Information's Effect on Public Opinion, Social Institutions, and Political Behavior

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A dissertation
submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

University of Washington

2020

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Department of Political Science

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Abstract

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This dissertation examines the effects of information on important political outcomes across Africa. I focus on how exposure to different forms of information affects public opinion, the social institutions that incentivize or undermine political participation, and ultimately an individual's willingness to engage in political behavior. In the first essay, I study how an individual's consumption of different types of media shapes their public opinion of homosexuality. I find that radio and television consumption have no (or a negative) effect on pro-gay attitudes, whereas individuals who consume more newspaper, internet, or social media are significantly more likely to support homosexuality. I use placebo tests and content analysis to argue that these differential effects are driven by censorship of queer representation (i.e. information) from certain mediums.

In the second essay, I examine how information signals affect social institutions and ultimately political behavior. First, I develop a new theory that conceives of non-government organizations (NGOs) as information signals that affect an individual's perceptions about the government's credibility and about their neighbors' likely political behavior. In doing so, I argue that changes in the prevalence of NGOs in a community also reshapes the social institutions that incentivize or undermine political participation. I test my theory with original survey data from Nairobi's informal settlements and find that individuals who live in areas with more NGOs are significantly less likely (by about 35%) to monitor or support government services. Additional analysis shows that individuals' political behavior is strongly and positively linked to their expectations of their

neighbors' behavior, and that expectations about neighbors' political behavior is negatively linked to the prevalence of NGOs in a neighborhood.

In the final essay, I apply my theory from the second essay to a specific form of non-state service provision – education. I test hypotheses with observational survey data, a survey experiment, and qualitative data. Using the observational data, I find that individuals who live in neighborhoods with more private schools (compared to those who live in neighborhoods with fewer private schools) are less likely (by about 55-60%) to view the government as a credible provider of education, less likely (by about 50–70%) to believe that their neighbors would monitor or support government schools, and less likely (by about 50%) to monitor government schools themselves. My survey experiment yields null results; however, the findings along with my qualitative data provide important insights on the conditions necessary for information signals to reshape social institutions. Ultimately, my results suggest that increased privatization of education may contribute to negative perceptions about the government's capacity and responsibility to provide education and less oversight of government schools. This research provides some of the first empirical evidence to inform active debates about the political effects of non-state education in low-income countries.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGMENTS

Many mentors, colleagues, friends, and family contributed to this work and to the larger project of pursuing a doctorate. First, I want to thank my committee members. James Long believed in me and my work from the very beginning and, in doing so, allowed me to believe in myself and motivated me during critical moments in this process. His feedback challenged me and improved all aspects of my work, and his professional guidance helped me navigate unfamiliar arenas. Mary Kay Gugerty reminded me to pursue research questions that I cared about and provided exceptional feedback. Her scholarship and mentorship also served as an important model for how to be both critical and pragmatic. Aseem Prakash helped me envision a research agenda from day one and provided incisive feedback that was especially useful at the final stages of writing. Leigh Anderson went above and beyond as a GSR and I am grateful for her feedback and commitment.

I also want to recognize a number of other scholars, at the University of Washington and elsewhere, who inspired, challenged, and connected me over the years, including Jeffrey Arnold, Victor Menaldo, Rachel Cichowski, Chris Adolph, Daniel Yoo, Petros Vamvakas, Adam Silver, Christina Kulich-Vamvakas, and Lenore Martin. Within the UW Department of Political Science, I benefitted from excellent faculty, staff, and fellow graduate students. Susanne Recordon and Ann Buscherfeld deserve special praise. I also benefitted from the faculty and fellow graduate students within the Center for Statistics and the Social Sciences and at the Evans School of Public Policy and Governance. Finally, at the World Bank, I am grateful to Susan Wong and Audrey Sacks for providing opportunities to apply and rethink my research on social diversity and local governance.

This research would not have been possible without the incredible work of Christopher Barassa, Maggie Ireri, Grace Maina, Michael Mwarange, Karen Wairimu, and a team of 30 enumerators. Each of them played a critical role in the survey preparation and data collection process. I also recognize generous financial support from the Kizhanatham Jaganathan Graduate Research Grant, the National Science Foundation (Grant No. DGE-1256082), and from James Long's research funding.

For their helpful comments on various portions of this work, I thank Sarah Dreier, Meredith Loken, Beatrice Magistro, Nyambura Mutanyi, Vanessa Quince, Morgan Wack, Nora Webb Williams, and members of the University of Washington Forum on Political Economy and Economics. Of course, all errors remain my own.

Many of the initial ideas for this project are rooted in the time I spent working in education in Nairobi's informal settlements. For that, I am grateful to Eddo Kim and John Suh for taking a chance on me and for being open to new ideas – even when it meant redesigning the entire program model. I was lucky to have wonderful colleagues along for that ride, including Cynthia Kim, Sammy Leseita, John N'gang'a, Cate Njue, Hannah Ryu, Caroline Thiong'o, and Kristopher Velasco. I am also thankful to the countless teachers, school directors, students, parents, and shop-owners in Kayole, Kibera, Lenana, Matopeni, and Mathare, who shared their stories and listened to mine. Finally, for their hospitality and friendship, I am forever grateful to George Gituku, Rachel Kiarie, and Sandi.

I owe special recognition to the friends who helped me feel more at home in academia, reminded me to take time off, and motivated me to keep going. For their friendship and encouragement, I want to especially thank Christie Calle, Justine Levan, Meredith Loken, Beatrice Magistro, Vanessa Quince, Lamonte Stamps, Penny Wells, and a queer family that is ever evolving.

My family deserves credit for always supporting me, even when my path was unfamiliar and never brought me any closer to Kansas. To my siblings – Ashley Nordhus, Jenae Winkler, and Matthew Winkler – and my parents – Mary and Paul Winkler – thank you for never holding me back and for continuing to teach me about life and politics. I am especially thankful to my parents for always answering the phone and for modeling what it looks like to care for others, to work hard, and to remain humble. They make me proud.

Finally, I am thankful to Anthony Polanco for standing by my side throughout this entire process. He inspires me every day with his own work, and, his perspectives on psychology and public policy undoubtedly shaped many aspects of my research. Most of all, I am grateful that he kept me grounded during the challenging moments and celebrated every accomplishment.

DEDICATION

to Mom, Dad, and Anthony.

Chapter 1

INTRODUCTION

Scholars have long argued that information shapes a range of political outcomes including public opinion (McCombs and Shaw, 1972; Iyengar and Kinder, 1987), voting behavior (Lupia and McCubbins, 1998; Ferraz and Finan, 2008), and other forms of government accountability (Björkman and Svensson, 2009; Pande, 2011; Ferraz and Finan, 2011; Besley and Burgess, 2002; Callen and Long, 2015). This dissertation builds on and advances existing research by examining the effects of information on important political outcomes across Africa. I focus on how exposure to different forms of information – both directly via the media and indirectly via signals in the environment – affects public opinion, the social institutions that incentivize or undermine political participation, and ultimately individuals' willingness to engage in political behavior related to government accountability. Taken together, my work: i) tests existing theories about the effects of media exposure in new settings and with new data, and ii) advances a novel theory and original data on information's role in shaping social norms that are critical to government accountability.

In the first essay, I study how consumption of different types of media shapes public opinions of homosexuality across Africa.[1] Some scholars argue that media plays a critical role in exposing individuals to new information and shaping public opinion (Mutz, 2002; McCombs and Shaw, 1972; Iyengar and Kinder, 1987). However, others find that media's effects on public opinion are limited (Barberá et al., 2015), in part because media may not facilitate exposure to new information if consumption is driven by ideology (Sunstein, 2001) or if it easily manipulated by the government (Roberts, 2018). Despite this tension in the literature, there is mounting evidence that exposure to LGBTQs[2] via the media increases pro-gay attitudes (Schiappa, Gregg and Hewes, 2006; Garretson, 2015; Jones et al., 2018) and that increased access to diverse media explains some of the growing

[1] A version of Chapter 2 is forthcoming in the *British Journal of Political Science* (Winkler, 2019). It is reprinted here with permission from Cambridge University Press.

[2] Lesbian, gay, bisexual, transgender, and queer. See Chapter 2 for more details on my use of LGBTQ and other language used to identify sexual minorities.

global support of same-sex relations (Ayoub and Garretson, 2016). Although there is extensive support for this argument across the Americas and Europe, there is virtually no research on the relationship between media and pro-gay attitudes across Africa. This is surprising given the increased political salience of LGBTQ rights in Africa and the rapidly changing media consumption habits on the continent.[3]

I develop a theory that accounts for pro- and anti-gay-rights actors' mixed approach to the media and show how different types of media create distinct effects on public opinion of LGBTQs. I argue that increased overall media consumption increases support for LGBTQs, but that this effect is driven by consumption of newspaper, internet, and social media. This is, in part, because government censorship of queer content is often directed at television programs that contain positive representations of LGBTQs which many political leaders argue is 'un-African.' However, because governments enthusiastically promote their censorship of queer content, it may actually increase discussion of LGBTQs in other mediums such as newspaper and the internet. This effect is compounded by the fact that pro-LGBTQ activists across Africa often use online mediums to positively shift the national dialogue about same-sex rights or to call attention to violence against LGBTQs, and by the fact that newspapers and internet contain more international content and are more difficult to censor than radio and television (Cottle, 2011; Lynch, 1999).

I test my hypothesis with a mixed-method approach that includes new cross-national survey data from Afrobarometer and content analysis of radio, newspaper, and the internet. I find that individuals who consume more media overall are four to eight percent more likely to express pro-gay beliefs. However, the size and significance of this effect differs across mediums. Radio and television have no, or a negative, significant effect on pro-gay attitudes; whereas, individuals who consume more newspaper, internet, or social media are significantly more likely to support LGBTQs (by approximately 2 to 4%). I use placebo tests to demonstrate that these effects are not driven by socially tolerant individuals self-selecting into certain media diets. Finally, I use two techniques to show that these effects are likely driven by variation in media content. First, I interact media consumption with a measure of social globalization to show that the effect of increased media consumption on support for LGBTQs is larger in countries with higher levels of social globalization

[3]From 2012 to 2016, radio, television, and newspaper consumption across Africa remained stable but internet consumption increased by nearly 50% (Afrobarometer 2016).

(i.e. where queer content is more easily diffused and less likely to be banned) than it is in countries with low levels of social globalization. Second, I combine a unique archive of vernacular radio in Kenya with data on newspaper and internet content from Kenya and across Africa to illustrate how LGBTQs are represented differently on radio than they are in newspaper and the internet.

In the second essay, I shift away from information via the media and focus on information signals created by non-government organizations (NGOs), and the effects these signals have on social institutions and political behavior. Existing research provides conflicting evidence on how NGOs affect political behavior. Several studies find a positive relationship between the presence of NGO activity and increased political participation in activities such as voting and protest (Boulding, 2010, 2014; Brown, Brown and Desposato, 2008; Bleck, 2015). Even if they do not prompt increased political participation, NGOs might complement government service provision (Weisbrod, 1991), resulting in expanded access to critical services and improved perceptions of government legitimacy (Sacks, 2012; Boulding and Gibson, 2009). However, other studies demonstrate that citizens who utilize NGO services are less likely to vote than those who utilize government services, perhaps because they feel less invested in election outcomes (Bleck, 2013).

I argue that, because most of the existing research focuses on how NGOs affect *individual* political behavior, it tends to ignore how NGOs shape the informal social institutions that either incentivize or undermine *collective* political participation. I develop a new theory that conceives of NGOs as information signals that affect perceptions about the government's credibility as a service provider and perceptions about neighbors' likely political activity. In particular, I argue that the increased prevalence of NGOs in a community also increases citizens' exposure to information suggesting that more of their neighbors are exiting from government services. When an individual exits from a government service, that individual no longer has an incentive to engage in oversight or pay taxes for government provision of that service. However, I argue that when a citizen turns to an NGO for services, it not only affects their individual incentives but also reshapes the incentives (and therefore political behavior) of their neighbors. This is because, when citizens are exposed to information suggesting that their neighbors are exiting from government services, it signals that fewer people will join in any collective action directed towards government service providers and reduces the incentives to engage in costly political activity. In short, increased NGO prevalence can reshape the social norms around political participation in the community.

I test this argument with original survey data from Nairobi's informal settlements. I target my research in urban informal settlements because there is wide variation across and within settlements on the prevalence of NGOs (independent variable) and on important confounds such as the strength of government institutions and the diversity of ethnic, religious, and political party affiliation. Descriptively, I find wide variation in the prevalence of NGOs across and within the four communities. For example, 41% of respondents in Kibera say they received a service or benefit from an NGO within the past year compared to 25% in Mukuru. However, across Kibera's five enumeration areas, NGO utilization ranges from just 18% up to 63%. I use regression analysis to estimate the effects of this variation on individuals' political behavior. I find that individuals who live in areas with more NGOs are significantly less likely (by about 35%) to say they would contact the government or support increased taxes for improved education or healthcare. These results are robust even after considering the possibility that other factors, such as government capacity, explain both NGO prevalence and political behavior. Further analysis shows that individuals' political behavior is strongly and positively linked to their expectations of their neighbors' behavior, and that expectations about neighbors' political behavior is negatively linked to the prevalence of NGOs in a neighborhood. This supports my argument that NGO's effects on political behavior are, in part, explained by the link between NGO exposure (information) and expectations about neighbors' political behavior (social institution).

In the final essay, I apply this theory of NGOs as information signals to a specific and increasingly common form of non-state service provision: education. Non-state education is common across sub-Saharan Africa and in other low-income countries. As of 2011, private schools enrolled over 20 percent of all primary-school pupils in low-income countries compared to just 10 percent in middle and high income countries (World Bank 2015).[4] A growing body of research examines how these private schools affect important outcomes such as test scores, attendance, and attrition in places like Colombia, India, Pakistan, and Libera (Barrera-Osorio, 2007; Muralidharan and Sundararaman, 2015; Das, Pandey and Zajonc, 2006; Romero, Sandefur and Sandholtz, 2019). However, by focusing on what I call *programmatic* effects (i.e. enrollment and test scores), most existing research fails to consider the *political* effects (i.e. political participation) of non-state education provision. This

[4]For reasons I explain in Chapter 4, these data likely *underestimate* the true proportion of students using a non-state school in low-income countries.

is surprising given that local and international teachers' unions often invoke these political effects to argue that the proliferation of private education undermines government education provision (Migiro, 2016).

I address this by developing a theoretical argument for how non-state education providers affect the social institutions that incentivize or undermine political behaviors and political perceptions that are critical to government education provision. My argument, which conceives of non-state education providers as information signals, builds directly on the theory outlined in essay two. Specifically, I argue that an increased prevalence of private schools also increases residents' exposure to more information – for example via advertisements, community discourse, and students' school uniforms – signaling 1) that the government has diminished responsibility and credibility as an education provider, and 2) that fewer neighbors are invested in the government schools. I argue that these signals establish a social institution that reduces the incentives to engage in costly political activity to monitor or support government education. I use a choice-theoretic model to outline this theory and to reveal the role that information plays in shaping community members' decisions.

I test this hypothesis with original observational, experimental, and qualitative data from Nairobi's informal settlements.[5] I find variation in school choice across and within the four communities. Overall, about 60% of respondents across all four communities report sending their kids to a private school. However, across enumeration areas within communities, private school utilization ranges from 36% to 75%. I use regression analysis to estimate the effects of this variation on individuals' political behavior and perceptions. Using the observational data, I find that individuals who live in neighborhoods with more private schools are significantly less likely (by about 55-60%) to say the government is responsible for, or capable of, providing education than those who live in neighborhoods with fewer private schools. Similarly, individuals who live in neighborhoods with more private schools are significantly less likely (by about 50–70%) to believe that their neighbors would monitor or support government schools and are less likely (by about 50%) to monitor government schools themselves. These results are robust to credible concerns about selection effects

[5]The research design and analysis plan was reviewed and approved by the University of Washington Institutional Review Board (IRB STUDY00006174). A pre-analysis plan was publicly registered with Evidence in Governance and Politics and is available online at: https://egap.org/registration/5509.

and omitted variable bias.

Next, I use a survey experiment to randomly assign respondents to an information treatment priming them to think that the majority of their neighbors send their kids to either a low-cost private school or a government school. I find no difference between treatment groups (private/government) in respondents' expectations of their neighbors' political behavior or in their own willingness to monitor or support government schools. Similarly, I find no difference between treatment groups in respondents' expectations of their neighbors' anticipated political behavior. Finally, I use qualitative data from focus group discussions to contextualize these null results and find substantive differences in how private and government school parents engage in oversight.

This dissertation contributes to existing research and provides important policy implications. My research on media consumption and LGBTQ support draws from, and contributes to, literatures on political behavior, communications, government censorship, social psychology, and LGBTQ politics. I build on extensive research debating the connection between information exposure (Lupia and McCubbins, 1998; Ferraz and Finan, 2008), including from the media (Iyengar and Kinder, 1987; Farrell, 2012), and political behavior and beliefs. I extend this debate to Africa and provide new evidence that media can have an independent effect on beliefs, but that the effect varies across mediums. Existing research argues that this variation is explained by how individuals select into media diets (Sunstein, 2001; Kroh and Neiss, 2009; Prior, 2007). However, my analysis shows that, regardless of echo chambers (Barberá et al., 2015), media's effects on political beliefs are not explained solely by individuals selecting into media diets that align with their ideological beliefs. Existing research also argues that government censorship moderates media's influence on public opinion and that governments strategically conceal their censorship (Lorentzen, 2014; Roberts, 2018). However, I show that governments proudly publicize their crackdowns on queer content in TV, and I develop a new theory for how this increases discussion of LGBTQ-identity in other mediums. Finally, I contribute to an important debate about how exposure to out-groups affects prejudicial beliefs (Pettigrew and Tropp, 2006; Enos, 2017). While scholars have found mixed evidence on the effects of ethnic diversity across Africa (Miguel and Gugerty, 2005; Scacco and Warren, 2018), I provide some of the first evidence on the effects of exposure to LGBTQs and

explain why it is different than other types of out-group contact.[6]

These findings are timely given the increased salience of gay rights in Africa and the changing media consumption habits across the continent. While governments in the region consistently accuse the media of promoting 'un-African' LGBTQ representation, pro-LGBTQ activists leverage the media to reshape narratives about queer persons. My results suggest that there is some merit to the notion that media plays a role in shaping pro-gay attitudes. On the one hand, this means that gay rights activists who focus on using the media to demystify what it means to be queer could make meaningful strides to win-over public opinion. On the other hand, and to curtail fears that government leaders may use these results to justify increased censorship, the results suggest that censorship may have limits. Although governments can often censor LGBTQ content from the radio and television, it is difficult to prevent citizens from accessing this content from the internet. Ultimately, my results suggest that, although governments may effectively suppress LGBTQ content from television, increased discussion of LGBTQ identity in other mediums alongside expanding internet access may help to increase public support of LGBTQs.

My research on NGOs' effects on political behavior bridges and advances diverse research agendas, provides policy insight, and points to several areas of future work. First, I advance a long-standing literature on NGOs' political effects (Boulding, 2014; Brass, 2016; Cammett and MacLean, 2014) by connecting it to other research on social institutions (Knight, 1992; Acemoglu, Johnson and Robinson, 2005; Levi, 1989), collective action (Hirschman, 1970; Olson, 1965), and government accountability (Björkman and Svensson, 2009; Olken and Pande, 2013). My key finding is that increased NGO-prevalence is linked to a decrease in the probability that individuals will monitor or support government services, and that this effect is driven by the fact that NGOs emit information signals that reshape the social institutions that govern political behavior.

One key policy implication is that donors and practitioners should pay more attention to whether they are directing their programs to communities that already have a strong NGO presence. NGOs should also be aware of the information signals they emit and consider whether there is a way to increase access to services while simultaneously providing tools that support government accountability. My findings also underscore the need for more research on NGOs' political effects.

[6]In other research with Sarah Dreier and James Long, we show that exposure to religious out-groups also increases support for LGBTQs (Dreier, Long and Winkler, 2019).

Specifically, future research on NGOs' political effects should not be limited to the type of NGO or on the effects of individual utilization on individual political behavior. Instead, research should also consider how the *number* of NGOs in a community affects social norms regarding political behavior. This is especially relevant given that NGOs tend to 'cluster' together in certain communities (Koch et al., 2009).

More specific to education, I contribute to existing research that examines how private schools affect important outcomes such as academic performance and equitable school access (Cremata et al., 2013; Romero, Sandefur and Sandholtz, 2019; Das, Pandey and Zajonc, 2006; Muralidharan and Sundararaman, 2015; Hsieh and Urquiola, 2006; Lucas and Mbiti, 2012). Although these studies cover diverse regions and both high- and low-income countries, they tend to overlook a set of important outcomes related to political behavior and government accountability. My theory extends the existing literature by providing a framework that can be used to better understand, and test for, the political effects of private schools. In doing so, I also show how research in education and economics is connected to research on social institutions (Acemoglu, Johnson and Robinson, 2005; Knight, 1992; Levi, 1989), collective action (Hirschman, 1970; Olson, 1965), and government accountability (Björkman and Svensson, 2009; Olken and Pande, 2013).

My results provide some of the first empirical evidence on the political effects of privatized education on government education provision in low-income countries. These results can help to inform active and important debates among policymakers, education advocates, donors, and private providers. On the one hand, my findings align with some public education advocates' argument – especially in Kenya, Liberia, and Uganda – that increased privatization will undermine government education provision in the long term. However, I also find that individuals who actually utilize private schools are not less likely to monitor or support government education. This suggests that any demobilization effects of increased privatization may be driven by individuals' *misconceptions* about the expected political behavior of their neighbors who utilize private schools, and therefore could be mitigated by programmatic or policy interventions that help establish a social institution in favor of monitoring and supporting government schools. At the same time, results from my survey experiment suggest that it is difficult to design information interventions that can actually shift existing social norms in the community.

Regardless, it is critical to understand how the growth of non-state education providers affects

the governance and institutional development of public education. This is especially true in low-income countries generally, and informal settlements specifically, where a disproportionate number of children attend private schools and where public education systems are often underdeveloped. I provide a theoretical framework and new data to help us understand the potential implications of this phenomenon. In doing so, I provide strong motivation for future research to more seriously examine the political effects of privatized education in low-income countries.

Chapter 2

MEDIA'S INFLUENCE ON LGBTQ SUPPORT ACROSS AFRICA

Public attitudes and legal protections regarding lesbian, gay, bisexual, transgender, and queer (LGBTQ)[1] identified persons are changing rapidly in many regions, including the United States, Europe, and Latin America (Ayoub, 2016; Kollman, 2007; Asal, Sommer and Harwood, 2013; Brewer, 2003). However, across Africa, the gay community continues to face physical and rhetorical threats.[2] Most of this backlash comes from government and religious leaders who claim that foreign, pro-gay norms are spreading across the continent. In response, governments frequently censor the media[3] to limit the marketplace of ideas and prevent exposure to pro-LGBTQ representation. For example, a governmental board in Kenya recently banned six cartoons for, "glorifying homosexual behavior"(Dahir, 2017). Critically, because a single cable company often provides services in several African countries, censorship in one country affects dozens of markets. At the same time, LGBTQ activists across Africa often view the media as an important tool to advance their cause. The Pan African International Lesbian, Gay, Bisexual, Trans, and Intersex Association describes the media as a 'key target group' and conducts media training for member organizations (Lusimbo and Oguaghamba, 2017). Activists often use online mediums to positively shift the national dialogue about same-sex rights, or to call attention to violence against LGBTQs. The persistent accusations about the media's role in spreading pro-gay attitudes, the prevalence of media censorship across the continent, and activists' use of media as a tool, all raise important questions about media's influence on public opinion of gays across Africa.

