, and multiple concurrent partnerships. We also include an indicator of whether the respondent was allocated to the information treatment. For covariates with missing values, the median has been imputed, and a dummy included for whether or not the covariate is missing included. * significant at 10%; ** significant at 5%; *** significant at 1%. Interaction with the partner clinic includes male circumcision, counseling, visits, or phone calls.

Dependent Variable:	Circumcised (Clinic)	Circumcised (Clinic)	Circumcised
Dependent variable:			

Dependent Variable: Barrier to circumcision due to -	Culture or Religion	Fear of pain	Too expensive	Too busy	Not at risk	Not enough info	Family objects	Number of reasons
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Information	0.035	0.009	0.018*	-0.043*	0.023***	-0.044*	0.042***	0.057*
	[0.031]	[0.025]	[0.010]	[0.023]	[0.008]	[0.026]	[0.015]	[0.034]
Free	-0.052	-0.035	-0.066**	0.092**	-0.004	-0.024	-0.020	-0.099***
	[0.053]	[0.039]	[0.032]	[0.039]	[0.020]	[0.042]	[0.031]	[0.036]
50 MKW	0.004	-0.031	-0.051	0.068	-0.009	-0.005	-0.003	-0.022
	[0.055]	[0.034]	[0.040]	[0.050]	[0.020]	[0.048]	[0.028]	[0.048]
100 MKW	-0.027	-0.013	-0.051	0.072	-0.009	0.003	-0.027	-0.060
	[0.068]	[0.045]	[0.037]	[0.045]	[0.019]	[0.048]	[0.035]	[0.050]
200 MKW	-0.047	-0.034	-0.039	0.095***	-0.024	-0.014	0.001	-0.089*
	[0.055]	[0.047]	[0.043]	[0.035]	[0.018]	[0.055]	[0.036]	[0.054]
500 MKW	-0.009	-0.060	-0.049	0.051	0.026	-0.015	0.038	-0.027
	[0.057]	[0.047]	[0.040]	[0.045]	[0.030]	[0.048]	[0.039]	[0.045]
Observations	1,072	1,072	1,072	1,072	1,072	1,072	1,072	1,072
R-squared	0.054	0.023	0.055	0.038	0.051	0.032	0.039	0.046
Incl. controls?	Y	Y	Y	Y	Y	Y	Y	Y
Ave of dep variable	0.271	0.146	0.046	0.170	0.019	0.230	0.088	1.130
Notes:								

							Difference	
	Increased	Decreased	No impact		Uncircumcised	Circumcised	(Circumcised -	Ratio (Circumcisec
	HIV risk	HIV risk	on HIV risk	Don't know	men	men	Uncircumcised)	Uncircumcised)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Information	-0.007	0.038*	-0.030	-0.002	-1.879*	-8.751***	-6.801***	-0.094***
	[0.005]	[0.023]	[0.021]	[0.001]	[1.105]	[2.224]	[1.787]	[0.025]
Constant	0.010**	0.830***	0.158***	0.002	89.505***	51.312***	-38.193***	0.579***
	[0.004]	[0.012]	[0.012]	[0.001]	[0.745]	[1.731]	[1.365]	[0.018]
Observations	1,248	1,248	1,248	1,248	1,246	1,246		

Appendix Table B: Attitudes towards Circumcision

Dependent Variable:

	Too old	Just don't want		
	(1)	(2)	(3)	(4)
Information	0.005	0.015	0.018	-0.011
	[0.015]	[0.015]	[0.015]	[0.022]
Free	-0.018	-0.023	0.013	0.012
	[0.022]	[0.032]	[0.025]	[0.046]
50 MKW	-0.007	-0.021	0.034	0.007
	[0.027]	[0.029]	[0.025]	[0.043]
100 MKW	-0.031*	-0.020	0.029	0.038
	[0.018]	[0.035]	[0.030]	[0.051]
200 MKW	-0.018	-0.012	-0.006	0.055
	[0.027]	[0.033]	[0.025]	[0.050]
500 MKW	0.006	-0.038	-0.002	-0.002
	[0.021]	[0.034]	[0.023]	[0.054]
Observations	1,072	1,072	1,072	1,252
R-squared	0.032	0.047	0.032	0.135
Incl. controls?	Y	Y	Y	Y
Ave of dep variable	0.049	0.062	0.083	0.745

Notes:

Robust standard errors clustered by block. Control variables include: age, age squared, logged total exper years of schooling, whether the respondent is of a circumcising tribe, whether the respondent reported he was willing to be circumcised, if the respondent thought his risk of having HIV was high, if the respondent ever had an HIV test, the interaction of belief of high risk and having an HIV test, if the respondent had heard of anyone who