I study if, and how, media consumption explains individual support for homosexuality in 33 African countries. A robust literature argues that the media plays a role in shaping public opinion

[1]The language used to identify sexual minorities can affect public perceptions of these individuals (Smith et al., 2017). I use 'LGBTQ,' 'gay,' 'homosexual,' and 'queer' interchangeably to avoid arbitrarily selecting an imprecise identifier.

[2]There are exceptions, including the legalization of same-sex marriage in South Africa and movements to remove colonial-era penal codes that criminalize same-sex sexual acts in Mozambique and Namibia.

[3]When I use 'media' I am referring to radio, television, newspaper, internet, and social media.

(McCombs and Shaw, 1972; Iyengar and Kinder, 1987), partially because it exposes individuals to new information (Mutz, 2002). However, others note that media's effects may be limited to nonpartisan topics (Barberá et al., 2015), and that media may not facilitate exposure to new information if its consumption is driven by ideology (Sunstein, 2001) or if it easily manipulated by the government (Roberts, 2018). More specific to LGBTQs, recent work by Ayoub and Garretson (2016) shows that increased access to diverse media explains some of the growing global support of same-sex relations. However, there is scarce research on public opinion of LGBTQs in Africa, and virtually no research on the relationship between media use and gay support across the continent.[4]

I develop a theory that accounts for the variety of ways in which pro- and anti- gay-rights actors engage with the media, and that generates clear expectations about how different types of media create distinct effects on public opinion of LGBTQs. I argue that increased overall media consumption increases support for LGBTQs, but that this effect is driven by consumption of newspaper, internet, and social media. This is because government censorship of queer content is often directed at television programs that contain positive representations of LGBTQs. However, because governments actively promote their censorship of queer content, it may actually increase discussion of LGBTQs in other mediums such as newspaper and the internet. This effect is compounded by the fact that newspaper and internet are more difficult to censor than radio and television (Lynch, 1999; Cottle, 2011), and that these mediums, particularly the internet, contain more international content.[5]

My argument draws from, and contributes to, literatures on political behavior, communications, social psychology, and LGBTQ politics. I build on extensive research debating the connection between information exposure (Lupia and McCubbins, 1998; Ferraz and Finan, 2008), including from the media (Iyengar and Kinder, 1987; Farrell, 2012), and political behavior and beliefs. I extend this debate to Africa and provide new evidence that media can have an independent effect on beliefs, but that the effect varies across mediums. While some of this variation may be driven

[4]Ayoub and Garretson (2016) do include a handful of African countries in their cross-national, cross-regional study, and Dulani, Sambo and Dionne (2016) use descriptive data to discuss general correlations between media consumption and social tolerance in Africa.

[5]Foreign cultural and political forces do not always promote *pro*-gay attitudes. Institutions such as colonialism (Ireland, 2013) and fundamentalist churches (Grossman, 2015) may increase the politicization of sexuality and motivate *anti*-gay attitudes across the continent.

by how individuals select into media diets (Sunstein, 2001), government censorship also influences media's effects on public opinion (Roberts, 2018). However, while existing research argues that governments intentionally conceal their censorship (Lorentzen, 2014; Roberts, 2018), I show that governments proudly publicize their crackdowns on queer content in TV, and develop a new theory for how this increases discussion of LGBTQ-identity in other mediums. Finally, I contribute to an important debate about how exposure to out-groups affects prejudicial beliefs (Pettigrew and Tropp, 2006; Enos, 2017). While scholars have found mixed evidence on the effects of inter-ethnic exposure across Africa (Miguel and Gugerty, 2005; Scacco and Warren, 2018), I provide some of the first evidence on the effects of exposure to LGBTQs and explain why it is different than other types of out-group contact.

I apply these theories on the African continent, where gay rights are increasingly politicized and where there are rapid changes in media consumption habits.[6] To test hypotheses, I use cross-national survey data from Afrobarometer Round 6 conducted in 2014 and 2015. At baseline levels, I find that 78 percent of respondents report negative attitudes towards homosexuality. However, individuals who consume more media overall are four to eight percent more likely to express pro-gay beliefs. As expected, the size and significance of this effect differs across mediums. Radio and television have no, or a negative, significant effect on pro-gay attitudes; whereas, individuals who consume more newspaper, internet, or social media are significantly more likely to support LGBTQs (by approximately 2 to 4%). These results are stable across a number of sensitivity analyses that address concerns such as selection effects. Finally, through content analysis of radio, newspaper, and internet, I provide preliminary evidence that the mechanism driving these effects is increased access and exposure to positive LGBTQ representation.

While existing studies have similarly found that out-group exposure, including from the media, reduces prejudicial beliefs, it is critical to understand how this finding translates to other settings. This is especially true for public opinions of sexual minorities because, unlike other forms of social diversity such as race or ethnicity, LGBTQs exist as a minority in every country. In addition, because LGBTQ-identity does not determine political coalition formation, and because LGBTQ politics is not (yet) a partisan issue in most of Africa, I argue that increased exposure to queer

[6]See Table 2.1.

identity is unlikely to spark the types of backlash or ideological retrenchment that is common with other forms of out-group exposure. Ultimately, my results suggest that, although governments may effectively suppress LGBTQ content from television, increased discussion of LGBTQ identity in other mediums alongside expanding internet access may help to increase public support of LGBTQs.

2.1 Theoretical Motivation

2.1.1 Media, Public Opinion, & Support of LGBTQs

Existing research has long argued that the media shapes public opinion (McCombs and Shaw, 1972; Iyengar and Kinder, 1987), including on a number of socio-political issues such as the death penalty (Baumgartner, 2008), civil liberties (Swigger, 2013), and religion, gender, and sexual activity (Norris and Inglehart, 2009). Increased usage of internet and social media, in particular, creates new questions about media's effect on political behavior. While many studies are optimistic about the internet's role in politics, including its positive effect on political engagement and inter-group trust (Jennings and Zeitner, 2003; Kittilson and Dalton, 2011; Lupia and Philpot, 2005; Robertson, 2017), others have raised concerns about its negative effects on democracy (Persily, 2017; Sunstein, 2001). I discuss these arguments and draw out two mechanisms through which the media may affect public opinion of LGBTQs: by exposing individuals to positive representations of LGBTQs, and by exposing individuals to new information in general.

First, increased representation of openly gay persons in television, movies, and the news exposes viewers to LGBTQs and can induce positive attitudinal change. This builds on the idea that exposure to social out-groups reduces prejudicial attitudes towards those groups (Pettigrew and Tropp, 2006). While many studies on social diversity focus on the effects of inter-ethnic (Kasara, 2013; Scacco and Warren, 2018) or inter-religious exposure (Raymond, 2016; Dreier, Long and Winkler, 2019), there is mounting evidence that exposure to LGBTQ persons via interpersonal contact has an especially strong effect on pro-gay attitudes (Broockman and Kallah, 2016; Lewis et al., 2017; Flores et al., 2017; Flores, 2015; Herek and Capitanio, 1996; Lewis, 2011; Tadlock et al., 2017). Critically, exposure to LGBTQs via the media, or parasocial contact (Schiappa, Gregg and Hewes, 2005), can produce similar positive effects on attitudes (Schiappa, Gregg and Hewes, 2006; Garretson, 2015; Jones et al., 2018). Television shows such as *Queer as Folk* and *Will and Grace* are

cited as examples of LGBTQ representation that helped shift the tide towards pro-LGBT attitudes in the United States (Gross, 2001). Today, several shows such as *Pose*, *Empire*, and *Sense 8* are lauded for providing representation of transgender and non-white LGBTQs.

While others have found that exposure to social out-groups can increase bias beliefs (Forbes, 1997; Enos, 2014), leading to increased violence (Lim, Metzler and Bar-Yam, 2007), and discriminatory (Lieberman, 2009) and inefficient (Habyarimana et al., 2007) provision of resources, there are at least two key reasons why exposure to LGBTQ-identity may create different outcomes. First, many of the studies that predict negative effects from inter-group contact focus on social identities, such as ethnicity or religion, that are intertwined with the formation of political coalitions and, therefore, decisions regarding the distribution of scarce resources. However, LGBTQs transcend these ethnic and religious factions (meaning that all LGBTQ individuals are not either Catholic or Muslim, Kikuyu or Luo, etc.), and are not aligned with major political power centers in Africa. In other words, heterosexuals can adopt pro-gay attitudes without concern that LGBTQs will threaten their access to public goods. Second, the ways in which out-group exposure affects prejudiced beliefs is likely conditional on local levels of segregation. Enos (2017) shows that when segregation is high, exposure to an out-group is more likely to increase prejudice; whereas, where segregation is low, exposure is likely to decrease prejudice. However, gay and non-gay identity is rarely, if ever, segregated in ways similar to other identities such as race, ethnicity, or religion. Therefore, while increased politicization of LGBTQ-rights is often framed as a moral threat, it is unlikely that increased exposure to LGBTQs will be seen as a threat to political and economic power as is often the case with religious and ethnic groups.

Second, media consumption can induce attitudinal change by serving as a conduit of new information. Here, exposure still matters, but it is less about exposure to out-groups and more about exposure to information that contradicts existing beliefs. Exposure to new information often prompts additional information seeking (Marcus, Neuman and MacKuen, 2000), and has been shown to increase public discourse (Habermas, 1989) and the diversity of political views (Manin, Stein and Mansbridge, 1987; Mutz, 2002). This argument assumes, first, that increased media consumption does expose individuals to new information and, second, that individuals update their beliefs when confronted with this new information. However, an individual's frequency and type of media consumption may not be orthogonal to their social attitudes. Research shows that individ-

uals often select into information that confirms existing beliefs (Kroh and Neiss, 2009). This may be especially true among social media users and could create a situation where increased media consumption actually leads to decreased contact between people with opposing views (i.e. echo chambers) (Sunstein, 2001; Prior, 2007).[7] However, others have found that the presence of echo chambers varies by political topic and over time (Barberá et al., 2015), and that ideological segregation is much lower on the internet than it is among in-person social networks (Gentzkow and Shapiro, 2010). Even if individuals select into homogeneous online communities, there is evidence that incidental exposure to cross-cutting views is common online (Flaxman, Goel and Rao, 2016). Regardless, in the analysis, I take seriously this mixed evidence on media's effects and include a number of robustness tests to guard against selection bias.

To fulfill the second assumption, individuals must not only be exposed to new information but must also be willing to update their beliefs. While experimental evidence suggests that citizens do change their opinions when presented with information that contradicts previously held beliefs (Kuklinski et al., 2000; Gilens, 2001), others have found that citizens are resistant to new information. Nyhan and Reifler (2010) find that when individuals are presented with corrective information about their political misperceptions, they often double down on existing beliefs. This could be because individuals often resort to ideology when evaluating new information (Taber and Lodge, 2006). However, unlike recent years in the United States and in some European countries, LGBTQ-politics is not a highly partisan issue across Africa. There are few, if any, major political parties in Africa that list LGBTQ rights as part of their platform. This makes it less likely that exposure to queer-identity will motivate anti-gay attitudes.

2.1.2 Media, Norm Diffusion, & Government Censorship of Queer Content

For either of the two mechanisms outlined above to influence LGBTQ related attitudes, citizens must have access to media that contains gay representation and/or new information. Several factors, including the diffusion of international media, the capacity and strategy of government censorship, and the ways in which local gay-rights organizations utilize the media, all affect the degree to

[7]This point may also help to explain recent evidence showing that individuals who consume news from social media do not experience the same learning effects as individuals who consume news from more traditional sources such as newspapers or online news sites (Shehata and Strömbäck, 2018).

which this content is available across Africa. International relations scholars have long argued that a variety of instruments, including non-state actors (Keck and Sikkink, 1998), institutions (Finnemore and Sikkink, 1998), and epistemic communities (Adler, 1992) diffuse dominant norms across the globe. Today, increased access to diverse mediums raises new questions about the ways in which norms spread. Scholars have argued that both the television and internet generate cross-border norm diffusion that facilitates democratic transitions (Huntington, 1991; Linz and Stepan, 1996) and the spread of progressive liberalism (Norris and Inglehart, 2009). Similarly, Ayoub and Garretson (2016) find that LGBTQ representation, coupled with diffusion of media across borders, has led to growing global support for homosexuality.[8] Other research shows that countries that are more connected to transnational advocacy networks, and LGBT INGOS in particular (Velasco, 2018), are also more likely to adopt pro-LGBT policies (Velasco, 2020).[9]

The degree to which pro-gay and/or diverse content is diffused across borders is also a function of government censorship. Despite important scholarly work on the strategic nature of government censorship (Lorentzen, 2014), we know very little about how governments censor queer content in particular. Recent studies on censorship in authoritarian contexts show that, rather than apply sweeping restrictions, governments often target their censorship on information that is likely to spark mobilization (King, Pan and Roberts, 2013), or choose more discrete approaches such as spreading propaganda and misinformation online (King, Pan and Roberts, 2017; Roberts, 2018). Governments use these strategic, discrete approaches because, when censorship is obvious, citizens are more likely to find ways to circumvent the restrictions (Roberts, 2018). On the one hand, this suggests that governments can employ sophisticated censorship of queer content and effectively prevent exposure across all mediums.

However, I argue that the reality of queer censorship in Africa differs from other forms of censorship. First, whereas much of the research on censorship is focused on explicitly political content that could undermine the regime (i.e. negative information about political leaders), queer

[8]International diffusion of pro-gay content is less consequential if LGBTQ representation and diverse content is widespread in the domestic media. This is increasingly true in some African countries, but, as I describe in Section 2.2, it is far from the norm. Recent studies demonstrate that when Africans use internet search engines they are consuming information that is overwhelmingly produced in the United States or France (Ballatore, Graham and Sen, 2017).

[9]Interestingly, the same research finds that countries that are more connected internationally through foreign aid partners are resistant to progressive LGBT policies (Velasco, 2020).

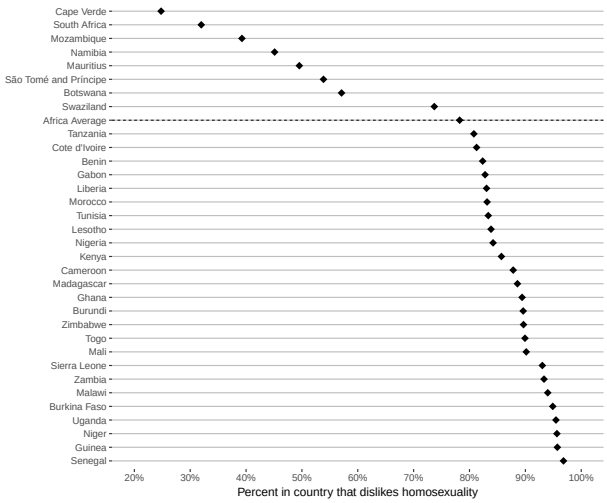
censorship tends to focus more on stories, images, and other representations of gay life. In turn, the most obvious target for queer censorship is television. Second, unlike other forms of censorship where governments prefer that citizens not know about their actions (Roberts, 2018), African politicians often make bold public statements about their crackdown on gay content. This can create the opposite effect by increasing newspaper, internet, and social media discussion of LGBTQs – including positive coverage that is driven by LGBTQ activists – and encouraging citizens to find information online (Hobbs and Roberts, 2018). Increased media coverage will not necessarily induce empathy for LGBTQs if citizens interpret the coverage through a partisan lens (Taber and Lodge, 2006); however, because LGBTQ support is not a partisan issue across Africa, this type of ideologically motivated reasoning is less likely. Finally, governments in general have more power to censor traditional forms of media such as radio and television than they do to censor new media such as the internet (Lynch, 1999; Cottle, 2011). Although African governments do successfully manipulate online content, this censorship is typically focused on political content around the time of elections (Matfess, 2016). In sum, I argue that media's effect on LGBTQ-related attitudes is conditional on the degree of norm diffusion and queer censorship and that these conditions vary across mediums.

2.2 Setting: Media Censorship & LGBTQ Support in Africa

Expanding internet access, the persistence of government censorship, and heightened politicization of sexuality make Africa an especially critical region for this study. Many believe that homophobia is rampant on the continent. Descriptive data, which I report below in Figure 2.1, confirms that support for homosexuality is low across Africa. However, there is extensive documentation of diverse same-sex practices across time, cultures, and regions in Africa (Epprecht, 2013; Tamale, 2007). Today, gay-rights groups are organizing social movements and pride events, pursuing litigation, and lobbying their governments to end colonial era anti-gay penal codes. Further, same-sex marriage is legal in South Africa, and public support for homosexuality is above 50 percent in Cape Verde, Mauritius, Mozambique, Namibia, and South Africa.

There has been little research on public attitudes regarding sexuality in Africa, mostly because of a lack of comprehensive data. Dionne, Dulani and Chunga (2014) provide some of the first cross-national analysis of public opinions regarding homosexuality on the continent and report that

Figure 2.1: Support for Homosexuality in 33 African Countries



baseline levels of support are low across all demographics. Others have focused on religion's effects, including the role that religious diversity (Dreier, Long and Winkler, 2019) or international religious groups (Grossman, 2015; Dreier, 2018) play in shaping the political salience and public opinions of LGBTQs. Meanwhile, qualitative analysis shows that increased politicization of sexuality, including in the media, may actually diminish support for homosexuality (Awondo, Geschiere and Reid, 2012). Finally, preliminary descriptive analysis has looked at the relationship between media and social tolerance in general (Dulani, Sambo and Dionne, 2016). However, I am not aware of any study that uses cross-national, quantitative analysis to examine the degree to which individual-level media consumption explains individual attitudes regarding homosexuality in Africa. This is surprising both because scholars have long noted the important role that media plays in attitude formation and change over time, and because of the changing dynamics of media consumption across Africa. Table 2.1 shows reported media consumption rates from Afrobarometer's Round 5 and Round 6 data. Although the percentage of respondents who consume radio, TV, and newspaper is largely stable, the number of respondents who consume internet increased by nearly 50 percent within just two to five years.

Meanwhile, the actions of both African political leaders and gay-rights activists signal a strong belief in media's relationship to pro-gay attitudes. Political leaders argue that homosexuality is

Table 2.1: Percent of Afrobarometer Respondents who Consume Medium at least Once per Month

	Round 5 (2011-2013)	Round 6 (2015-2016)	% Change
Radio	82.30	81.49	-0.98
TV	59.14	60.70	2.62
Newspaper	38.30	39.66	3.55
Internet	18.94	28.17	48.77

'un-African,' and that foreign norms are corrupting their citizens' views on sexuality. In turn, governments target what they believe to be the sources of these foreign norms, including a focus on censoring domestic and international media. For example, the Kenyan government banned a Kenyan-made film, *Stories of Our Lives*, because the film about the country's LGBTQ community was considered a threat to "national values and norms" (Vourlias, 2014). The same government has banned cartoons with gay characters and has threatened a total ban of Netflix. In Nigeria, two shows that focus on the lives of transgender individuals – *I am Jazz* and *I am Cait* – were recently banned from television. Importantly, because a single cable company often provides services in several African countries, censorship of TV creates especially large effects because the restrictions are applied to dozens of other countries. For example, censorship of the cartoons in Kenya and the transgender shows in Nigeria forced the cable provider to remove these shows from every sub-Saharan African country.

Although governments frequently censor radio, television, and film, citizens and activists often find ways to evade censorship by creating and accessing online material. Organizations often use social media to combat negative stereotypes. For example, LGBTQ activists in Kenya, with the intent of correcting common misperceptions about the queer community, started a podcast where they respond to anonymous listeners' questions about topics such as religion and sexuality and same-sex sexual practices. Similarly, a gay rights organization in North Africa created an online campaign to highlight violence against LGBTQs in Egypt, Morocco, Sudan, and Tunisia, reaching over 300,000 users (HRW, 2018). Meanwhile, despite the focus on banning transgender shows from cable television, "authentic African transgender stories can live and thrive online," (Chutel, 2016). This is the case for *The Pearl of Africa*, a free web series that documents the transition of a Ugandan transgender woman. Internet search trends also suggest that many African citizens seek

out gay-related content online. According to Google search trends from 2004-2017, five African countries – Uganda, Ghana, Kenya, Nigeria, and South Africa – are among the top ten countries in the world where 'homosexuality' is the most popular search term as a fraction of all search terms (Google, 2017).[10] Although African governments do restrict internet access and content, these restrictions are typically related to suppressing political opposition and winning elections (Matfess, 2016). Even with growing internet controls, citizens can turn to virtual private networks (VPNs) to access banned online content. For example, when the Ugandan government banned social media during the 2016 elections, 1.5 million citizens downloaded VPN software, and Tor (an anonymous browsing service) reported a spike in usage in the country (Phillips and Atuhaire, 2016).

2.3 Data

I test my hypotheses with cross-sectional survey data from Round 6 of Afrobarometer collected in 2014 and 2015. The surveys, designed with a sampling technique that allows inferences to all voting age citizens in a given country,[11] are based on face-to-face interviews conducted in local languages in 33 African countries.[12] Importantly, Round 6 is the first round of Afrobarometer data to include, in the majority of sampled countries, a question on attitudes regarding homosexuality. Therefore, this is the most current and comprehensive data available on Africans' attitudes regarding homosexuality.

My primary dependent variable is a question in the survey that asks how the respondent would feel about having a 'homosexual' as a neighbor.[13] There are limitations imposed by the use of

[10] I also use Google search trends data in Section 2.5 below. See that section for a more in-depth review of the strengths and limitations of using Google search trends.

[11] The sampling process includes the following steps: primary sampling units (PSU) are randomly selected; a sampling starting point is randomly selected; households are randomly selected (eight households are clustered within each PSU); within the household, respondents are randomly selected alternating between female and male respondents.

[12] These countries are listed in Figure A.2 in the Appendix.

[13] This question is part of a battery of questions designed to measure the respondents' tolerance of different demographic groups. The question reads, "For each of the following types of people, please tell me whether you would like having people from this group as neighbors, dislike it, or not care: people of a different religion, people from other ethnic groups, homosexuals, people who have HIV/AIDS, immigrants or foreign workers." I note that respondents may have different perceptions of 'neighbor'. If this is the case, I assume that perceptions of neighbor are most likely correlated by geography so I control for urban/rural dwelling and include district clustered standard errors. I also recognize that social desirability might drive respondents to misrepresent their true preferences when responding to this question. However, given the widespread anti-gay sentiment across the continent, I expect that

the word 'homosexual' in the survey question, mainly because this phrasing may not represent the varied queer practices across Africa. Alternatively, Afrobarometer could have used local derivations of 'homosexual'. However, because surveys were conducted in over 100 unique languages, this approach would yield more imprecise measurements and introduce further discord about which word is appropriate in each language. Ultimately, though I recognize that 'homosexual' may not capture the diversity of non-heterosexual identities across Africa, I argue that this is the most precise, yet generalizable data available for the majority of African countries. The recorded responses to the question include: strongly dislike, somewhat dislike, would not care, somewhat like, or strongly like. I bin these responses to create a binary variable where 'strongly dislike' and 'somewhat dislike' are coded as 0 to indicate a negative attitude towards homosexuality, while 'would not care,' 'somewhat like,' and 'strongly like' are coded as 1 to indicate an indifferent or positive attitude towards homosexuality.[14] I argue that this binned coding is substantively meaningful because 'not caring' about having a homosexual neighbor is a plausible progressive response. I also replicate my main models on the unbinned version of the dependent variable and get the same results (see Table A.4 in the Appendix).

My primary explanatory variables are questions in the survey that ask how often the respondent gets their news from five different sources: radio, television, newspaper, internet, and social media. The recorded responses include: never, less than once a month, a few times a month, a few times a week, or every day. I code this as a continuous, numeric variable ranging from one to five, where five equals more frequent consumption of news from the given medium. I also create a variable that aggregates an individual's consumption of all five media sources.[15]

One concern might be that all of these media consumption variables are highly correlated and therefore not unique measures. A correlation matrix (Table A.2 in the Appendix) shows that some variables such as internet and social media are highly correlated, but for the most part they appear to be distinct measures. To further address concerns about collinearity, when testing the effect of a single type of media, I control for consumption of all other sources of media. I also include a number

any response bias would result in respondents *under-reporting* their support for homosexuality and therefore my under-estimation of the main effects.

[14]Figure A.1 in the Appendix shows the distribution of the unbinned and binned version of the dependent variable. Figure A.2 shows this distribution by country.

[15]Figure A.3 in the Appendix shows the distribution of each media consumption variable.

of individual-level control variables to account for common alternative explanations, including, age, gender, income,[16] education, level of religiosity,[17] and whether the respondent lives in an urban setting. To address concerns that socially tolerant individuals select into consumption of certain mediums, I also include a control for overall social tolerance. To do this, I create a new variable, *tolerance*, that aggregates each individual's responses to every question in the battery of tolerance questions.[18] Each of these individual-level control measures come from the same Afrobarometer survey data. Finally, I use the updated *Konjunkturforschungsstelle* (KOF) (Dreher, 2006; Gygli, Haelg and Sturm, 2018) index of social globalization to run a set of models that include a country-level measure of press freedom and norm diffusion. Table A.1 in the Appendix shows the descriptive statistics for each of the primary variables used throughout the analysis.

2.4 Models & Results

I begin by estimating six binomial logit models to test the relationship between media consumption and individual attitudes towards homosexuality. In the first model, the explanatory variable is an aggregate of the respondents' consumption from all five mediums. In models 2-5, I look at the effect of each medium individually. In all models, I include country fixed effects, district-clustered standard errors, and the individual-level controls. Country fixed effects help to account for within-country correlations resulting from country-level factors such as economic and institutional development. District-clustered standard errors help to account for further sub-national correlations, including those caused by disparate access to some mediums. The individual-level controls account for common alternative explanations described above.

Results for the binomial logit models are reported in Table 2.2. Column 1 indicates that individuals who consume more media overall are also significantly ($p<0.01$) more likely to say that they would not mind, or would like, living near a homosexual. Columns 2-6 show the effect of specific types of media, while keeping constant the aggregate consumption from other forms of

[16] I use access to water as a proxy for income. It is a continuous, numeric variable ranging from 1 to 3, where 1 means there was no water in the compound and 3 means there is water inside the house.

[17] In Table A.6 in the Appendix I also include a control for religious affiliation. The results are nearly identical to the results of only controlling for religiosity.

[18] In Figure A.4 in the Appendix, I show that removing social tolerance does not create any substantive change to the marginal effects of any of the models.

media. As expected, newspaper, internet and social media consumption are all correlated with a significant ($p<0.01$) increase in support for homosexuality, while radio and TV consumption have no significant correlation with LGBTQ support. Several individual-level control variables are also correlated with attitudes regarding homosexuality. Increased social tolerance, identifying as female, and increased income level are all positively and significantly ($p<0.01$) correlated with support for homosexuality in every model, while increased religiosity and age are negatively and significantly ($p<0.01$) correlated with support for homosexuality.

Table 2.2: Effect of Media Consumption on LGBT Attitudes (Logit Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.023***					
	(0.005)					
Radio		−0.017				
		(0.012)				
TV			0.009			
			(0.015)			
Newspaper				0.061***		
				(0.013)		
Internet					0.046***	
					(0.014)	
Social media						0.046***
						(0.013)
Other media		0.031***	0.026***	0.014***	0.016**	0.016**
		(0.005)	(0.005)	(0.005)	(0.007)	(0.006)
Tolerance	0.944***	0.945***	0.945***	0.945***	0.944***	0.944***
	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)
Female	0.145***	0.140***	0.147***	0.149***	0.145***	0.143***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Education	0.009	0.005	0.008	0.007	0.007	0.008
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Religiosity	−0.069***	−0.068***	−0.068***	−0.069***	−0.068***	−0.068***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age	−0.010***	−0.010***	−0.010***	−0.010***	−0.010***	−0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.101***	0.092***	0.104***	0.100***	0.101***	0.101***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Urban	−0.007	−0.018	−0.001	−0.011	−0.005	−0.004
	(0.045)	(0.045)	(0.046)	(0.045)	(0.045)	(0.045)
Constant	−4.751***	−4.727***	−4.843***	−4.808***	−4.816***	−4.821***
	(0.208)	(0.214)	(0.211)	(0.211)	(0.214)	(0.213)
Observations	46,843	46,843	46,843	46,843	46,843	46,843
AIC	35,588	35,572	35,588	35,580	35,590	35,590

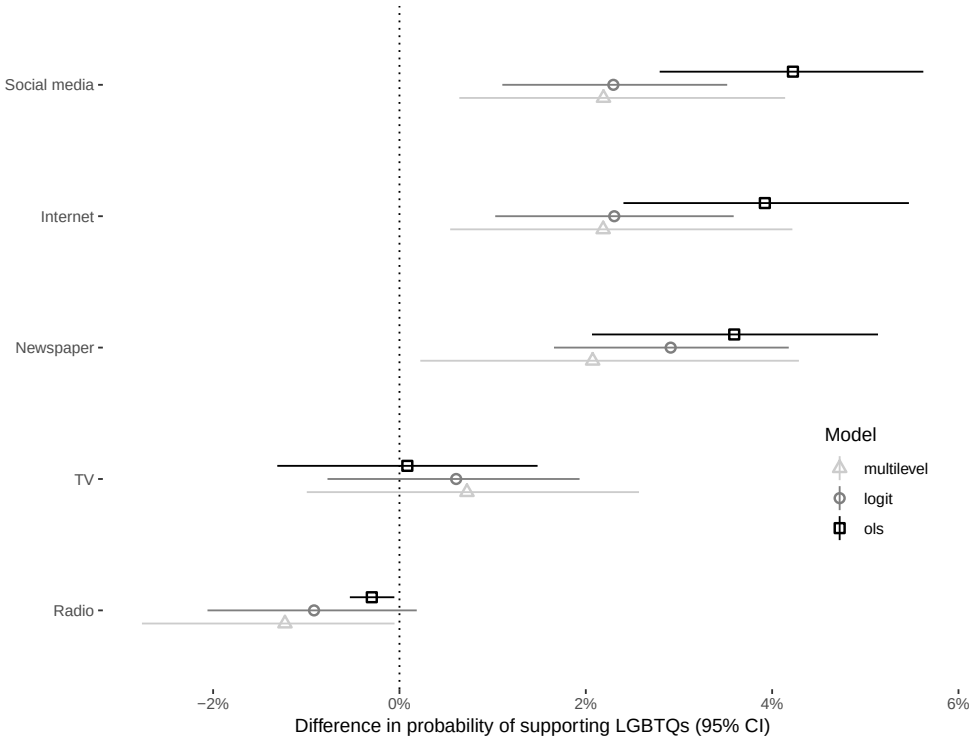
Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

To interpret the substantive effect of these models, Figure 2.2 plots the expected change in sup-

port for LGBTQs when an individual moves from 'none' to 'daily' consumption for each medium. Individuals who consume more newspaper, internet, or social media are about two to four percent more likely to report a positive view of LGBTQs. On the one hand, this means that even the largest increase in media consumption results in a relatively small increase in support for homosexuality. However, as I discuss below, the finding is consistent across a number of robustness checks, suggesting that the effect is well-estimated. These effects should also be considered in relation to the changing media consumption habits across Africa reported in Table 2.1. Most importantly, internet consumption increased by nearly 50% in the past three years. If the effects reported in Figure 2.2 persist alongside the rapid expansion of internet usage across Africa, there is potential for meaningful changes in LGBTQ support across the continent.

Figure 2.2: Change in support of LGBTQs when moving from 'none' to 'daily' media consumption



2.4.1 Model Sensitivity

My main results hold when I replicate the binomial logit models with ordinary least squares (OLS) and ordered probit models (see Tables A.3 and A.4 in the Appendix). Each of these models report the average effect of each medium keeping constant country-level factors and correcting for clustering at the sub-national district level. This fixed-effects approach is useful when we are interested in the differences in average effects across units (i.e. countries) that may be correlated with the main covariate (i.e. media consumption) (Wooldridge, 2010).[19] However, a downside to this approach is that it assumes each medium's effect is consistent across each country. Varying levels of censorship and norm diffusion may challenge this assumption. To account for this, I follow Gelman and Hill (2007) and estimate a multilevel model with varying intercepts and varying slopes for media's effect within each country and varying intercepts for each subnational district. The main effects from this multilevel model are reported in Table A.5 in the Appendix, and the overall marginal effects are included in Figure 2.2 above.[20] My main results hold in this multilevel model and the marginal effects of each medium, reported in Figure 2.2 above, are similar to those from the logit model (though with slightly larger confidence intervals).

2.4.2 Placebo Tests

To interrogate whether my results are driven by an endogenous relationship between general social tolerance and media consumption habits, I perform placebo tests of media consumption on other measures of social tolerance. I replace the homosexuality dependent variable with four other demographic variables from the same battery of questions: religion, ethnicity, HIV/AIDs, and foreigner/immigrant. If my results are driven by the fact that socially tolerant individuals tend to consume more of certain types of media, then we should expect this media consumption to have a similar relationship with other measures of out-group tolerance. Figure 2.3 shows the effect that each type of media consumption has on the different demographic out-groups. The effects reported in Figure 2.3 are derived from the same logit equation used in my main models and include all of

[19]This is because introducing random effects into a model where α is correlated with X results in omitted variable bias. There is strong reason to believe that media consumption is indeed correlated with country-level factors.

[20]I discuss the country-level results in Section 2.4.3.

the individual-level controls, country fixed effects, and district clustered standard errors. The only change is in the dependent variable.[21]

Figure 2.3: Change in out-group support when moving from 'none' to 'daily' media consumption (logit)

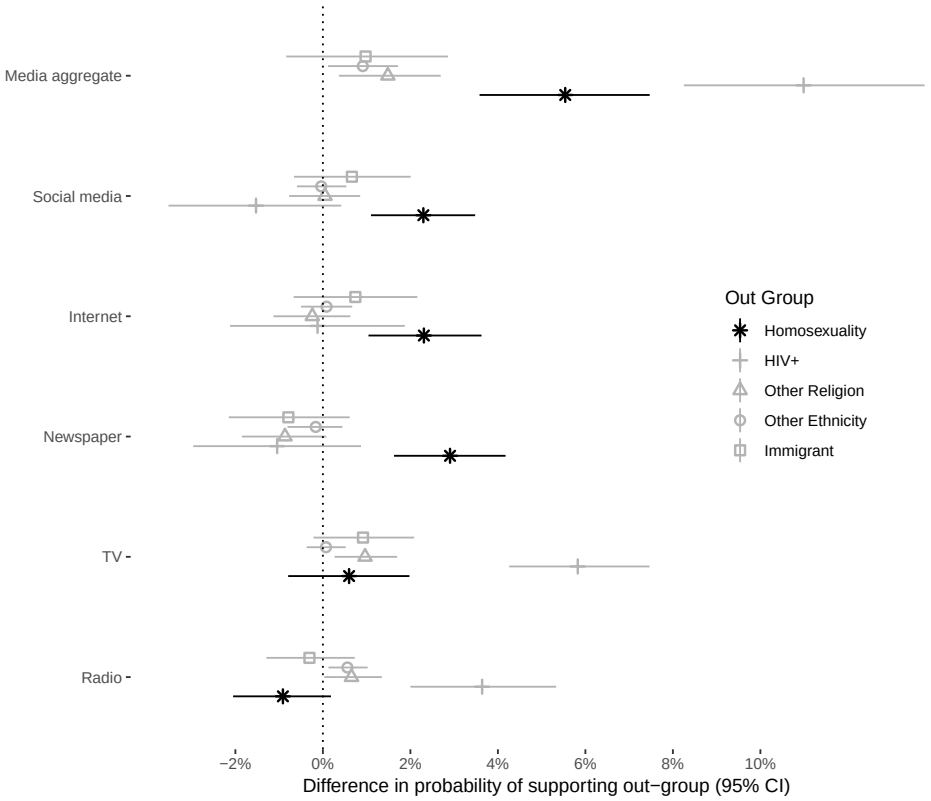


Figure 2.3 reveals that there is clearly something unique about the relationship between media consumption and attitudes regarding homosexuality. Most notably, increased internet consumption – which is the media source that is most likely to be endogenous to socially tolerant individuals – does not correlate with a significant increase in support for any out-group other than homosexuals. The same is true for increased newspaper and social media consumption. Meanwhile, although increased radio and television consumption have no significant effect on LGBQT support, they do have a positive, significant effect on support of people living with HIV. This aligns with evidence

[21]Tables A.7, A.8, A.9, and A.10 in the Appendix show the full regression results from these models.

that campaigns aimed at reducing the stigma of HIV are common on radio and television (Benton, 2015; Dionne, 2017)[22] and provides further evidence that it is the content of these mediums that drives public opinion. Finally, the consistently small or null effect of media consumption on out-groups that typically form strong political coalitions (i.e. religion and ethnicity) aligns with theories that I outlined above suggesting that any effects from increased exposure to these out-groups is conditional on partisan ideologies (Nyhan and Reifler, 2010; Taber and Lodge, 2006) and/or levels of segregation (Enos, 2017). In sum, the placebo tests reveal a unique relationship between certain mediums and support for homosexuality, lending support to the theoretical mechanisms outlined in Section 2.1, while also mitigating concerns that my results are driven by any systematic differences in the types of mediums that tolerant and intolerant individuals consume.

2.4.3 Free Press and Norm Diffusion

Finally, I add to the models a country-level indicator that captures both press freedom and globalization. Unfortunately, because this is a country-level measure, the dependent variable is also aggregated leaving me with variation across only 33 countries. The KOF globalization index captures the economic, political, and social components of globalization and has been used by others as a measure of the degree of diffusion of queer content.[23] I focus on the social globalization index of KOF, which includes measures of both *de facto* and *de jure* interpersonal (i.e. international voice traffic, international tourism), informational (i.e. international students, press freedom, international internet bandwidth), and cultural (i.e. civil freedom) globalization.[24] The KOF social globalization index is a numeric variable where a higher score represents a country that is more socially connected internationally.

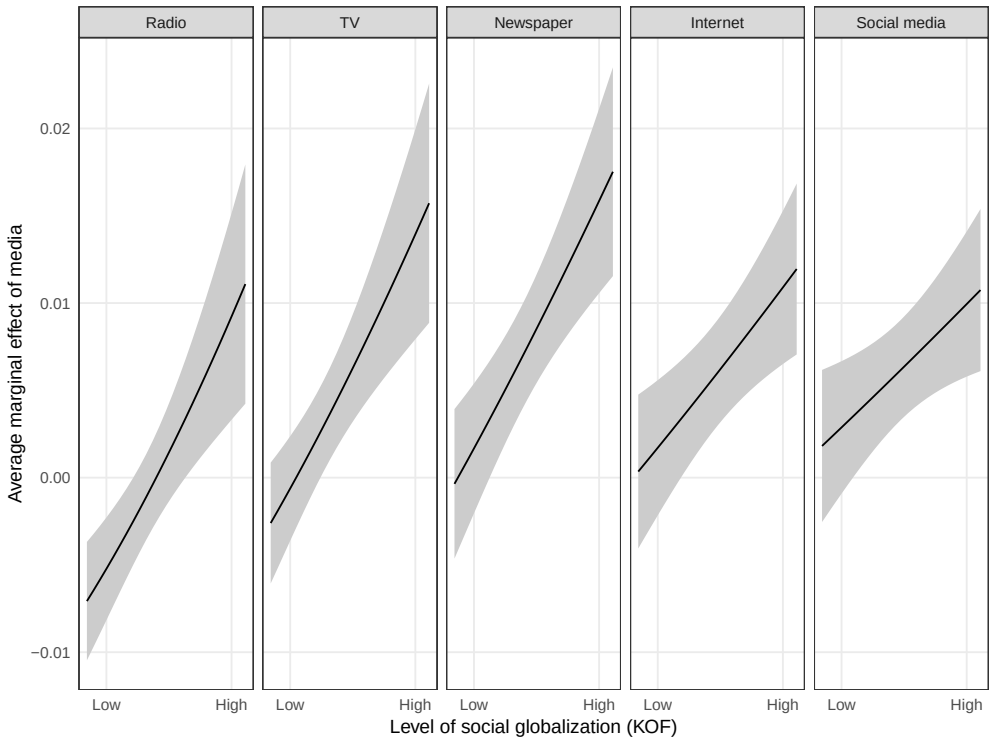
I replicate my main models with an interaction between media consumption and the KOF score. Figure 2.4 shows how each medium's effect on LGBTQ support changes across different levels of

[22]For example, Dionne (2017) notes that HIV has at times been referred to as the "radio disease" in parts of Africa because of how often it is discussed on the radio.

[23]See Ayoub and Garretson (2016). While it is common to use Freedom House to measure government censorship, it focuses primarily on access to free and diverse news rather than access to content such as television shows and is therefore not the best measure for access to queer content. Tables A.11, A.12, and A.13 in the Appendix show the OLS, Logit, and Multilevel results when I interact the Freedom House measure with media consumption. The results are mixed across the models, suggesting that the interaction effects are poorly estimated.

[24]For a complete list of the components of this index see Table A.14 in the Appendix.

Figure 2.4: Average marginal effect of media on LGBTQ support across levels of social globalization (95% CI)



the KOF score.[25] The effect of increased media consumption on support for LGBTQs is greater in countries with higher levels of social globalization (KOF score) than it is in countries with low levels of social globalization. This trend holds across all mediums, but is more prominent for radio, TV, and newspaper than it is for internet and social media (as shown by the variation in slopes in Figure 2.4 and the results in Table A.16). In other words, in countries where queer content is more easily diffused and less likely to be banned (i.e. high social globalization), consumption of traditional media (radio, TV, newspaper) increases support for LGBTQs more than it would in countries with low social globalization. While this is also true for new mediums (internet and social media), the positive effect of internet and social media on LGBTQ support is less dependent on high

[25]In Figure 2.4, 'low' represents the lowest KOF score in the data (35) and 'high' represents the highest KOF score in the data (73). Figure 2.4 was estimated with a logit model and the full results are shown in Table A.16 in the Appendix. The results are stable when estimated using both OLS and multilevel models (Tables A.15 and A.17). Figure 2.4 was created with the `margins` package (Leeper, Arnold and Arel-Bundock, 2018).

levels of social globalization. This finding supports my theoretical argument in two ways. First, it indicates that media's effect on LGBTQ support is likely linked to the content that is available on each medium. Second, it supports my argument that internet and social media are more difficult to censor of queer content and therefore the effects of these mediums are less conditional on high levels of social globalization.[26]

While results in this section suggest that media's positive effect on support for LGBTQs is connected to both free press and norm diffusion, I urge caution in over-interpreting these results. More work needs to be done to ensure that measures of press freedom accurately capture the ways in which censorship of queer content differs from more traditional types of censorship.

2.5 Exploring the Mechanism

2.5.1 Radio, Newspaper, & Internet Content in Kenya

To systematically test the mechanism driving my results, and to avoid the limitations of using media consumption as a proxy for media exposure (Fazekas and Larsen, 2016), I would need data not just on the frequency of media consumption, but also on the content of that media consumption. While content of some mediums is archived and relatively easy to access, other mediums, including radio and television, are rarely archived making it difficult to conduct a systematic comparison. In turn, I leverage the data that is available and provide insight on the mechanism through a descriptive analysis of radio, newspaper, and internet content.

In my data, radio is the most frequently consumed medium, with 71 percent of respondents stating that they consume news from the radio at least a few times per week. Despite this, there is virtually no archived data on vernacular radio's content. A project in Kenya called *RadioKikuyu* attempts to fill this void by tweeting English translations of news shows on Kikuyu-language radio stations.[27] While these transcriptions are not a representative sample of the entire universe of radio

[26]Figures A.5 and A.6 in the Appendix show the country-specific marginal effects of each medium relative to the country's Feedom House and KOF score. Though there is wide variation and several outliers, these figures also suggest a general trend between increased press freedom/social globalization and more positive effects from media consumption. As with Figure 2.4, the trends appear to be stronger within the mediums that are easier to censor (radio, television, and newspaper), suggesting that the effects of internet and social media persist regardless of censorship.

[27]The first transcript is on 23 January 2017 and the project is ongoing as of October 2017. The project started on a personal account on 23 January before migrating to the *RadioKikuyu* handle on 17 February. For more information,

content in Kenya, let alone across Africa, they do provide a rare opportunity to examine a snapshot of radio discourse.

I searched all *RadioKikuyu* transcripts between 23 January and 15 October 2017 for any dialogue regarding same-sex relations.[28] The only mention of same-sex activity is on 11 April 2017 on CORO FM radio. The transcript reads, in part:

> "Now that men have taken up with men and women with women, where will future generations come from? God said that men should marry women and yet these things are happening even in church."[29]

While I underscore the limitations of this data – it is a non-systematic and non-random sample of nine months of content from a subsection of Kenya's radio universe – the data that is available suggests that homosexuality is rarely mentioned on Kenya's Kikuyu radio stations. An interview with Nyambura Mutanyi, the owner of the *RadioKikuyu* account who listens to and transcribes radio content in Kenya, confirms this finding. Mutanyi reports that the radio broadcasts rarely mention LGBTQ issues, and that the content overall tends to reinforce heteronormativity by encouraging reproduction and emphasizing the importance of large nuclear families formed by heterosexual marriage (Mutanyi, 2017).

To compare this radio content to newspaper content from the same time period in Kenya, I conducted a search of the *Daily Nation*, Kenya's most widely circulated newspaper. I searched for any stories related to homosexuality for the period 23 January to 15 October 2017 (the same period for which I assessed *RadioKikuyu* transcripts). This search returned over 50 domestic and international LGBTQ-related stories, including coverage of the arrests of alleged homosexuals in Zanzibar, Tanzania, and Chechyna, a Kenyan court's order that the Anglican Church must reinstate priests accused of homosexuality, and the legalization of same-sex marriage in Germany.[30] Importantly,

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see https://twitter.com/RadioKikuyu.

[28]To do this, I used advanced search tools on Twitter to search for the key words "gay," "homosexual," "shoga" (Swahili for gay), and "gayism" (a common word used to describe same-sex activity in Kenya). I also searched through mentions of 'men' and 'women.'

[29]See https://twitter.com/RadioKikuyu/status/852020630866190336 for the full transcript.

[30]For comparison, a search of France's *Le Monde* for the same time period returned 405 stories with the word "gay" or "homosexuel".

these results include coverage of both positive (legalization in Germany) and negative (arrests in Zanzibar, Tanzania, and Chechyna) LGBTQ-related events; and, the negative events are covered with largely factual statements. There are important limitations to any comparison between this newspaper content and the radio content – mainly that the *Daily Nation* provides data on the universe of the newspaper's stories for the given period, while *RadioKikuyu* only provides a snapshot of content for the same period. Still, the data that is available suggests that LGBTQs are covered more frequently and in a more neutral tone in Kenya's major newspaper than they are in Kenya's Kikuyu radio stations.

Finally, I compare this radio and newspaper content with internet search trends for gay-related content during the same time period. Google provides data on the relative popularity of searches for keywords over time, along with the most popular topics searched in association with the keyword. Scholars across multiple disciplines have used Google search trends as a measure of the information individuals seek out online (Ginsberg et al., 2008; Askitas and Zimmermann, 2009). Both Ripberger (2011) and Mellon (2013) find evidence that Google search trends converge with other measures of issue salience, indicating that it can be a valid measure of public interest over time.[31]

Data from these search trends show that, overall, there were internet searches for gay-related content between January and October of 2017, and that searches in Kenya follow the same temporal trend as searches in the United Kingdom.[32] To assess whether this online content provides positive representations of LGBTQs, I examine the most popular topics searched alongside 'gay'. The most popular topic searched alongside 'gay' in Kenya is 'black'. Not only is this the most popular topic, it is nearly two times as popular as the next popular topic.[33] Other popular topics searched alongside 'gay' in Kenya during the given time period include 'Wattpad' (an online story-telling platform where users can post non-fiction and fiction stories) and 'Pride.' While some of these topics

[31]There are limitations to the use of Google search trends. The data may not be representative of trends among non-internet users. This is a limitation in settings where internet use is limited to a small percentage of the population, as is true across most of Africa. However, my aim in using this data is not to make generalizations about the entire population, but rather to describe trends only among internet users. Second, words have multiple meanings which raises questions about the validity of the data across time and space. I argue that data on the topics searched alongside 'gay', which I discuss below and is shown in Tables A.18 and A.19 in the Appendix, validates that users who search for 'gay' are primarily interested in same-sex sexuality.

[32]See Figure A.8 in the Appendix.

[33]See Table A.18 in the Appendix for the full list of top and rising topics searched alongside 'gay' in Kenya.

suggest that online searches for queer content are related to pornography, other topics suggest that individuals are seeking out information about gay pride and searching for stories about gay men who look like themselves. None of the top topics searched alongside 'gay' in Kenya suggest that internet users are seeking negative content about LGBTQs.

2.5.2 Internet searches of LGBTQ content across Africa

Finally, to provide more detail on the LGBTQ-related content individuals search for online outside of Kenya, I expand the analysis of internet search trends to include several countries included in the Afrobarometer data. Table A.19 in the Appendix shows the most popular topics and the rising topics searched alongside the word 'gay' over the past five years in a random sample of the countries included in my analysis.

As was true in Kenya, some of the topics indicate that internet searches of 'gay' content are tied to pornography. However, another important trend is that many of the rising topics include popular culture figures who have recently come out as non-heterosexual. Jussie Smollet, an actor who plays a black, gay character in the television show *Empire* and who also identifies as gay in real life, is the top rising topic in two of the sampled countries. Sam Smith, a singer and songwriter who publicly identified as gay in 2014, is also a rising topic in two of the sampled countries. Michael Scofield, the name of a character in the television show *Prison Break* that is played by actor Wenworth Miller who publicly came out as gay in 2013, was a rising topic in Senegal over the past five years. In other words, when popular cultural figures, including those from non-African countries, come out as non-heterosexual, internet searches for content related to those figures' sexual orientation surges in some African countries. Other notable topics indicating that internet users are seeking out positive representation of LGBTQs include: 'Same-sex marriage,' 'Cartoon,' 'Short Film,' and 'Pride.' Out of 100 top and rising topics listed in Table A.19, only two ('rape' and 'monster') are explicitly negative.

In sum, despite limitations, I argue that the available data provides evidence that *representation* is the mechanism driving media consumption's differential effects on support for homosexuality. The fact that not all mediums correlate with increased social tolerance across the board (as shown in Figure 2.3) further suggests that it is representation, rather than exposure to new information in

general, that drives my results.

2.6 Conclusion

It is important to understand if and how media relates to public opinion regarding diverse sexualities, especially in regions where governments consistently restrict LGBTQ representation while at the same time pro-LGBTQ activists leverage the media to reshape narratives about queer persons. In this paper, I find that increased overall media consumption correlates with a significant increase in support for LGBTQs across Africa, but that newspaper, internet, and social media consumption drive this relationship. I use a multi-methods approach, combining cross-sectional survey data with content analysis and descriptive data from across Africa, to show that this effect is likely not driven by individuals selecting into certain types of media consumption. Rather, the evidence suggests that media's effect on pro-gay support is driven by increased consumption of mediums that contain more exposure to LGBTQ identity.

These results are largely consistent with existing research in other contexts showing that media affects public opinion (Iyengar and Kinder, 1987; McCombs and Shaw, 1972), and that exposure to social out-groups can reduce prejudicial attitudes (Pettigrew and Tropp, 2006; Broockman and Kallah, 2016). However, I provide the first evidence of this at the individual level across the majority of African countries. My analysis also provides new evidence in support of the argument that, regardless of echo chambers, media's effects on political beliefs are not explained solely by individuals selecting into media diets that align with their ideological beliefs. Finally, I deviate from research showing that governments always use sophisticated techniques to discretely manipulate information (Lorentzen, 2014; Roberts, 2018), and present a new theory for how governments' interest in publicizing their censorship of queer content may actually increase exposure to LGBTQ-identity on some mediums.

Despite these contributions, my analysis points to several areas of future research. As additional data on Africans' attitudes towards LGBTQs become available, scholars should examine how changes in media access affect LGBTQ support over time. Alternative empirical approaches, especially experimental designs, that do not rely on cross-sectional survey data would also provide a more precise interrogation of the mechanism driving my results. In particular, more analysis is needed to determine how exposure to different types of content affects beliefs, and whether these

effects are long-lasting or easily negated by counter-exposure. While existing research shows that in-person exposure to LGBTQs creates long-term, positive effects on individual beliefs (Broockman and Kallah, 2016), it is unclear whether the effects remain durable when exposure is not in-person and in contexts where public opinion is not rapidly shifting towards the positive direction.

Ultimately, I do not claim that increased queer representation in the media is the only way to affect individual support for LGBTQs across Africa. However, the results suggest that there is some merit to the notion that media plays a role in shaping pro-gay attitudes. On the one hand, this means that gay rights activists who focus on using the media to demystify what it means to be queer could make meaningful strides to win-over public opinion. On the other hand, and to curtail fears that government leaders may use these results to justify increased censorship, the results suggest that censorship may have limits. Although governments can often censor LGBTQ content from the radio and television, it is difficult to prevent citizens from accessing this content from the internet – a medium that is increasingly available across the continent.

Chapter 3

THE INFORMATION EFFECTS OF NGOS ON SOCIAL INSTITUTIONS AND POLITICAL BEHAVIOR

Efforts to boost democratization and improve governance often emphasize the link between engaged citizens and a responsive government (Björkman and Svensson, 2009; Pande, 2011; Ferraz and Finan, 2011; Besley and Burgess, 2002; Callen and Long, 2015). In many countries, non-governmental organizations (NGOs) play a critical role in this process by both promoting citizen oversight of the government (Brown, Brown and Desposato, 2008; North, Wallis and Weingast, 2013) and providing goods such as healthcare and education.[1] However, because NGOs behave like firms and make strategic decisions about where to operate (Prakash and Gugerty, 2010), they tend to 'cluster' together creating wide variation in the prevalence of NGOs across communities (Koch et al., 2009). For example, NGOs are so prevalent in some communities that residents supplement their incomes with the stipends that NGOs provide in return for residents' attendance at community meetings. In Nairobi, Kenya this practice is known as the "NGO hustle" (Farrell, 2015).

Despite the prominent, but variable, role of NGOs across communities, there is conflicting evidence on how NGOs affect political behavior and institutional development. On the one hand, several studies find a positive relationship between the presence of NGOs and increased political participation in activities such as voting and protest (Boulding, 2010, 2014; Brown, Brown and Desposato, 2008; Bleck, 2015). This could be because NGOs motivate citizens to monitor government service providers and to demand increased public spending (Murdie and Hicks, 2013; Murdie and

[1]My definition of NGOs includes both service-delivery organizations (often called 'nonprofits') and advocacy organizations. I acknowledge that there are important differences in the supply and demand of these two types of organizations and in their potential effects on political behavior. Indeed, my theory accounts for these differences and predicts that utilization of advocacy and service-delivery organizations produce differential effects on individual political behavior (see hypotheses one and two). However, a key contribution of my theory is that, beyond these individual utilization effects, there are superseding effects on political behavior that are driven by the overall prevalence of NGOs regardless of NGO-type (see hypotheses three and four). This aligns with Nelson-Nuñez (2018) argument that community members do not easily differentiate between advocacy and service-delivery organizations, and that what matters is not the type of NGO but the number of NGOs in a community. See Section 3.2.1 for more discussion of this point.

Bhasin, 2011). Even if they do not prompt increased political participation, NGOs might complement government service provision, resulting in expanded access to critical services and improved perceptions of government legitimacy (Sacks, 2012; Boulding and Gibson, 2009). Overall, mixed public-private service provision can improve governance and support long term institutional development (Brass, 2016). However, other studies demonstrate that citizens who utilize NGO services, such as private education, are less likely to vote than those who utilize government services, perhaps because they feel less invested in election outcomes (Bleck, 2013). The proliferation of NGO service providers also creates disintegrated institutional structures (Allard, 2014), which makes it more difficult for citizens to hold their government accountable (Post, 2014), and may diminish demand for improved services (Katusiimeh, 2015). Ultimately, NGO service provision may undermine institutional development (Booth, 2012) and produce sub-optimal and inequitable service delivery (Cammett, 2014; Cooley and Ron, 2002; Wood, 1997).

However, because many of these studies focus on how NGOs affect *individual* political behavior, I argue that they tend to ignore how NGOs shape the informal social institutions that either incentivize or undermine *collective* political participation. I develop a new theory that conceives of NGOs as information signals that affect perceptions about how likely it is that one's neighbor will engage in costly political activity to monitor or support government services.[2] I build on extensive research in political science and economics showing that governance is improved when principals effectively hold agents accountable. However, whereas existing research has focused on whether or not individual utilization of NGOs affects an individual's political behavior, I join others in acknowledging that political participation is conditional on whether individuals think that others will join them in monitoring and/or supporting the government (Olson, 1965; Knight, 1992; Hirschman, 1970). In particular, I argue that the increased prevalence of NGOs in a neighborhood also increases citizens' exposure to information suggesting that more of their neighbors are exiting from government services. When citizens are exposed to information suggesting that their neighbors are exiting from government services, it signals that the government has diminished credibility and that fewer people will join in any political action directed towards government service providers. I

[2]See Section 3.3 for more information on how I operationalize 'monitoring' and 'supporting' government services. By 'monitor' I mean contacting government officials and by 'support' I mean paying taxes to increase spending on government services such as education and healthcare.

argue that this shifts social institutions that govern political behavior and ultimately reduces the incentives to engage in costly political activity.

I evaluate this theory with original survey data from four informal settlements in Nairobi, Kenya. Kenya is an ideal case for this study because civil society was critical to the country's democratization and remains active on both human rights and service delivery. However, the current Kenyan government is known for its combative approach towards NGOs and there is an ongoing debate in the country regarding whether or not NGOs are detrimental to Kenya's development.[3] Within Kenya, I target my research in urban informal settlements because there is wide variation across and within settlements on the prevalence of NGOs (independent variable) and on important confounds such as the strength of government institutions and the diversity of ethnic, religious, and political party affiliation.

Descriptively, I find wide variation in the prevalence of NGOs across and within the four communities. For example, 41% of respondents in Kibera say they received a service or benefit from an NGO within the past year compared to 25% in Mukuru. However, within a single community – Kibera – NGO utilization ranges from just 18% up to 63%. I use regression analysis to estimate the effects of this variation on individual political behavior. I find that individuals who live in neighborhoods with more NGOs are substantially less likely (by about 35%) to say they would contact the government or support increased taxes.[4] Further analysis shows that individuals' political behavior is strongly and positively linked to their expectations of their neighbors' behavior. That is, as an individual's expectation that their neighbor will contact the government increases, so does that individual's own reported willingness to contact the government. In addition, expectations about neighbors' political behavior is negatively linked to the prevalence of NGOs in a neighborhood. As the prevalence of NGOs increases, respondents are less likely to believe that their neighbors will contact the government or support increased taxes. These results are robust even after considering the possibility that other factors, such as government capacity, explain both NGO prevalence and political behavior.

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[3]See, for example, the debate surrounding the recently implemented Public Benefits Organization (PBO) Act of 2015.

[4]I define neighborhoods as an enumeration area. Enumeration areas are nested within communities and are the smallest geographic unit in the data. See Section 3.3 for more details on how I measure the prevalence of NGOs in each neighborhood.

My findings contribute to research on NGOs, political behavior, and institutional development and provide important insight for policymakers and practitioners. In short, my key finding is that increased NGO-prevalence is linked to a decrease in the probability that individuals will monitor or support government services, and that this effect is driven by the signals that NGOs emit about neighbors' political behavior. This means that NGOs and donors should consider the political, rather than just the programmatic, effects of their presence in a community. While the programmatic goal may be to increase access to healthcare, the political effect may be to shift social institutions that govern political action and diminish accountability of existing government healthcare services. This finding ties a longstanding literature on NGOs' political effects (Boulding, 2014; Brass, 2016; Cammett and MacLean, 2014) to literature on social institutions (Knight, 1992; Acemoglu, Johnson and Robinson, 2005; Levi, 1989), collective action (Hirschman, 1970; Olson, 1965), and government accountability (Björkman and Svensson, 2009; Olken and Pande, 2013).

However, I also emphasize that my results are not an indictment of all NGOs. Rather, I find that there is a significant difference in how advocacy and service-delivery NGOs affect individual political behavior. On the one hand, this affirms recent calls to examine the distinct effects of different types of NGOs (Kabeer, Mahmud and Isaza Castro, 2012) and suggests that NGOs do play an important role in mobilizing civil society to demand government accountability. However, my results also indicate that while different types of NGOs create distinct effects on *individual* political behavior, the overall prevalence of NGOs in a neighborhood (regardless of NGO-type) may be more important in shaping the norms that drive *community* political behavior. Ultimately, more research is needed to understand when and why the overall prevalence of NGOs leads to increased, rather than decreased, government oversight.

The chapter proceeds as follows. Section 3.1 reviews the link between NGOs and political behavior. Section 3.2 details my theoretical argument and hypotheses. In Section 3.3 I discuss the data and summarize the key outcome and explanatory variables. Section 3.4 outlines my modeling approach, including how I deal with alternative explanations, and presents the key findings. I conclude in Section 3.5 with a discussion of the implications and limitations of this research.

3.1 NGOs and Political Behavior

Existing research makes a strong case for why NGOs provide an essential link between citizens and the government and are critical to a robust civil society and democratic consolidation (Diamond, 1999; Putnam, 2000). This work tends to emphasize two key reasons for why NGOs are essential to democratization and development: they increase political participation and they improve access to key services. Many NGOs are directly involved in civic education and political mobilization, which can help to increase personal agency (Goldman and Little, 2015) and improve political knowledge and participation (Bleck, 2015). For example, Boulding (2010, 2014) finds that an increased presence of NGOs in Bolivia is associated with an increase in political protest. One reason for why NGOs facilitate political action is because they promote face-to-face interactions, reducing the costs of collective action (Dolšak, 2017). Aside from helping citizens navigate political channels, NGOs may also help to expose government weaknesses and malpractice, motivating citizens to monitor government service providers and demand increased public spending (Murdie and Hicks, 2013; Murdie and Bhasin, 2011). Boulding and Gibson (2009) find that in smaller populations, NGOs expose government failures and help citizens mobilize to remove incumbent politicians from office.

In addition to sparking political mobilization, NGOs provide essential public goods such as healthcare and education (Cammett and MacLean, 2014). Many argue that NGOs arise to provide goods because governments and the market fail to meet full demand, especially when citizens have increasingly heterogeneous demands (Weisbrod, 1991). In this case, NGOs may be better at service delivery than the government (Uphoff, 1993), and can serve as an important complement to government services. Ultimately, this can create a cooperative environment where NGOs and the state learn from each other to achieve a net increase in public goods delivery and effective governance (Brass, 2012, 2016).

However, other work argues that the proliferation of NGOs is harmful to effective political participation and state development. This is primarily because NGOs substitute for the state and shift political accountability away from the government. While some argue that NGOs arise to meet citizen demand (Weisbrod, 1991), others point out that this is unlikely because it is difficult for citizens to collectively organize to meet their own demands (Johnson and Prakash, 2007). In

addition, once NGOs are formed, they tend to mimic firms and focus strategically on the long-term survival of the organization (Prakash and Gugerty, 2010). Ultimately, this means that NGOs can start to substitute for the state rather than simply serving as a complement to meet citizen demand. Regardless, if NGOs increasingly provide services, citizens face diminishing returns to any political action directed at improving government services (Holzner, 2010). For example, citizens who utilize private education in Mali are less likely to vote than those who utilize public education (Bleck, 2013). In Uganda, increased prevalence of NGO health providers is associated with decreased demands for accountability over the public health sector (Katusiimeh, 2015). Even if citizens did want to engage in political action, the presence of NGOs may make it more difficult because they blur the lines of who is responsible for key services. This is because increased NGO service provision creates a 'fragmented institutional structure' (Allard, 2014), complicates who has legitimacy in the public realm (Lund, 2006), and ultimately makes it hard for citizens to hold their government accountable (Post, 2014; Wood, 1997).

In addition, while NGOs might increase access to services, it is unclear whether this access is equitable and efficient. NGOs are inherently political and therefore they also work through clientelist relationships (Devine, 2006; Fisher, 1997). This is compounded by the fact that the funding and organizational structures of NGOs means that they are often working for multiple principals with conflicting interests (Clifford, 2010). In their drive to secure funding and prove impact, NGOs often respond to perverse incentives that produce sub-optimal or inequitable delivery (Cooley and Ron, 2002; Cammett and MacLean, 2014; Wood, 1997). Similarly, growing evidence shows that foreign aid, which is often channeled through local NGOs, is directed to richer rather than poorer communities (Briggs, 2018*a*, 2017, 2018*b*). In the long run, NGO service delivery may impair state development and effective governance. Governments might grow to rely on international aid agencies and fail to develop their own institutions (Banks, Hulme and Edwards, 2015). NGO service delivery can also crowd out government social spending (Torpey-Saboe, 2015) and undermine the government by diverting skilled workers from the public sector to the private sector (Mussa et al., 2013). This has led some to argue that NGOs have failed and we need to refocus on the state's role in development and capacity (Zaidi, 1999).

Despite this robust literature, we are left with conflicting answers on if, and how, NGOs affect political behavior and state development. In response, some research suggests that we should

focus on the type of NGO programming (advocacy versus service-delivery) (Kabeer, Mahmud and Isaza Castro, 2012) or the source of the NGO's funds (domestic versus international) (Banks, Hulme and Edwards, 2015) to determine whether NGOs support or undermine political engagement. While this may be true to an extent (and I test for these effects), I argue that the real weakness of existing research is that it fails to consider the larger political environment in which NGOs operate. This includes social institutions that govern political behavior.

3.2 Theory

3.2.1 NGOs and the Principal-Agent Approach to Governance

I build on existing research on the political effects of NGOs by combining the principal-agent approach to governance with theories of collective action, social institutions, and information's effects on political behavior. First, I follow others in arguing that the relationship between citizens and their government follows a simple principal-agent model, where increased citizen (principal) oversight of the government (agent) can help to reduce corruption and improve the efficiency of public services (Olken and Pande, 2013; Björkman and Svensson, 2009; Olken, 2007, 2010). A number of formal and informal institutions, including elections (Barro, 1973), taxation (Levi, 1989; Bates and Lien, 1985), and social institutions (Knight, 1992) work to either strengthen or weaken the principal-agent relationship.

NGOs may also affect the relative strength of this principal-agent relationship. On the one hand, if NGOs provide resources that incentivize participation, NGOs may work to strengthen principals' oversight of government agents. These NGOs are often called advocacy organizations. However, when NGOs substitute the state's responsibility to provide services, they may undermine a fundamental principal-agent relationship wherein citizens pay taxes in return for government services.[5] When any one citizen switches from government to NGO services, that citizen no longer has an incentive to pay taxes or engage in political action to demand improved government provision of the relevant service. In sum, utilization of NGO services may cause citizens to either increase or

[5]A key assumption of this part of the argument is that NGO service provision is a substitute, rather than a complement, for government service provision. This may not be the case if, as Weisbrod (1991) argues, NGOs arise to fulfill heterogeneous demands. While this may be true in some instances and in some sectors, Weisbrod's demand-side argument ignores the barriers to collective action and countless other reasons for why NGOs form (Johnson and Prakash, 2007; Prakash and Gugerty, 2010).

decrease their political oversight, dependent on the type of good the NGO provides.

Hypothesis 1: Citizens who utilize advocacy NGOs will be more likely to engage in political activity to monitor (i.e. complain to local government official) or support (i.e. pay increased taxes) government services. (Compared to those who use service-delivery or no NGOs.)

Hypothesis 2: Citizens who utilize service-delivery NGOs will be less likely to engage in political activity to monitor (i.e. complain to local government official) or support (i.e. pay increased taxes) government services. (Compared to those who use advocacy or no NGOs.)

While this is helpful in explaining how individual NGO utilization affects individual political behavior, it does not fully account for how NGOs actually operate in many communities and therefore cannot explain the larger effects that NGOs may have on social norms. As Nelson-Nuñez (2018, pp 5) argues, "the difficulty with labeling some types of NGOs as good [i.e. advocacy] and others bad [i.e. service-delivery] is that such categorization is easy to do in theory but does not bear out in reality." This is because many NGOs engage in both advocacy and service-delivery work (Nelson-Nuñez, 2018; Murdie, 2014). Therefore, while a direct NGO beneficiary may develop some classification (as either advocacy or service-delivery) about that NGO, others in the community are more likely to make assumptions based on what they know about non-government organizations' overall activity in their community.[6] For this reason, I propose extending the study of NGOs' political effects to consider how the overall prevalence of NGOs affects the social institutions that govern community political behavior.

3.2.2 Government Oversight, Assurance Games, and Social Institutions

I argue that when a citizen turns to an NGO for services, and therefore exits from government service provision, it not only affects their individual incentives but also reshapes the incentives (and therefore political behavior) of their neighbors. Here, I am extending the principal-agent

[6] I argue that individuals are more likely to perceive that NGOs are involved with service-delivery than with advocacy. This should be true overall because service-delivery NGOs are more common and receive more international aid (Kabeer, Mahmud and Isaza Castro, 2012; Brinkerhoff, 1999), but it is especially true in informal settlements where NGOs are heavily focused on improving access to, and quality of, services. For example, even when NGOs use advocacy in the informal settlements they are often advocating for improved services. Among the individuals in my data who report benefiting from an NGO, 93% classified the NGO as service-delivery and only 7% classified the NGO as an advocacy organization. Regardless, this does create a scope condition for the remainder of my theory: it applies where we can reasonably expect citizens to associate NGO activity with service delivery.

approach to governance (Besley, 2006; Ferejohn, 1986) so that it also considers the important role of social institutions in shaping the incentives around political behavior (Knight, 1992; Levi, 1989; Acemoglu, Johnson and Robinson, 2005). Most principal-agent relationships require the principal to engage in costly monitoring activities to prevent agents from shirking. To reduce these monitoring costs, principal-agent contracts often rely on social institutions to incentivize cooperative behavior and/or voluntary adherence to the agreement.

Levi (1989) illustrates how this argument works with tax collection. There are strong incentives for any one citizen to shirk their tax duties if the government does not engage in costly monitoring and sanctioning, and if a person cannot see whether or not their peers are contributing. However, under certain conditions, a cooperative framework emerges that incentivizes citizens to voluntarily pay their taxes.[7] Specifically, Levi (1989, pp 53) argues that citizens will agree to voluntarily pay taxes if they are confident that 1) the government is credible and will uphold its commitments and 2) that other citizens will also voluntarily comply. When these conditions are met, tax compliance shifts from a prisoner's dilemma (that incentivizes defection) to an assurance game (that incentivizes cooperation).

Levi's argument aligns with other models showing that formal and informal institutions intended to increase government accountability (i.e. constitutions, political participation) are only effective if citizens trust that their fellow citizens believe in and abide by the same institutions (Knight, 1992; Weingast, 1997; Acemoglu, Johnson and Robinson, 2005). For example, Knight (1992, pp 48) presents a model of strategic interdependence wherein, to make a decision, "strategic actors must formulate expectations about what others are going to do." This is a difficult task in a world of uncertainty and it is especially difficult in environments with low levels of trust and/or imperfect information. In these environments, Knight (1992, pp 3) argues that citizens rely on social institutions – "a set of rules that structure social interactions in particular ways and [that are] shared by the members of the relevant community" – to guide their decision making. Critically, Knight argues that these social institutions are not the result of a collective, intentional effort to achieve pareto-superior results. Instead, social institutions are the 'by-product' of conflicts among

[7] In Levi (1989), this decision is not purely voluntary because the state does engage in sanctioning of the non-compliant when they are caught.

many actors in the community each working to (re)shape the rules to their advantage.[8]

In sum, principals (citizens) are more likely to monitor their agents (government) when they believe that the government is credible and that many of their fellow citizens will also engage in monitoring. Social institutions can incentivize and enforce citizen compliance in monitoring when they establish a norm in favor of citizen oversight of the government. However, changes in the environment can also reshape the social institution and disincentivize active citizen oversight of the government.

I argue that as more and more citizens turn to NGOs for services, their neighbors assume that they are shirking their responsibility to monitor and pay taxes for government services. This can reshape the social norms around political participation in the community.[9] Similar to voluntary tax compliance, political participation may also operate like an assurance game. There are strong incentives for a single citizen to defect from costly political action such as paying increased taxes or contacting a member of government. However, if enough citizens agree that the payoffs from participation are in their collective interest, and if the agent in the game is viewed as credible, the incentives can shift in favor of increased monitoring and oversight of the government. Therefore, citizens' decision to engage in costly political activity may rest on whether they perceive the government as credible and whether they believe their neighbors will join them.

3.2.3 NGOs as Information Signals

How do citizens know whether or not their neighbors will join them in monitoring and/or supporting government services? They gather information. I argue that when the number of NGOs in a community changes, so does the information that citizens are exposed to. I conceive of NGOs as information signals; the information is emitted through two primary channels.

First, NGOs work hard to establish a brand and market their mission in order to build donor

[8]Knight (1992) describes this as a 'distributive' or 'bargaining power' approach to the emergence and evolution of institutions. It is similar to Acemoglu, Johnson and Robinson (2005) social conflict view of institutions.

[9]There are similarities between my conception of the role of social norms and in theories of isomorphism (especially mimetic isomorphism) (Dimaggio and Powell, 1983). Similar to arguments of isomorphism, my approach does not assume that social institutions are always intentional or pareto-optimal but rather that they arise out of power asymmetries (Knight, 1992). However, while mimetic isomorphism might argue that citizens in my theory are passively mimicking their neighbors behavior, I argue that citizens are actually engaging in strategic decision making and that information about their neighbors' behavior is critical to shaping that strategy.

and user loyalty (Stride and Lee, 2007; Laidler-Kylander, Quelch and Simonin, 2007; Sargeant and Woodliffe, 2007). For example, non-governmental education and healthcare providers typically develop a unique motto and logo and display it prominently on the outside of their school/clinic.[10] In informal settlements, these logos are often painted directly onto the tin sheets around the facility making them highly visible to the persistent foot-traffic in the neighborhood. NGOs also post flyers on tin sheets and wooden poles throughout the informal settlements. In my data, 32% of respondents said they find out about NGOs either through direct NGO outreach or through flyers or adverts in the neighborhood.

Second, even if NGOs do not engage in explicit marketing, the presence of NGOs creates information through word-of-mouth discourse in the community. For example, parents may discuss where they send their kids to school or which health clinic provides the best care. Or, if citizens notice their neighbors leaving a new NGO facility in the community, they may talk to their neighbors to gather information on what the NGO provides. Again, this effect is amplified in informal settlements because the informal structures and density of these communities makes it especially easy to observe NGOs' and neighbors' activities. In my data, 51% of respondents said they find out about NGOs through discussions with their neighbors.

Further, I argue that there are two potential mechanisms through which this NGO-generated information could affect the social institution that governs political participation. First, increased presence of NGOs can signal to citizens that the state has diminished capacity, which in turn may reduce credibility in the government. When citizens are exposed to *increased* government capacity, for example via the presence of tax collectors (Weigel, 2017), public projects (Coate and Morris, 1995), or quality local service-delivery (Sacks and Larizza, 2012; Levi, Sacks and Tyler, 2009), they report improved perceptions of government institutions and increased likelihood to engage in political behavior. I expect that exposure to increased prevalence of NGOs will create the opposite effect and will decrease perceptions of government capacity. This is important because, as described in the assurance game above, one key element that incentivizes voluntary compliance is a belief that all players in the game are credible.

[10] In some settings, NGOs might receive funds from politicians or the government and prominently display their role as government 'contractors'. While I am not aware of this happening in Nairobi's informal settlements and my data do not measure for it, future research should examine whether signaling an association with the government moderates the effect of NGO exposure on political behavior.

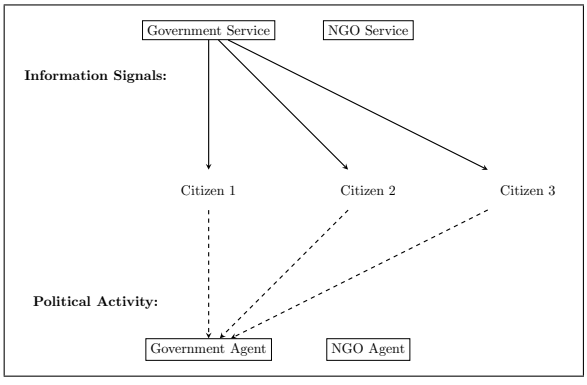
Hypothesis 3: Citizens who are exposed to more NGO activity in their neighborhood will perceive the government as less responsible for, and less capable of, providing services. (Compared to citizens who are exposed to fewer or no NGO services.)

Second, increased presence of NGOs sends an important signal to citizens about the actions of their neighbors. If citizens believe that more of their neighbors are turning to NGOs for key services, they assume that those individuals no longer have an incentive to invest resources into monitoring and supporting government services. This is critical to the assurance game because a key element that incentivizes voluntary compliance is the belief that everyone else is also going to engage in political participation. In short, as citizens become less certain that their neighbors are cooperating in government oversight, the assurance game falls apart and more citizens opt out of costly political action.[11]

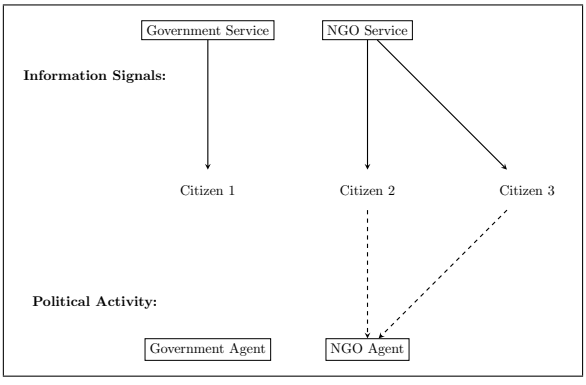
Hypothesis 4: Citizens who are exposed to more NGO activity in their neighborhood will be less likely to engage in political activity to monitor (i.e. complain to local government official) or support (i.e. pay increased taxes) government services. (Compared to citizens who are exposed to fewer or no NGO services.)

Figure 3.1: Logic of Argument

(a) Low NGO Prevalence



(b) High NGO Prevalence



[11] Again, I acknowledge that citizens might directly benefit from different types of NGOs that both mobilize and demobilize. However, a key part of my argument is that, as the number of NGOs in a neighborhood increases, citizens are exposed to repeated signals that their neighbors consistently utilize NGOs and they assume that the majority of these NGOs are service-delivery NGOs. I argue that these persistent signals can supersede the effects of individual NGO utilization and lead to larger shifts in community norms regarding political behavior.

Figure 3.1 illustrates the basic logic of my argument. The solid arrows indicate an information signal about where each citizen receives a basic service. All other citizens are exposed to these information signals. The dashed arrows represent the anticipated political action (i.e. monitoring the agent) of each citizen based on the information signals in the environment. In the left panel (Figure 3.1a), the information signals suggest that all citizens utilize government services and, therefore, citizens have an incentive to direct political action to government agents. In the right panel (Figure 3.1b), Citizen 1 continues to use the government service, but Citizen 2 and Citizen 3 now utilize the NGO service. Based on the information signals in the environment, Citizen 1 assumes that the other two citizens will direct their political action to an NGO agent and, therefore, Citizen 1 no longer has an incentive to direct political action to the government agent.

3.3 Data

I test these hypotheses with original survey data from four informal settlements in Nairobi. The data was collected in February 2019. Informal settlements are an especially relevant setting to study the political effects of NGOs. Africa's urban growth rate of 3.5 percent is the highest of any continent, and many of these urban migrants end up in informal settlements (APHRC, 2014). In Nairobi, 60 to 70 percent of the city's 3.4 million residents live in informal settlements (APHRC, 2014). Because these settlements often lack basic government services, they are also home to a variety of NGOs. In some settlements (i.e. Kibera), NGO prevalence is so high that it has sparked what is called the "NGO hustle" where residents attend NGO activities in return for stipends from the NGO (Farrell, 2015). Meanwhile, other settlements that are less well-known, or that are not in the city-center, have relatively few NGO service providers. Finally, informal settlements are also melting pots of the diverse ethnic, religious, and political groups that are often more isolated in rural areas. Although these factions remain somewhat segregated across the informal settlements, nearly all of these factions are represented in the total population of Nairobi's informal settlements.

The communities included in my survey are Kibera, Korogocho, Mathare, and Mukuru Kwa Njenga (Mukuru). Together, these settlements have a population of over 375,000 individuals in 132,000 households.[12] The communities were selected based on their relative prevalence of NGOs,

[12]Numbers are based on the 2009 Kenya National Census.

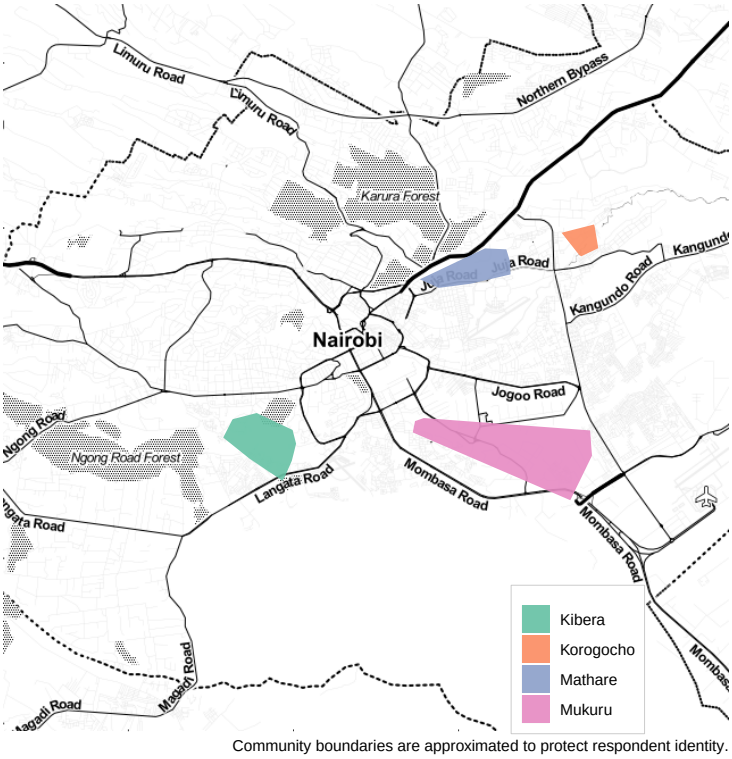


Figure 3.2: Location of Sampled Communities

geographic distribution, and ethnic and partisan diversity. I used a probability proportional to population size sampling technique to sample over 1,200 individuals across 12 enumeration areas within the four communities. Figure 3.2 shows the location of these sampled communities relative to Nairobi city center.

3.3.1 Outcome Measures

My analysis focuses on two dependent variables that measure political behavior and two dependent variables that measure perceptions about government service provision. First, I asked respondents how often within the past year they "*contacted* a government official to ask for help or to make a complaint" when they were unhappy with government performance. This is a continuous variable ranging from 'would never do this' to 'several times'. I intentionally use the broad language of 'government official' because there are multiple government officials that an individual could contact,

and because there is variation in how local government officials are identified.[13] I also use broad language to describe the motivation for contact ('ask for help or make a complaint') so that I am not limited to a specific type of government service.[14] Ultimately, the main point of the question is that it asks respondents to think about *contact* with some *government official*. Moving forward, I refer to this simply as 'contact government.' Second, I asked respondents whether they would support higher *taxes* "in order to increase spending on services such as education and healthcare." This is a continuous variable ranging from 'strongly oppose' to 'strongly support'. Again, I avoid specifying a specific tax amount or method of tax collection. Instead, I focus on measuring respondents' general willingness to give money to the government to fund services such as government education and healthcare. Moving forward, I refer to this simply as 'support tax increase.' Figure 3.3 plots the distribution of these political behavior variables.

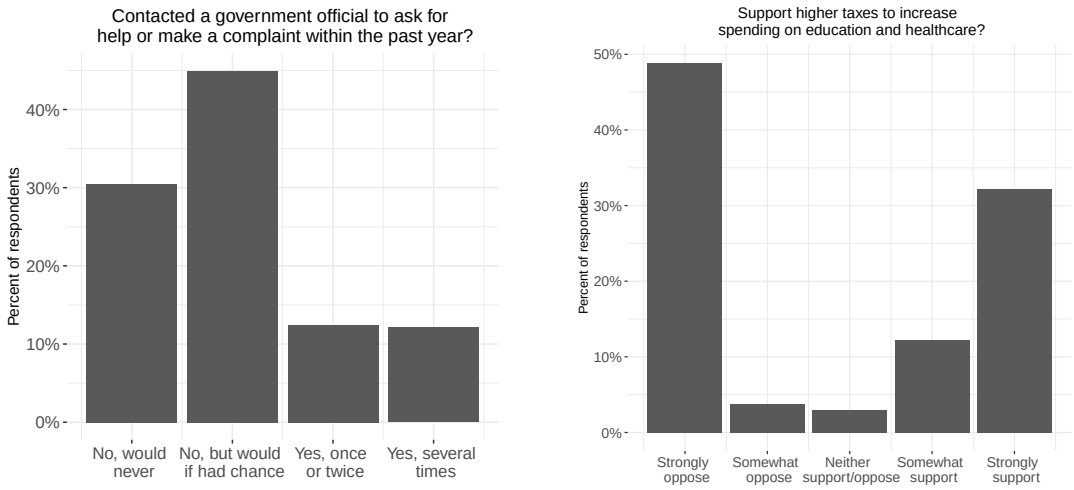


Figure 3.3: Distribution of political behavior

[13]For example, citizens could contact their Member of County Assembly (MCA) or ward officer. In Kibera, some residents still refer to the local government official as the 'district officer' and to ward officials as the 'village chief.'

[14]In Chapter 4, I focus specifically on education.

Third, I asked respondents who they believe is *responsible* for providing education and healthcare in their community.[15] This is a binary variable coded as either 'government' or 'NGO/Private'.[16] Finally, I asked respondents whether they think the Kenyan government is *capable* of providing quality education and healthcare in their community. This is a continuous variable ranging from 'not at all capable' to 'very capable'. These measures of political perceptions are important to my theory because the assurance game I outlined in Section 3.2.2 requires that participants view the government as credible and capable. Figures 3.4 and 3.5 plot the distributions of the 'responsibility' and 'capacity' measures for both education and healthcare.

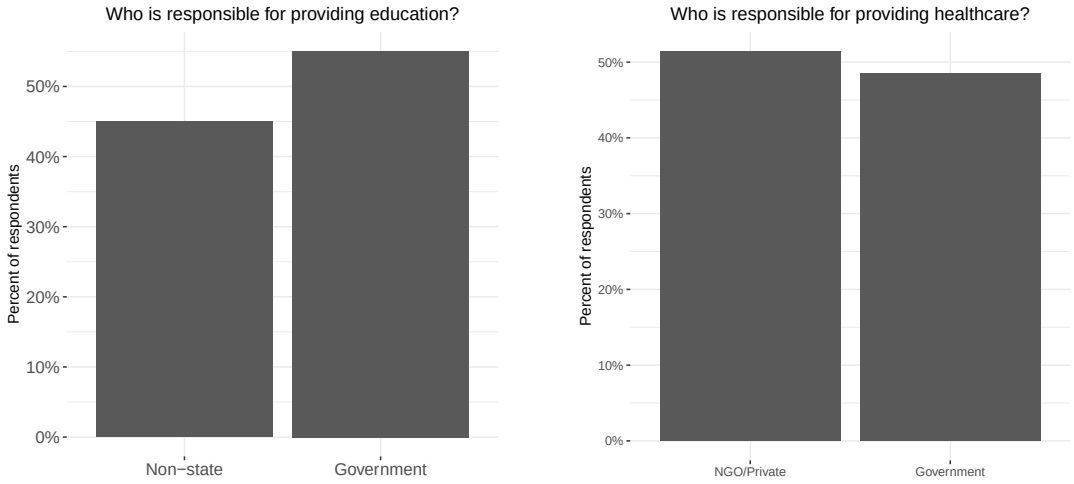


Figure 3.4: Distribution of perceived guarantor of key services

[15]The question included the phrase: "That is, who do you think should provide education (healthcare) in your community." This modifying phrase was included to reduce concerns about how the word "responsible" is interpreted.

[16]The question allowed respondents to answer either government, NGO, or private provider. However, my theory classifies private providers as NGOs and predicts that they produce a similar effect as for-profit NGOs. Therefore, I bin private and NGO together. One limitation of this binary approach is that it prevents respondents from stating that both the government and NGOs are responsible for providing education/healthcare.

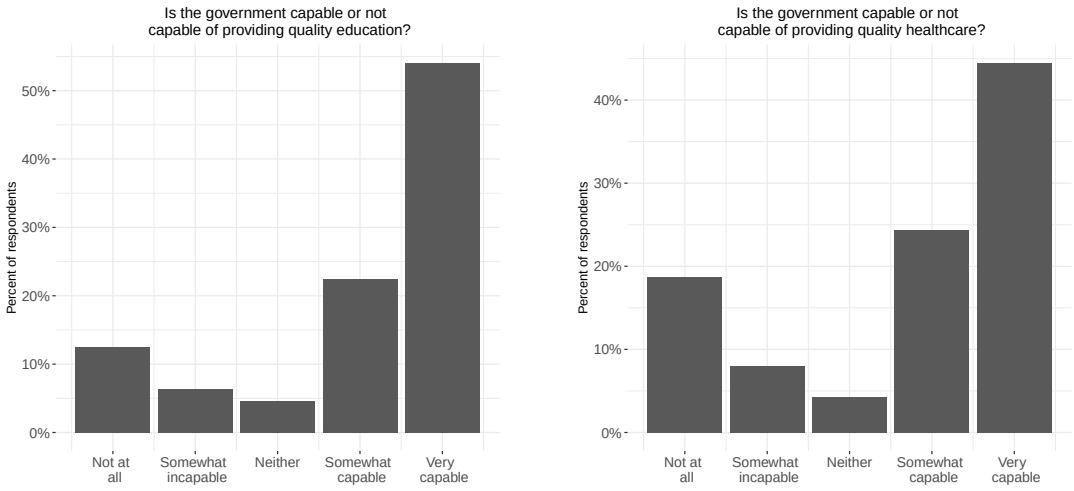


Figure 3.5: Distribution of government's capacity to provide key services

3.3.2 Explanatory Variables

The explanatory variables include measures of individual utilization of, and exposure to, NGOs. First, I create a measure of *NGO utilization* by asking respondents whether they have "received a service or benefit from an NGO in the past year." This is coded as a binary 'yes' or 'no'. For those who answered 'yes' to this question, I follow-up by asking whether the NGO(s) providing a service or benefit is best categorized as a 'service-delivery' or 'advocacy' NGO.[17]

Second, I create a measure of *NGO exposure* by calculating the percentage of individuals within each enumeration area who said they have received a service or benefit from an NGO in the past year.[18] Note that this measure of NGO exposure includes both advocacy and service-delivery NGOs. This is a continuous variable ranging from 18% to 63%. I argue that density of NGO utilization is a strong measure of NGO exposure. An increase in the proportion of NGO utilization is likely

[17]To do this, I asked respondents which of the following statements best describes what they received: 1) "The NGO provided a service for me or my family, such as healthcare, schooling, or sanitation" or 2) "The NGO helped me be more involved in my community, for example by helping me contact my government to ask them for help." This question on service-delivery versus advocacy is only used to test hypothesis one regarding individual NGO utilization and individual political behavior.

[18]I calculate this at the enumeration area-level because it is the smallest geographic unit in my data. In turn, when I discuss exposure to neighbors' behavior I am defining neighbor as someone who lives within the same enumeration area. I use 'neighborhood' and 'enumeration area' interchangeably when discussing the results.

to coincide with an increase in the two information signals (marketing and word-of-mouth) that I outlined in my theory. This is especially true for word-of-mouth conversations with neighbors, which is how 51% of my respondents reported hearing about the NGOs in their neighborhood.[19] Figure 3.6 shows the distribution of NGO utilization by neighborhood (enumeration area) and community (informal settlement) and reveals that there is variation in NGO utilization both *across* and *within* the four communities. Overall, nearly 40% of respondents across the four informal settlements said that they utilized an NGO within the past year. This ranges from 25% in Mukuru to 41% in Kibera. Within Kibera's five neighborhoods, NGO utilization ranges from just 18% in Kibera (a neighborhood with the same name as the community) to 63% in Makina.

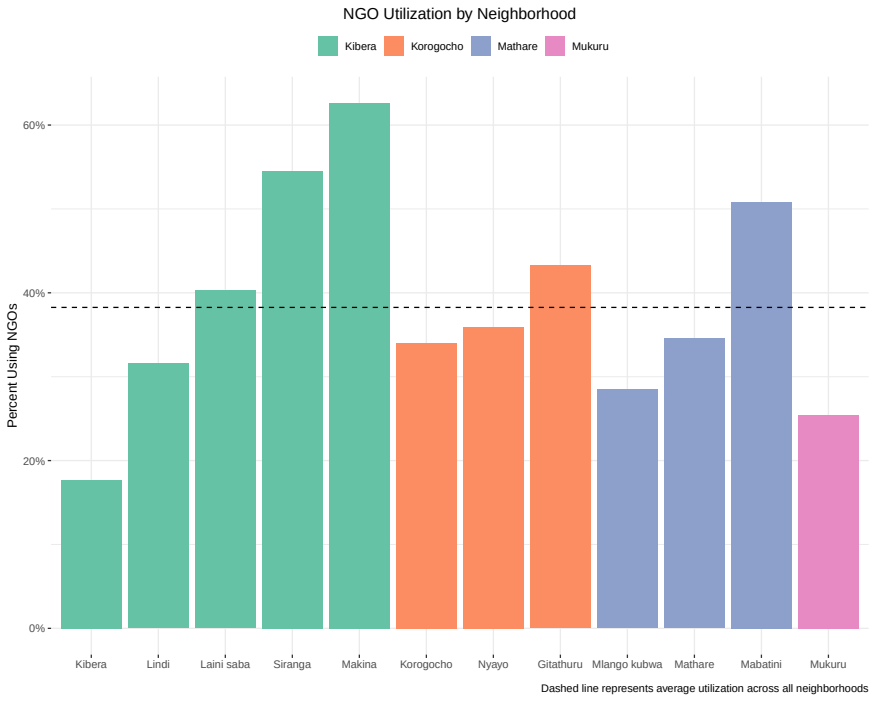


Figure 3.6: Distribution of NGO Utilization

[19] One limitation of my operationalization of private school exposure is that it does not measure any disproportionate exposure to a few very prominent NGOs. For example, if a neighborhood has only one NGO (and therefore relatively few NGO utilizers) but the NGO invests heavily in marketing and is widely discussed in the community, my approach will not accurately reflect the amount of information that this NGO emits in the neighborhood. While this is possible, it is unlikely in informal settlements. When an NGO is highly prominent in an informal settlement it is usually because it is well funded and highly utilized by community members (and therefore its prominence is reflected in my operationalization).

3.4 Model and Results

I estimate the following OLS equation:

$$Y_{ik} = \beta_1 E_{ik} + \delta X_{ik} + \eta_j + \epsilon_{ijk}$$

where i indexes individuals, j communities, and k enumeration areas. Y is an outcome measure described above and E is one of the explanatory measures. X is a matrix of individual-level and enumeration area-level controls and η is a community fixed effect. Standard errors are clustered at the enumeration area. Unless otherwise stated, all regressions control for sex, age, education level, religion, ethnicity, income, partisan affiliation, political knowledge, proximity to public schools, and a measure of ethnic homogeneity in the respondent's enumeration area.

My empirical approach guards against spurious results or alternative explanations. Most importantly, I confront the possibility that an unobserved factor explains both the prevalence of NGOs in a community and individual political behavior/perceptions. For example, NGOs may be more common in communities with limited government services/capacity and it is plausible that this low-level of government prevalence (rather than the high-level of NGO prevalence) explains any lack of political activity. To address this, I first include a number of individual-level controls that are otherwise known to explain political behavior, including age, education level, partisan affiliation, ethnicity, and political knowledge.[20]

Second, to directly confront the possibility that levels of government capacity drive both NGO prevalence and political behavior, I also control for each individual's distance from the closest government primary school (measured in minutes it would take for the respondent to walk to their nearest government primary school). This is a strong proxy for government capacity because Kenyans consistently rank education as one of the most important problems in the country (Afrobarometer 2016, 2019).[21] In 2003, changes to the education system in Kenya made primary education 'free

[20]Note that these individual level controls also help address the selection effect concern that the individuals who are more or less likely to utilize certain types of NGOs are also the same individuals who are more or less likely to engage in costly political behavior.

[21]One might argue that the location of government schools is explained by political factors rather than government capacity. I agree that this is possible, but I argue that when a politician or bureaucrat has the power to determine the location of government schools, this is also a function of government capacity. Local budgets might be a more robust measure of government capacity. However, the County is the lowest level of publicly available budget data

and compulsory,' and in the 2017 general election both major party candidates promised to extend free education to the secondary level. By controlling for proximity to public schools, I mitigate concerns that my results are driven by variation in existing levels of government services.

An alternative, but related, government capacity explanation is that citizens will exhibit low levels of political behavior if they do not have access to government officials. This lack of 'supply' of government officials may be driven by the absence of local government offices or by a respondent's unfamiliarity with their local representative. It is plausible that NGOs are more prevalent in these areas with low levels of government supply. I address this in two ways. First, I show that respondents in the four communities have similar access to local government offices. In Nairobi, the most common local government office is known as the sub-county office.[22] Figure 3.7 plots the approximate location of Nairobi's sub-county offices based on publicly available information.[23] The sub-county offices are evenly dispersed and not clustered near one or more of the communities in this study. Second, I control for whether an individual can correctly name their local Member of County Assembly (MCA). The MCA is the lowest level elected official and the office where individuals are most likely to submit formal grievances. Citizens should be more likely to correctly identify their local elected officials if these officials have made themselves readily available in the community (i.e. by increasing the supply of government access). In my sample, only 34 percent of respondents cannot correctly identify their MCA. However, by controlling for this factor I address concerns that variation in access to government officials explains political behavior.

Finally, at the enumeration area-level, I control for levels of ethnic homogeneity, which has been shown to affect citizens' likelihood to engage in collective action (Miguel and Gugerty, 2005) and

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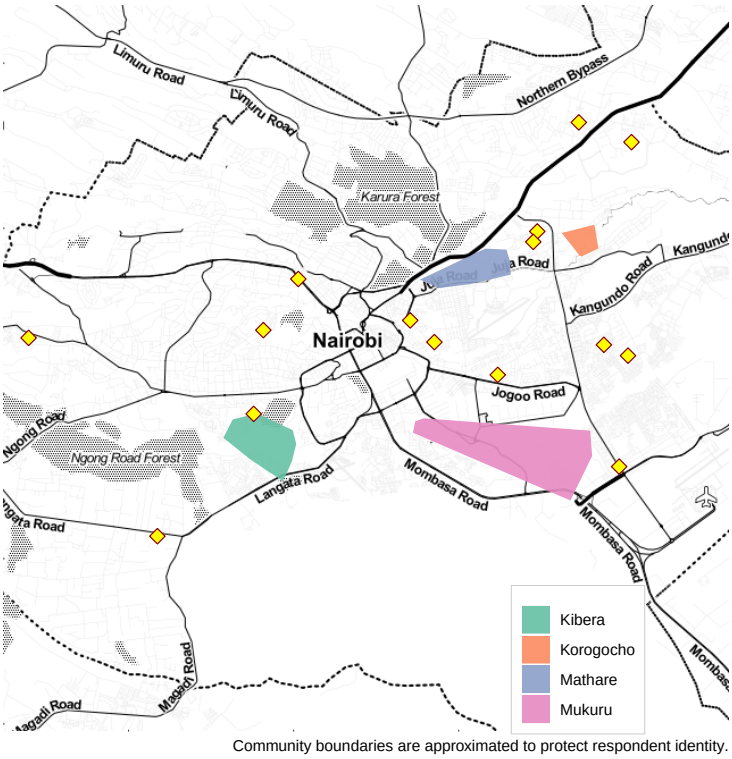
and my sample is limited to a single county (Nairobi). In other words, I cannot access any variation in budgets across the four communities or 12 enumeration areas in my study. Therefore, I argue that the individual-level measure of distance to the closest government primary school is the most robust measure of government capacity.

[22]The Nairobi City County Assembly consists of 17 administrative sub-counties and 85 wards; however it is rare for the wards to have their own office. While there are other ways an individual could contact the government, showing up at the MCA office is the most common form of contact with government officials. In the most recent round of Afrobarometer data, contact with government officials was low overall but was highest for the MCA (Afrobarometer Round 7, 2018).

[23]Office locations are based on data from https://nairobiassembly.go.ke/ and from Google Maps. In some cases, the two information sources do not agree on the office location. I attempted to verify the location by looking at social media pages for the sub-county office, but not all office locations are verifiable. Given the uncertainty around the location of the sub-county office and any potential ward offices, I do not include distance to these offices in the analysis.

Figure 3.7: Approximate Location of Nairobi Sub-County Offices (yellow)



could therefore explain levels of political behavior. I also include community fixed effects to ensure that my results are not driven by the unusual political behavior of respondents in one of the four communities. Finally, I cluster the errors at the enumeration area, which alleviates concerns that the "treatment" of NGO exposure is correlated with these neighborhood clusters (Abadie et al., 2017).

3.4.1 NGO Utilization and Political Behavior

I begin by estimating the effect of individual NGO utilization on political behavior. My theory predicts that individuals who utilize NGOs are less likely to monitor or support the government, but that this effect is conditional on the type of NGO utilization. Figure 3.8 shows the difference in probability that someone will contact the government or support increased taxes based on their

NGO utilization.[24] Individuals who said they received a service or benefit from an NGO within the past year are slightly more likely to say they would contact the government to ask for help or make a complaint; they are not more or less likely to support increased taxes. However, as predicted, the relationship between NGO utilization and contacting the government is conditional on the type of NGO utilization. Those who said 'service-delivery' best describes the NGO(s) they utilized are about 40% less likely to say they would contact the government than those who said 'advocacy' best describes the NGO(s) they utilized.[25] The type of NGO utilization does not significantly affect people's likelihood to support a tax increase.[26]

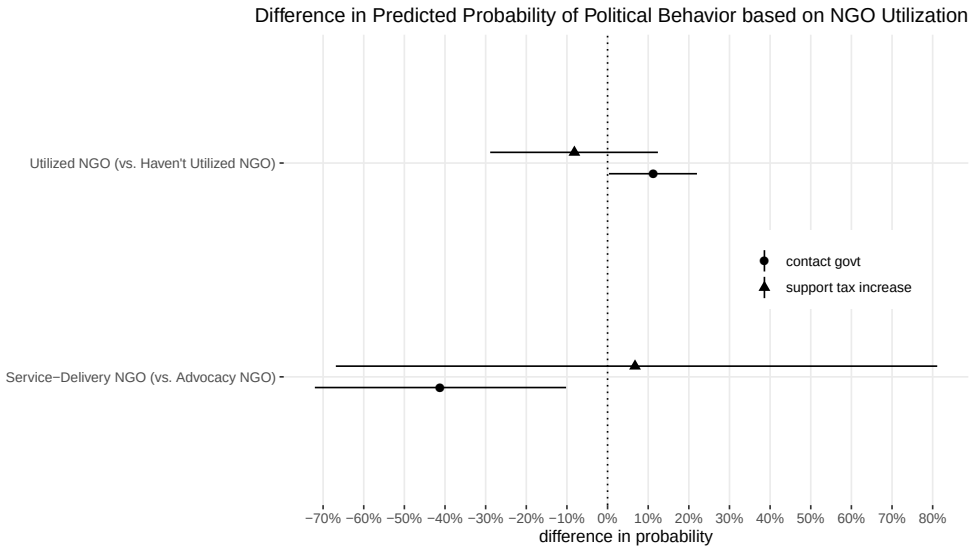


Figure 3.8: NGO utilization and political behavior

[24]Results are based on an OLS estimation. Table B.1 in the Appendix reports the coefficients and standard errors. All predicted probabilities are calculated with the SIMCF package (Adolph, 2015). All plots are made with Wickham (2016)

[25]This difference is statistically significant ($p<0.01$). See Table B.1 in Appendix.

[26]I acknowledge that it is especially surprising that individuals who utilize service-delivery NGOs are not less likely to support tax increases for government services (as hypothesis one predicts). However, I emphasize that this does not preclude the signaling effects from an increased prevalence of NGOs. While individual NGO utilization may not affect individual willingness to support tax increases, an agglomeration of NGOs can still (mis)signal that there is little need or support in the community for increased taxes to support government services. I test this in Section 3.4.3.

3.4.2 NGO Utilization/Exposure and Perceptions of Government

I argued there are two potential ways in which the information created by the presence of NGOs could affect the social institution that incentivizes political participation. First, increased presence of NGOs can signal to citizens that the state has diminished capacity, which might affect perceptions about the government's responsibility and capacity to provide key services. These perceptions are important because, as I outlined in Section 3.2.2, the assurance game that incentivizes political participation requires that participants view the government as credible and capable. Figure 3.9 shows the difference in these perceptions based on NGO utilization and exposure.[27]

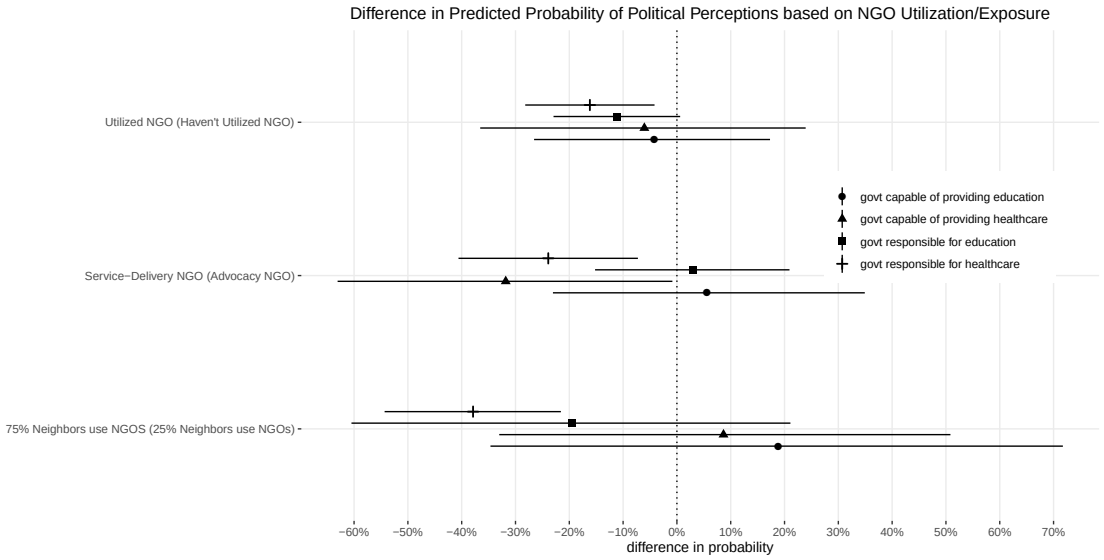


Figure 3.9: NGO utilization/exposure and perceptions of government

Increased NGO utilization and exposure does not have a significant effect on individual perceptions about the government's responsibility and capacity to provide education. However, perceptions about the government's responsibility and capacity to provide healthcare are more strongly linked to NGO utilization and exposure. Individuals who utilized service-delivery NGOs in the past year are about 24% less likely to say that the government is responsible for providing healthcare and about 34% less likely to say that the government is capable of providing healthcare than those

[27]Results are based on OLS estimations. Tables B.2, B.3, B.4, B.5 in the Appendix report the coefficients and standard errors.

who utilized advocacy NGOs.[28] Similarly, individuals who live in areas with a higher prevalence of NGOs (where 75% of their neighbors use NGOs) are about 37% less likely to say the government is responsible for providing healthcare than those who live in areas with a low prevalence of NGOs (where 25% of their neighbors use NGOs).[29] There are important differences in the politics of education and healthcare in Kenya that may help explain why NGO utilization/exposure produces stronger effects on perceptions regarding healthcare than education. Most importantly, the political salience of government education provision in Kenya likely moderates any changes in perceptions regarding government education.[30] For example, because Kenya recently introduced free public primary education and because education was a key platform for both major parties in the recent general election, there may be a strong norm to support government education provision.[31] In other words, the education sector in Kenya may be an especially difficult test for my theory.

3.4.3 NGO Exposure and Political Behavior

The second way NGOs could affect the social institution that incentivizes political participation is by sending important signals about neighbors' political behavior. If citizens believe that more of their neighbors are turning to NGOs for key services, they assume that those individuals are less likely to join them in monitoring and supporting government services. This reduces the likelihood that citizens will engage in political action related to government accountability.[32] Table 3.1 shows the results from an OLS estimation of increased NGO exposure on two important political behavior outcomes: willingness to contact the government or support increased taxes.

I plot these effects in Figure 3.10, showing the change in predicted probability of political

[28]These differences are statistically significant ($p<0.001$) and ($p<0.05$).

[29]This difference is statistically significant ($p<0.001$).

[30]Recall that Kenyans consistently rank education as one of the most important problems in the country (Afrobarometer 2016, 2019)

[31]My descriptive data supports this idea. 50% of respondents think the Kenyan government is responsible for providing education and over 70% think the Kenyan government is capable of providing quality education (Figure 3.4 and 3.5).

[32]As discussed in Section 3.3, I intentionally use broad measures of political behavior. However, one limitation of my measures is that they may capture political behaviors that do not require significant collective action. For example, an individual may contact their local government official to ask about citizenship registration. Future research should test more specific forms of political behavior that require more collective action such as voting or organizing a rally.

Table 3.1: Effect of NGO Exposure on Political Behavior (OLS)

	DV: Contact Government	**DV: Support Increased Taxes**
Pct Neighbors Using NGOs	-0.672^{***}	-0.720^{**}
	(0.180)	(0.332)
Male	0.188^{**}	-0.239
	(0.073)	(0.152)
Age	0.005	-0.023^{***}
	(0.003)	(0.005)
Education	0.053^{**}	-0.061
	(0.024)	(0.038)
Religion	0.038	0.129
	(0.052)	(0.111)
Ethnicity	0.001	0.006
	(0.007)	(0.024)
Income proxy	0.048	-0.031
	(0.057)	(0.089)
Party ID	0.094^{***}	0.014
	(0.033)	(0.090)
Knows MCA name	0.188^{**}	-0.128^{**}
	(0.084)	(0.058)
Ethnic homogeneity	-1.139^{*}	-0.511
	(0.675)	(0.724)
Distance to Public School	-0.001	0.001
	(0.003)	(0.003)
Mathare	0.097	0.212^{***}
	(0.074)	(0.071)
Mukuru	-0.327^{***}	-0.370^{***}
	(0.052)	(0.089)
Korogocho	-0.160^{*}	0.267^{***}
	(0.096)	(0.100)
Constant	1.336^{***}	4.398^{***}
	(0.293)	(0.711)
Observations	1244	1244
R2	0.054	0.039

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Standard errors are clustered at enumeration areas within each community.

behavior when someone moves from a neighborhood with low-NGO-prevalence to one with high-NGO-prevalence. Individuals living in an area with high NGO prevalence (where 75% of their neighbors utilize NGOs) are about 33% less likely to say they would contact the government and about 36% less likely to support increased taxes than individuals living in an area with low NGO prevalence (where 25% of their neighbors utilize NGOs). These effects are statistically significant[33] and large in magnitude, supporting my argument that there is a strong link between increased NGO exposure and willingness to engage in political behavior to monitor or support government services.

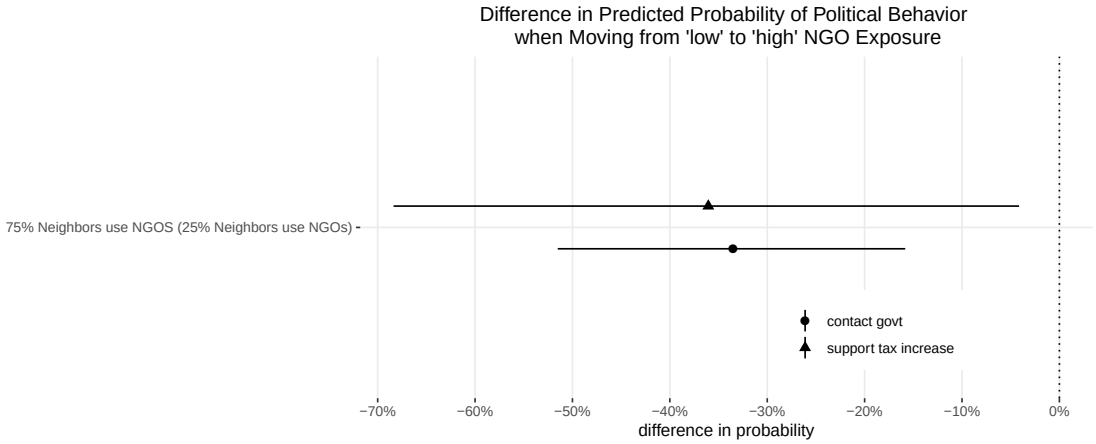


Figure 3.10: NGO exposure and political behavior

3.4.4 Evaluating the Assurance Game Mechanism

If the effects in Figure 3.10 are driven by the assurance game theory that I outlined in Section 3.2.2, we should expect that individuals' own reported political behavior is tightly linked to their perceptions about their neighbors' willingness to engage in costly political behavior. This is because individuals should be more willing to monitor (via contact) and support (via taxes) government services if they believe their neighbors will join them. Figure 3.11 confirms that the predicted probability that someone will contact the government or pay increased taxes is highly correlated to whether someone thinks that their neighbors will also contact the government or pay increased

[33] ($p<0.001$) and ($p<0.05$)

taxes. Figure 3.11 is based on an OLS estimation of an individual's perceptions of their neighbors' behavior on their own self-reported behavior. The models include the same controls, fixed-effects, and clustered errors as my main models.[34]

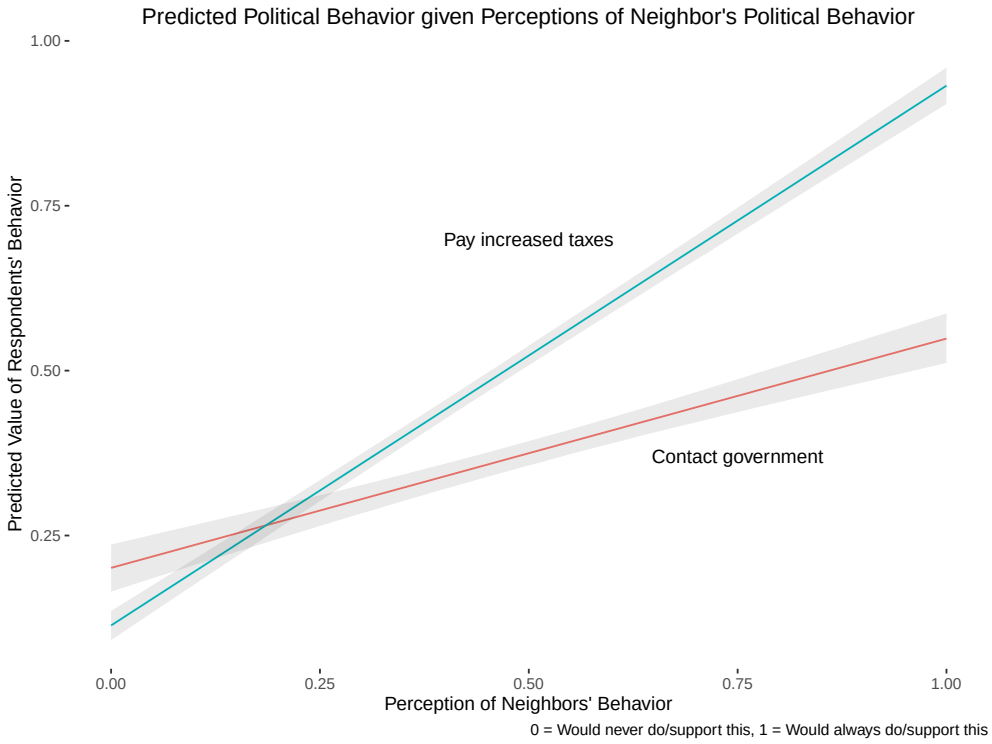


Figure 3.11: Political behavior and perceptions of neighbors' behavior

Second, if the effects in Figure 3.10 and Figure 3.11 are shaped by exposure to NGOs, we should expect that an individual's perception about their neighbors' political behavior is also linked to the prevalence of NGOs in their neighborhood. This is because increased exposure to NGOs should weaken someone's perception that their neighbors are willing to engage in costly political behavior. Figure 3.12 shows the predicted probability that a respondent thinks their neighbor will contact the government or pay increased taxes relative to the prevalence of NGOs in the area. Figure 3.12 is based on an OLS estimation of NGO exposure on perceptions of neighbors' behavior. The models

[34]Table B.6 reports the coefficients and standard errors.

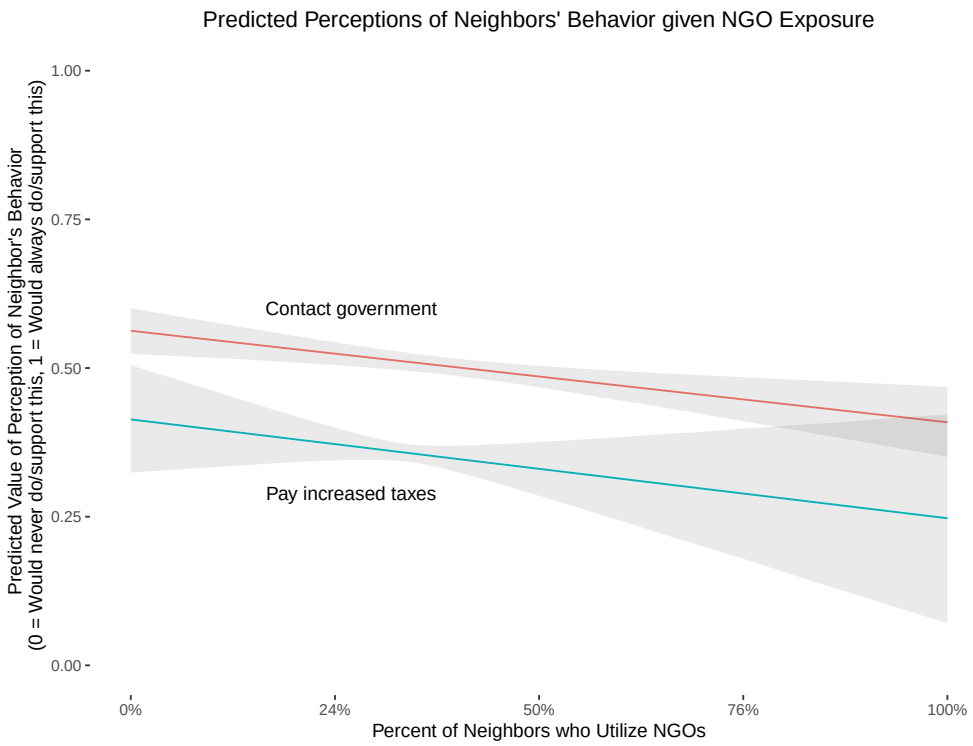


Figure 3.12: Exposure to NGOs and perceptions of neighbors' behavior

include the same controls, fixed-effects, and clustered errors as my main models.[35] As expected, individuals who live in areas with more NGOs are less likely to believe their neighbors will join them in monitoring or supporting government services.[36] In sum, Figures 3.11 and 3.12 provide evidence that 1) individuals' political behavior is linked to expectations about their neighbors' behavior, and 2) expectations about neighbors' behavior is linked to the prevalence of NGOs. While these mechanism tests alone do not prove my theory, they show that the data supports my predicted relationships regarding exposure to NGOs, expectations about neighbors' political behavior, and one's own political behavior. This, along with the fact that my empirical approach accounted for alternative explanations for an individual's own political behavior, provides support for my argument that NGO prevalence can affect political behavior because it affects the social norms

[35]Table B.7 reports the coefficients and standard errors.

[36]This is statistically significant at the ($p<0.01$) level for contacting the government. It is not statistically significant for paying increased taxes.

that incentivize or undermine political participation.

3.5 Conclusion

It is important to understand how NGO-prevalence affects social norms that shape political behavior because this can ultimately have much larger effects on government accountability, equitable delivery of basic services, and institutional development. In this paper, I find that utilization of, and exposure to, NGOs in Nairobi's informal settlements is linked to individuals' willingness to monitor and support government services and to their perception of the government's responsibility and capacity to provide services. While existing research has long discussed the link between NGOs, political behavior, and institutional development (Brass, 2016; Bleck, 2015; Boulding, 2014; Nelson-Nuñez, 2018), I advance the literature by developing a new theory that conceives of NGOs as information signals that affect community social norms that govern important political behavior. In doing so, I bridge existing literature on NGOs with research on social institutions (Knight, 1992; Acemoglu, Johnson and Robinson, 2005; Levi, 1989), collective action (Hirschman, 1970; Olson, 1965), and government accountability (Björkman and Svensson, 2009; Olken and Pande, 2013).

I emphasize three key findings. First, although utilization of NGOs in general is linked to a slight increase in willingness to contact the government, those who utilize service-delivery NGOs are about 40% less likely to say they would contact the government with a complaint/demand than those who utilize advocacy NGOs. Second, both utilization of NGOs and exposure to NGOs is linked to perceptions about the government. Individuals who utilize service-delivery NGOs are about 25-35% less likely to say the government is responsible for, and capable of, providing quality healthcare than are individuals who utilize advocacy NGOs. Similarly, people who live in a neighborhood where NGO prevalence is high are 37% less likely to say the government is responsible for providing healthcare than those who live in a low-NGO-prevalence neighborhood. Finally, regardless of NGO-type, exposure to more NGOs is linked to a substantial decrease in someone's willingness to engage in certain political behaviors. Those who live in high-NGO-prevalence neighborhoods are about 35% less likely to say they would contact the government or support increased taxes for education and healthcare. I argue this is because the increased number of NGOs signals to citizens that the government has diminished credibility as a service provider and that their neighbors have exited from government service provision and are unlikely to join them in costly political activity. I support

this argument with evidence showing that individuals' political behavior is strongly and positively linked to their expectations of their neighbors' behavior, and that expectations about neighbors' political behavior is negatively linked to the prevalence of NGOs in a neighborhood.

These results have important programmatic and policy implications. First, my results should not be interpreted as an indictment of NGOs. Rather, my results clearly indicate that utilization of NGOs in general is linked to a net increase in political oversight and that any decrease in oversight is driven particularly by the use of service-delivery NGOs (Figure 3.8). NGOs that provide services that would otherwise be provided by the government should consider the political effects of their programs. Second, and regardless of NGO-type, there is a strong link between living in a neighborhood with many NGOs and decreased levels of political oversight (Figure 3.10). In turn, NGOs and donors should pay more attention to whether they are directing their programs to communities that already have a strong NGO presence. NGOs should also be aware of the information signals they emit and consider whether there is a way to increase access to services while simultaneously providing tools that support government accountability.

Despite these contributions, my analysis points to areas of future research. Most importantly, future studies should try to isolate the effect of 'exposure to NGOs' and more precisely identify the mechanism driving the link between NGO-prevalence and political behavior. In addition, more attention should be paid to the different types of NGOs (i.e. service-delivery vs. advocacy) and how these differences affect both programmatic and political outcomes. For example, my research shows that individual utilization of different types of NGOs (advocacy and service-delivery) creates differential effects on individual political behavior. However, my findings also suggest that the effects of increased NGO density may supplant the effects of individual utilization and reshape the social norms dictating political behavior in a community. Future research should explore this dynamic to identify 1) if there is a tipping point at which NGO density becomes more important than individual utilization, and 2) policies and programs that effectively mitigate the signals that are created by increased NGO density in a community. Regardless, my theory and findings provide a new framework for studying how non-governmental organizations affect political behavior, institutional development, and government accountability. This is especially important in settings, such as informal settlements, with a high prevalence of NGOs.

Chapter 4

THE POLITICAL EFFECTS OF NON-STATE EDUCATION PROVISION IN LOW-INCOME COUNTRIES

In 2016, the Liberian Ministry of Education announced a plan to outsource management of over 90 government primary schools to eight non-state, private education providers.[1] Private education providers are widespread in a number of countries like Indonesia, Pakistan, Nigeria, Kenya, and India (Heyneman and Stern, 2014; Ashley et al., 2014; Andrabi, Das and Khwaja, 2015), and they enroll a growing proportion of primary-school pupils across all low-income countries. As of 2011, private schools enrolled over 20 percent of all primary-school pupils in low-income countries compared to just 10 percent in middle and high income countries (World Bank 2015).[2] In Nairobi, Kenya over 60% of all primary-aged school children attend a private school (Ngware et al., 2013). Despite the prominence of private education in low-income countries (and especially among some of the poorest residents), existing research does not provide a clear theory or empirical test of how private schools affect important political outcomes such as political participation or institutional development of government education systems.

On the one hand, non-state education provision might increase access to education and improve learning outcomes. Existing research tends to focus on these types of outcomes and provides mixed-evidence on private schools' effects on test scores, attendance, and attrition in places like Colombia, India, and Pakistan (Barrera-Osorio, 2007; Muralidharan and Sundararaman, 2015; Das, Pandey and Zajonc, 2006). A large randomized control trial (RCT) evaluation of Liberia's program showed that the private providers improved English and Math test scores after one year (Romero, Sandefur

[1] I use 'non-state school,' 'non-state education provider,' and 'private school' interchangeably to indicate any education institution, including both for-profit and not-for-profit, that is not operated by the government. When discussing the Setting, Data, and Results, I often use 'private school' or 'low-cost private school' because this is the typical phrasing in Nairobi's informal settlements.

[2] In fact, because many private schools in low-income countries are informal and not registered, these data likely *underestimate* the true proportion of students using a non-state school in low-income countries.

and Sandholtz, 2019).[3] Indeed, popular arguments in support of private school expansion in low-income countries contend that it is a practical solution to quickly improve education access and quality (Kristof, 2017).

However, by focusing on what I call *programmatic* effects (i.e. enrollment, attrition, and test scores), most existing research fails to consider the *political* effects (i.e. political participation, voting behavior, and institutional development) of non-state education provision. This is surprising given that opponents of the private school approach, including local and international teachers' unions, often invoke these political effects to argue that the proliferation of private education undermines government education provision (Migiro, 2016; Rosenberg, 2016; Tyre, 2017). For example, in reaction to the Liberia plan, public school teachers threatened to strike and the United Nations Special Rapporteur on the right to education issued a statement calling education a "core function of the State" (UNOHCHR, 2016). Meanwhile, teachers' unions and other public education advocates in Uganda and Kenya effectively sought court orders to ban a prominent private education provider from operating in their countries (Migiro, 2016).[4] Although these lawsuits focused on the private provider's lack of registration and unlicensed teachers, the underlying concern is that private providers encourage, "the government to step back from its obligation to provide quality public schools" (Namusobya, 2016). My data provides some merit to this argument as only 55% of respondents said the government is responsible for providing education while 45% said a private provider is responsible. However, because existing research focuses on the programmatic effects of private schools, we lack the evidence to evaluate these claims about private education's effects on government education provision.

I address this by developing a theoretical argument for how non-state education providers affect the social institution that govern political behavior and political perceptions that are critical to government education provision.[5] My argument builds on Chapter 3 where I showed that an increased

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[3]However, these effects 'plateaued' after three years (Romero and Sandefur, 2019).

[4]The private provider that was banned from Uganda and forced to close tens of schools in Kenya is the same provider that the Liberian government selected to operate 23 of its schools.

[5]I use 'social institutions' and 'social norms' interchangeably. I follow Knight (1992) when discussing social norms. In short, I assume that, in order to act strategically, individuals must have information about what other actors will do. Social norms resolve the uncertainty around others' actions because they, "establish rules to guide future action with which social actors comply in making their strategic choices" (Knight, 1992, pp 54).

prevalence of non-governmental organizations is linked to political behavior and to perceptions about the government and neighbors' likely behavior. Here, I apply the same theoretical argument to a specific and increasingly common form of non-state service provision: education. I think of non-state education providers as information signals that affect individuals' perceptions about the government's credibility and about their neighbors' likely political behavior. More specifically, I argue that as the prevalence of private schools increases, residents are exposed to more information – for example via advertisements, community discourse, and students' school uniforms – signaling 1) that the government has diminished responsibility and credibility as an education provider, and 2) that fewer neighbors are invested in the government schools. I argue that these signals reduce the incentives to engage in costly political activity to monitor or support government education.[6] I use a choice-theoretic model to outline this theory and to reveal the importance of information signals in shaping community members' decisions about holding government schools accountable.

I test hypotheses with observational and experimental data from four informal settlements in Nairobi, Kenya. Kenya is an ideal place to test this theory both because of the active debate about private education providers (illustrated by recent attempts to ban a prominent non-state education organization) and because of the political salience of government education in the country (Kenyans rank education as one of the top problems in the country and politicians often campaign on improving education access and quality). I focus on urban informal settlements for two reasons. First, these settlements become home for many of Africa's internal migrants who are moving from rural to urban regions at a rate higher than any other continent (APHRC, 2014). Second, the relatively poor population in these informal settlements often pay for private schools rather than send their kids to free government schools. In Nairobi, 60 to 70 percent of the city's 3.4 million residents live in informal settlements and 63 percent of school-aged children who live in in these settlements use private schools instead of government schools (Ngware et al., 2013).

I use an original survey to collect observational and experimental data. First, with the observational data, I find variation in school choice across and within the four informal settlements (or communities). Overall, about 60% of respondents across all four communities report sending

[6]See Section 4.3 for more information on how I operationalize 'monitoring' and 'supporting' government education provision. By 'monitor' I mean contacting government officials and by 'support' I mean paying taxes to increase spending on government services.

their kids to a private school. This ranges from 56% in Kibera to 65% in Mathare. There is more variation within communities. For example, in Kibera's five enumeration areas, private school utilization ranges from just 36% up to 68% and it is as high as 75% in Mabatini, Mathare. I use regression analysis to estimate the effects of this variation on individuals' political behavior and perceptions. I focus on two types of political behavior – contacting local government officials and supporting tax increases[7] – and two types of political perceptions – about the government's capacity and responsibility to provide education.

To preview observational results, I find that individuals who live in neighborhoods with more private schools are significantly less likely (by about 55-60%) to say the government is responsible for, or capable of, providing education than those who live in neighborhoods with fewer private schools. Similarly, individuals who live in neighborhoods with more private schools are significantly less likely (by about 50–70%) to believe that their neighbors would monitor or support government schools. Finally, I find that an increased prevalence of private schools is also associated with a significant decrease (of about 50%) in one's own willingness to monitor government schools.[8] This is true regardless of the respondent's own school-choice. Taken together, these results support my argument that an increased prevalence of private schools negatively affects community members' perceptions about the government's credibility as an education provider, their trust that neighbors will join in political oversight of government education, and their own willingness to monitor government education.

Next, I use a survey experiment to probe whether exposure to information about non-state education providers explains these effects on political behavior and perceptions. I randomly assigned respondents to an information treatment priming them to think that the majority of their neighbors send their kids to either a low-cost private school or a government school. I find no difference between treatment groups (private/government) in respondents' willingness to monitor (via contact) or support (via increased taxes) government schools. Similarly, I find no difference between treatment groups in respondents' expectations of their neighbors' anticipated political behavior. I

[7]Both types of political behavior measures included specific mention of education. See Section 4.3 for more on the survey instrument and measurement.

[8]See Section 4.4 for more information on how I address credible concerns about selection effects and omitted variable bias.

use qualitative data from focus group discussions to contextualize these null results and find substantive differences in how private and government school parents engage in oversight. Specifically, government school parents were more likely than private school parents to say they would contact local political officials and to say that their neighbors would join in this effort.

My research contributes to studies on education, political behavior, and institutional development. Existing research examines how private schools and public-private partnerships affect an important set of outcomes including academic performance (Cremata et al., 2013; Romero, Sandefur and Sandholtz, 2019; Das, Pandey and Zajonc, 2006; Muralidharan and Sundararaman, 2015), equitable access (Hsieh and Urquiola, 2006; Lucas and Mbiti, 2012), and rates of sexual abuse (Romero and Sandefur, 2019). These studies also cover diverse regions and both high- and low-income countries. However, these studies also tend to overlook a set of important outcomes related to political behavior and government accountability. My theory of non-state education providers as information signals provides a framework that can be used to better understand, and test for, the political effects of private schools. In doing so, I combine research in education and economics with research on social institutions (Acemoglu, Johnson and Robinson, 2005; Knight, 1992; Levi, 1989), collective action (Hirschman, 1970; Olson, 1965), and government accountability (Björkman and Svensson, 2009; Olken and Pande, 2013).

My findings also have timely policy implications. I provide some of the first empirical evidence to inform active debates about the political effects of privatized education on government education provision in low-income countries. My results suggest that privatization may lead to i) negative perceptions about the government's capacity and responsibility to provide education and ii) decreased willingness to monitor poor quality in government schools. This aligns with some public education advocates' argument – especially in Kenya, Liberia, and Uganda – that increased privatization will undermine government education in the long term. However, I also find that individuals who actually utilize private schools are not less likely to monitor or support government education. This is important and suggests that any demobilization effects of increased privatization may be driven by individuals' *misconceptions* about the expected political behavior of their neighbors who utilize private schools. In turn, increased privatization of education may not undermine government education if it is coupled with initiatives to signal that private school utilizers are still willing to monitor and support government schools.

Finally, my results lay a foundation for future research. My descriptive data confirms the widespread use of private schools in Nairobi's informal settlements and my observational and qualitative results support the theoretical argument that these schools can affect important outcomes related to oversight of government education. Taken together, these findings provide strong motivation for scholars to focus on the political effects of privatized education in low-income countries. Future research should examine how variation in factors such as neighborhood density or private school affiliations change the signaling effect of private schools. The null results from my survey experiment also provide an important lesson on identifying the conditions under which information signals will change behavior and beliefs. In particular, my analysis shows that new information is unlikely to alter behavior and/or beliefs if 1) those behaviors and beliefs are shaped by persistent, real information treatments that establish norms in the community and, 2) the new information treatment does not credibly convince residents that those norms have changed. Future research can build on my theory and multi-method results to identify which signals (from private schools) drive the changes in political behavior and perceptions and what interventions might be more effective at mitigating any demobilization effects from increased private school prevalence. This could include replication of the experiment in new settings or on a larger scale, development and testing of other treatments that mimic the signaling that I theorize, and tests of alternative theoretical mechanisms.

The chapter proceeds as follows. Section 4.1 outlines the argument with a choice-theoretic framework focusing on the education sector in Nairobi's informal settlements. Section 4.2 explains why I am testing my theory in Nairobi's informal settlements and presents the principal-agent relationships in Kenya's education environment. I discuss the data in Section 4.3 and present the observational results in Section 4.4. Finally, I summarize the experimental design and results in Section 4.5. I conclude in Section 4.6.

4.1 Private Schools as Information Signals: Choice-Theoretic Framework

I build directly on my original theory of non-government organizations (NGOs) as information signals and apply it to a specific and widespread form of non-state service provision: education. In Chapter 3, I built on existing research on the assurance game and social institutions (Levi, 1989; Knight, 1992; Weingast, 1997) to argue that there are two key factors that shape whether or not an individual will engage in political activity to monitor or support government services:

1) perceptions about the credibility of the government service provider, and 2) perceptions about whether one's neighbors will join them in political action. I argued that NGOs act as signals that provide information to citizens about these two key factors. More specifically, I showed that living in a neighborhood with more NGOs decreases citizens' perceptions about the government's role and capacity to provide services and decreases citizens' willingness to contact local government officials or support tax increases for improved government service. In this section, I outline a choice-theoretic framework to illustrate how my theory applies to education in a typical informal settlement in Nairobi, Kenya. Although I focus on Nairobi, many of the conditions I outline below (such as the importance of information signals in low-trust environment) generalize to other low-income countries and especially in informal settlements where low-cost private schools are common.

Consider a community with four key actors: residents, government service providers (public schools), non-state service providers (informal private schools), and political officials. The residents (principals) face two primary decisions: 1) what type of school to utilize, and 2) what action they take when they are dissatisfied with the school's service.

For the **first decision** (what type of school to utilize), residents choose from three potential outcomes:

- *Y1.1*: a government school (government service provider)
- *Y1.2*: an informal private school (non-state service provider)
- *Y1.3*: no school

To make this decision, residents consider the potential payoffs of each outcome, which are a function of: school quality, school cost, supply of schools, government policies and enforcement of these policies (i.e. compulsory education), and heterogeneous social preferences (i.e. religion based schools).[9] At a fundamental level, this decision of which service provider to utilize is not interdependent on other players' decisions. Each resident identifies their preferences based on the

[9]While many informal private schools are parochial, government schools also incorporate religion in the curriculum and religion is not a main factor for why parents choose private schools in Nairobi's informal settlements (APHRC, 2014). In my data, 60% of respondents said the school's exam scores, which is widely understood to be a proxy for school quality, is the most important factor in choosing a school. 13% said cost of the school. This is not surprising given that exam scores determine future education placement in Kenya. Release of the exam scores is an important event each year and invokes national headlines about the top scores and the best and worst performing schools (Njoroge, 2019).

potential payoffs of each outcome and selects a service provider accordingly. In a game with three residents, all three may choose the same outcome or their decisions may be distributed across the potential outcomes.

In environments where the government guarantees free access to education, as is the case with primary education in Kenya, we should expect many residents to choose the free government option (*Y1.1*). This should be especially true among poor residents who do not have the luxury of maximizing heterogeneous social preferences. However, the majority of parents in urban informal settlements across Kenya choose to pay for a non-state service provider (*Y1.2*). One explanation for this is that if the quality and/or supply of government schools is inadequate, residents may decide to pay more for services elsewhere. However, because education is a guaranteed government good, residents could presumably use their voice to demand improved quality/supply of the government option.

This brings us to the **second decision**: what residents do when they are dissatisfied with the available services.[10] This decision has six potential outcomes that align with the Hirschman (1970) 'exit, voice, or loyalty' framework for how individuals respond to organizational decline:

- *Y2.1*: remove child from school altogether (Exit)
- *Y2.2*: switch child to a different service provider (Exit)
- *Y2.3*: complain to school administration (Voice)
- *Y2.4*: complain to public officials (Voice)
- *Y2.5*: pay increased tax and/or school fees (Voice)
- *Y2.6*: remain in current school (Loyalty)

To make this decision, residents consider the potential payoffs of each outcome, which remain a function of: school quality, school cost, supply of schools, government policies and enforcement of

[10]Some may argue that this second decision is irrelevant for those individuals who chose private schools (*Y1.2*) or no school (*Y1.3*) in the first decision. For example, why would someone who sends their kids to a private school even consider complaining to public officials (*Y2.4*) about the quality of their school? However, I intentionally build my two-decision framework so that it applies to all residents at both stages in the decision process. I argue that private school utilizers remain invested in the government schools because they know that informal private schools face a number of challenges and often close unexpectedly due to lack of funding, land grabs, or poor infrastructure. In September 2019 the Precious Talent private school collapsed and killed 7 students (Ombuor and Bearak, 2019). In addition, because social preferences such as religion are not the main reason for choosing private schools, there are low barriers to switching from private to government.

these policies (i.e. compulsory education), and heterogeneous social preferences (i.e. religion based schools). However, consistent with my theory of political participation as an assurance game, this decision is also shaped by additional factors that are now interdependent on other players' decisions. As Hirschman (1970) noted, players will not turn to 'voice' unless they believe that it will be effective. This is because voice is costly and requires collective action (Olson, 1965). Therefore, the payoffs from choosing any form of voice (*Y2.3, Y2.4, Y2.5*) are also a function of the two key factors that I outlined in my theory in Chapter 3: perceptions about the government's credibility and perceptions about the number of other players who will choose voice.[11]

This means that the individual payoffs from voice are uncertain and change based on these perceptions about the government and about other residents' decisions. Therefore, individuals must search for information to develop an expectation about the credibility of service providers and about their neighbors' behavior. This is especially true in settings like informal settlements where low levels of social trust create further uncertainty about the effectiveness of choosing voice.[12]

To gather this information, residents look to the other actors in the community. For example, if political officials commit to improve access/quality of government schools (i.e. building more schools, hiring more teachers, monitoring teacher performance), residents might expect that more of their neighbors will choose government schools (*Y1.1*). This would, in turn, increase the expected efficacy of choosing voice at decision two. Alternatively, credible attempts to block the 'exit' option – for example, by shutting down non-state education providers or enforcing compulsory education laws – would also signal to residents that more of their neighbors are likely to choose 'voice.' However, consider that in this neighborhood the residents have low levels of trust in the government and often do not view such commitments as credible.[13]

Therefore, to make a determination about the potential efficacy of using 'voice,' residents rely

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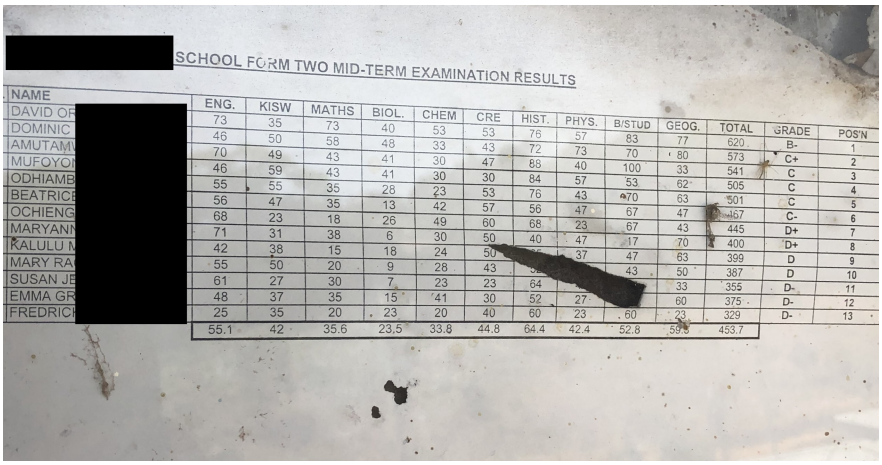
[11]I acknowledge that in addition to considering the *number* of their neighbors who choose 'voice', residents may also consider whether those neighbors are considered 'in-group' members. For example, those living in ethnically diverse communities may be less likely to engage in costly collective action (Miguel and Gugerty, 2005; Habyarimana et al., 2007). I address this in my analysis by including community fixed effects and controlling for local levels of ethnic homogeneity.

[12]In my data, only 11% of respondents say they trust their neighbors who they do not know personally and 46% trust their neighbors who they do know personally.

[13]In my data, only 24% of respondents trust their local government; whereas, according to Afrobarometer Round 7 data, 34% of all Kenyans nationwide trust their local government (Afrobarometer 2018).

on information that is directly and indirectly emitted by education providers in the neighborhood. These schools operate in a competitive environment and must invest in marketing to acquire and maintain users. This marketing can take several forms. For example, school directors might post promotional materials in the neighborhood or offer incentives for existing parents to convert their neighbors to the school. Many private schools also publicly display their school's recent exam scores. Figure 4.1 shows the exam scores in the public-facing window of a private school in Mathare. Finally, private schools develop unique mottos and logos and display them prominently on the outside of their facility. In informal settlements, these logos are often painted directly onto tin sheets, concrete, or billboards around the school, making them highly visible to the persistent foot-traffic in the neighborhood (see Figure 4.4).

Figure 4.1: Exam scores posted in window of private school

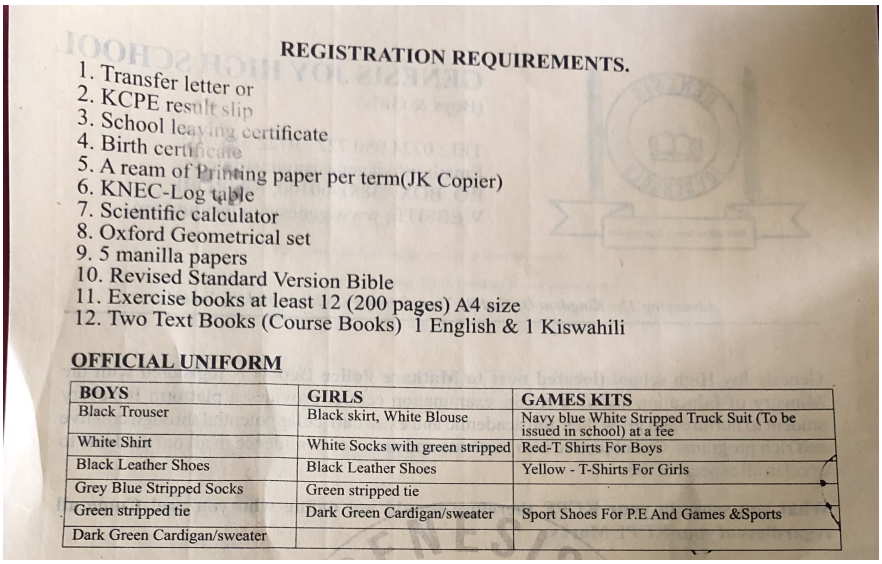


Aside from these active marketing strategies, private schools also indirectly emit information signals. For example, parents in the community may discuss with each other where they send their kid to school, or they may simply infer based on the school uniforms they see in their community.[14] Every school has strict uniform requirements and the colors of these uniforms vary by school. For example, Figure 4.2 shows the stringent uniform requirements for a low-cost private

[14]When asked how they find out about schools in their community, 90% of respondents in my survey said it is through one of these two forms of information (24% through flyers/adverts in the community and 66% through discussions with neighbors).

school in Mathare: black trouser/skirt, white shirt/blouse, green striped tie, and dark green cardigan/sweater. These types of requirements are universal across Nairobi's informal settlements, but schools vary their required color of cardigans/sweaters and ties. Because school uniform colors vary by institution, they are a clear indicator of whether a child attends a government or non-state school.

Figure 4.2: Uniform requirements



REGISTRATION REQUIREMENTS.

1. Transfer letter or
2. KCPE result slip
3. School leaving certificate
4. Birth certificate
5. A ream of Printing paper per term(JK Copier)
6. KNEC-Log table
7. Scientific calculator
8. Oxford Geometrical set
9. 5 manilla papers
10. Revised Standard Version Bible
11. Exercise books at least 12 (200 pages) A4 size
12. Two Text Books (Course Books) 1 English & 1 Kiswahili

OFFICIAL UNIFORM

BOYS	GIRLS	GAMES KITS
Black Trouser	Black skirt, White Blouse	Navy blue White Stripped Truck Suit (To be issued in school) at a fee
White Shirt	White Socks with green stripped	Red-T Shirts For Boys
Black Leather Shoes	Black Leather Shoes	Yellow - T-Shirts For Girls
Grey Blue Stripped Socks	Green stripped tie	
Green stripped tie	Dark Green Cardigan/sweater	Sport Shoes For P.E And Games &Sports
Dark Green Cardigan/sweater		

The effects of these information signals, such as school uniforms, are amplified in informal settlements because high population density and informal infrastructure blur the line between public and private space and make it especially easy to observe neighbors' activities. For example, when children walk to and from school, they walk through many of their neighbors' 'front yards' or workplace. This is evident in Figure 4.3, which captures a common scene in a Nairobi informal settlement.[15] Circled in red are three different students each wearing a different color of school uniform: black (left), purple (middle), and green (right).[16] Meanwhile, parents, commuters, and

[15]This picture was taken on the outskirts of Mathare and therefore shows a neighborhood that is actually *less* dense than most neighborhoods in the informal settlements. In more dense neighborhoods, there would be just as many (if not more) unique school uniforms and more community members, shop owners, and laborers observing the students.

[16]The student in the far left is carrying their black cardigan over their shoulders rather than wearing it.

vendors can easily observe these students and, based on what they understand about the schools in their community, likely know which school each student attends based on the color of their uniform.

Figure 4.3: School uniforms in community

In short, the expected payoffs of choosing any form of voice, such as complaining to a public official (*Y2.4*) or paying increased taxes (*Y2.5*), for decision two increase when residents see signals in their neighborhood that lead them to believe that the government is a credible provider of education and/or that their neighbors also have a reason to choose voice. However, as non-state education providers become more prevalent in a neighborhood, residents are exposed to increased information signaling both that the government has diminishing credibility as an education provider and that their neighbors are less likely to choose voice.

4.2 Setting: Education in Nairobi's Informal Settlements

I test my hypotheses in four informal settlements in Nairobi, Kenya. Informal settlements are an especially relevant case to study the political effects of non-state education providers. Africa's urban growth rate of 4 percent is the highest of any continent, and many of these urban migrants end up in informal settlements (APHRC, 2014). In Nairobi, 60 to 70 percent of the city's 3.4 million residents live in informal settlements (APHRC, 2014). Because these settlements often lack basic government services, they are also home to a variety of non-state service providers including schools.

In Kenya, education is a politically important topic. In 2015, Kenyans ranked education as the third most important problem in the country, behind crime/security and unemployment (Afrobarometer Round 6). This comes after changes to the education system in 2003 that made primary education 'free and compulsory.' In other words, education is a basic right in the country. In the most recent election in 2017, both major party candidates promised to extend free education to the secondary level. Despite the mandate of free, public education in the country, many parents choose to send their kids to non-state schools. This is especially true among low-income, urban residents. The African Population and Health Research Center (APHRC), which has done extensive research on the prevalence of low-cost, non-state education across Kenya, reports that 50 percent of all primary school children in informal settlements across Kenya attend non-state schools.[17] Within Nairobi's informal settlements, the number is 63 percent (Ngware et al., 2013). Figure 4.4 shows what the typical low-cost private school looks like within Nairobi's informal settlements.[18]

Although government schools are not necessarily free – parents pay for uniforms, meals, upkeep of schools, and illegal enrollment fees – they are still cheaper than private schools. According to Zuilkowski et al. (2018), parents who send their kids to low-cost private schools in Nairobi's informal settlements pay on average 7395 KES ($ 73) per year compared to only 3244 ($ 32)

[17]Data on non-state school enrollment is often misleading because they only account for elite, private schools and do not consider informal, often unregistered, low-cost private schools. APHRC is one of the few data sources that does account for low-cost private schools.

[18]The images feature secondary schools, but each school pictured also has a primary school. Non-state primary schools are more common than non-state secondary schools in Nairobi's informal settlements. The schools pictured are located in the Kibera, Mathare, and Kariobangi settlements.

Figure 4.4: Non-state education providers in Nairobi's informal settlements

KES per year for those who send their kids to the free public schools.[19] Why do parents choose to send their kids to more costly private schools rather than to the government schools? One answer is that non-state schools are responding to new demand curves in the market. This aligns with some scholars' belief that non-state service providers arise to fulfill heterogeneous preferences, and that these providers are especially likely to arise as incomes rise (Weisbrod, 1991; Kingma, 1997).[20] If this is true, preferences for different types of education providers should differ along socio-demographic lines (especially income). However, APHRC's data suggests that this is not the case. Although wealthier, more-educated parents tend to send their kids to elite, high-cost private schools, there is no meaningful socio-demographic differences between parents who choose to send their kids to public schools and those who opt for low-cost private schools (Ngware et al., 2013). Similarly, I find no significant correlation between increased income and choosing private schools among my survey respondents.[21] Moreover, if the government is held to its mandate of free and compulsory primary education, there is little need for additional demand curves.

Rather, studies consistently find that preference for low-cost private schools in Kenya is driven by perceived quality rather than by heterogeneous demands (Dixon and Tooley, 2012; Heyneman and Stern, 2014). According to Zuilkowski et al. (2018, pp. 259), "The growth of private schools in Kenya cannot be explained simply by excess demand for primary school places." Parents often choose to spend more money to send their kids to low-cost private schools because they believe that their kids will receive a superior education. This is despite the fact that many of these low-cost private schools employ untrained and unqualified teachers. In sum, it is reasonable to assume that the proliferation of low-cost non-state education acts as a substitute, not a complement, to government education provision. Absent the non-state schools, parents would likely send their kids to the government schools because education is free and compulsory.

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[19] In my data, respondents said that they would expect to pay, on average, 3,078 KES ($ 30) per month for the local public primary school and 4,847 KES ($ 48) per month for the local low-cost private primary school. While these are likely overestimates, they show that parents do expect to pay more for low-cost private schools.

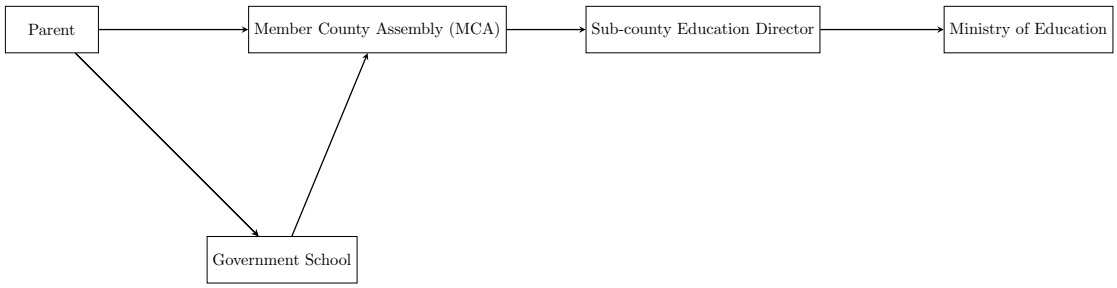
[20] Again, I emphasize that although many private schools are parochial, there is no evidence suggesting that religious preferences drive private school choice. Instead, 60% of my respondents said the school's exam scores (a proxy for school quality) is the most important factor in school choice. In addition, most government schools incorporate religion into their curriculum.

[21] To the contrary, I actually find a small negative (-0.05), but not significant, correlation between increased income and choosing private schools.

4.2.1 Accountability in Kenya's Education Sector

The fact that 63 percent of primary-aged children who live in Nairobi's informal settlements attend non-state schools rather than public schools raises important questions about accountability and oversight of the education sector. How do community members monitor education services in their neighborhood? After devolution in Kenya, the lowest level elected government official is the Member of County Assembly (MCA). In theory, the MCA is the first point of contact, outside of teachers and school directors, for education related issues. Above the MCA is a string of other county and national elected officials. The Ministry of Education (MoE) also appoints county-level officials, referred to as Sub-County Education Directors, who are responsible for delivering and monitoring local education provision. Although parents are largely unaware of the Sub-County Education Director position, and are therefore unlikely to direct complaints to them, this county-level education official would be the first point of contact for a MCA. In sum, the principal-agent chain for government education delivery resembles Figure 4.5.

Figure 4.5: Principal-Agent Chain for Government Schools

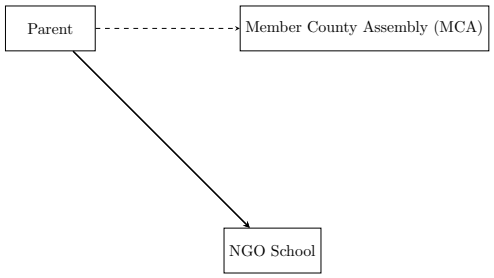


How does the proliferation of non-state education alter this principal-agent chain? Most low-cost private schools are informal and not recognized by the government.[22] In short, this means that the government has no responsibility for these schools and that the parent's (principal) oversight stops at the school level. In practice, parents may still direct complaints about non-state education to the MCA. For example, private school parents are likely to contact the MCA about a school

[22]Most private schools utilize the government curriculum. However, if the school is not registered with the government, the government may prevent the school's students from taking national exams (which determine entrance into secondary school).

directors' financial malpractice or if they are concerned about their private school's lack of official registration (which would affect their students' ability to take exams). However, oversight would remain squarely outside of the MCA or the MoE's realm (see Figure 4.6).[23]

Figure 4.6: Principal-Agent Chain for Non-state Schools



4.3 Data

I test the effects of private school utilization and exposure on political behavior and perceptions with original survey data collected in February 2019 across four informal settlements in Nairobi: Kibera, Korogocho, Mathare, and Mukuru Kwa Njenga (Mukuru). Together, these communities have a population of over 375,000 individuals in 132,000 households.[24] The communities were selected based on their relative prevalence of private schools, geographic distribution, and ethnic and partisan diversity. I used a probability proportional to population size sampling technique to interview over 1200 individuals across 12 enumeration areas within the four communities.[25] I use the same enumeration areas as the 2009 Kenya National Census. Figure 4.7 shows the location of these sampled communities relative to Nairobi city center.

[23]As low-cost private education expanded across Kenya, the government realized that these schools could be useful partners in education delivery. In turn, the Kenyan government has formally recognized some non-state education providers with what they call Alternative Provision of Basic Education and Training (APBET) certification. The government has allocated funds to support APBET schools, however many APBET school directors report that they never receive these funds. In addition, the APBET program is not well-known and parents have little or no information about what APBET means and which schools are, or are not, APBET. Ultimately, despite government attempts to formally recognize some private schools, I argue that, from the residents' perspective, all private schools are still non-public.

[24]Numbers are based on the 2009 Kenya National Census.

[25]I conducted a power analysis to determine the sample size of 1200, which is discussed in more detail in the experimental results in Section 4.5 and in Appendix C.2.

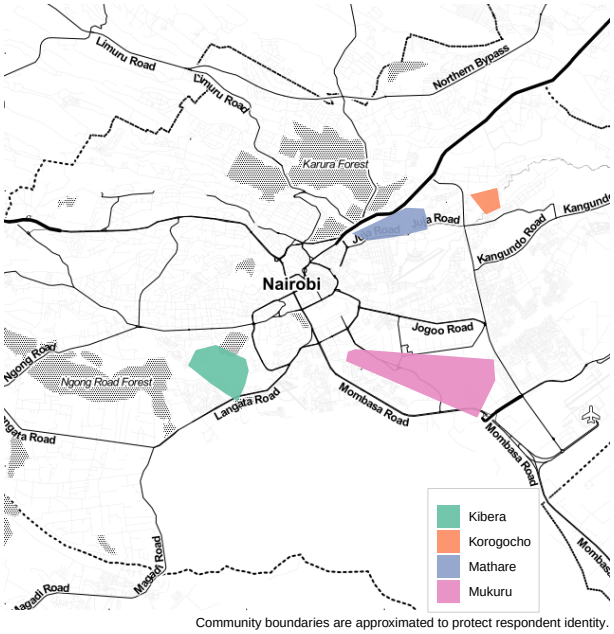


Figure 4.7: Location of Sampled Communities

4.3.1 Political Behavior & Perception Measures

My observational analysis focuses on two dependent variables that measure political behavior and two dependent variables that measure perceptions about government education provision. First, I asked respondents how often within the past year they "*contacted* a government official to ask for help or to make a complaint when you were unhappy with the *government schools*?"[26] This is a continuous variable ranging from 'no, would never do this' to 'yes, several times'. I intentionally use the broad language of 'government official' because there are various government officials that an individual could contact.[27] Although the MCA is the most common local government official, individuals could also direct complaints to the ward officer or sub-county education director. In addition, there is variation in how local government officials are identified. For example, in Kibera some residents still refer to the local government official as the 'district officer' and to ward offi-

[26]This question and the response options mirror question 27C in Afrobarometer Round 6. The only difference is that the Afrobarometer question uses 'government performance' where I use 'government schools.'

[27]As shown in the principal-agent chain in Figure 4.5 and confirmed in focus group discussions summarized in Section 4.5.5.

cials as the 'village chief.' Ultimately, the main point of the question is that it asks respondents to think about i) contact ii) with someone associated with the government iii) and in response to dissatisfaction with government schools. Moving forward, I refer to this measure as 'contact government schools.' Second, I asked respondents, "If the government decided to raise *taxes* in order to increase spending on services such as education and healthcare, would you support this decision or oppose it?"[28] This is a continuous variable ranging from 'strongly oppose' to 'strongly support'. Again, I avoid specifying a specific tax amount or method of tax collection. Instead, I focus on measuring respondents' general willingness to give money to the government to fund services such as government education. Moving forward, I refer to this simply as 'support tax increase.' Figure 4.8 plots the distribution of these two political behavior variables.

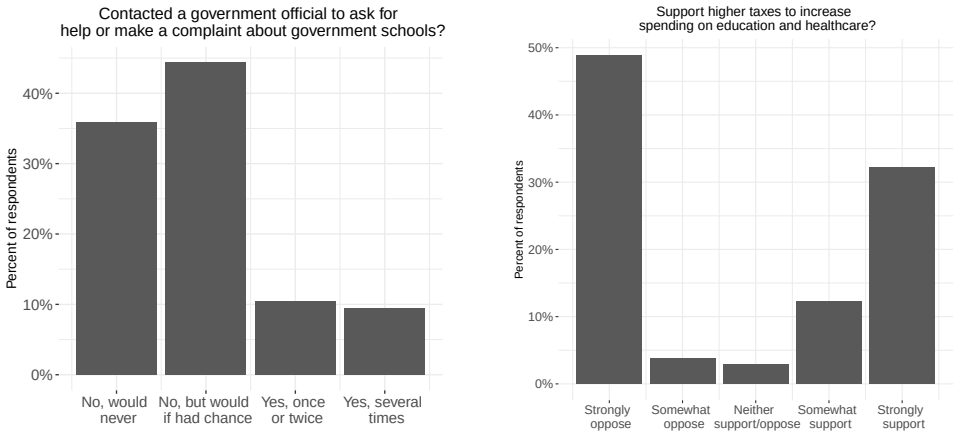


Figure 4.8: Distribution of political behavior

Next, I turn to the dependent variables that measure perceptions about government education provision. I asked respondents who they believe is *responsible* for providing education in their

[28]This question and the response options mirror question 65C in Afrobarometer Round 6. The only difference is that the Afrobarometer question only mentions healthcare while I mention both healthcare and education. One limitation of this question is that it includes mention of healthcare in addition to education. However, I argue that the key point is that I am asking respondents to i) think about a proposal made by the government, ii) that would increase spending on government services, iii) including government education. Note that the outcome used in the survey experiment does focus explicitly on education.

community.[29] This is a binary variable coded as either 'government' or 'non-state'.[30] Finally, I asked respondents whether they think the Kenyan government is *capable* of providing quality education in their community. This is a continuous variable ranging from 'not at all capable' to 'very capable'. These measures are important to my theory because the assurance game I outlined in Chapter 3 (Section 3.2.2) requires that participants view the government as credible and capable. Figure 4.9 plots the distributions of these political perceptions variables.

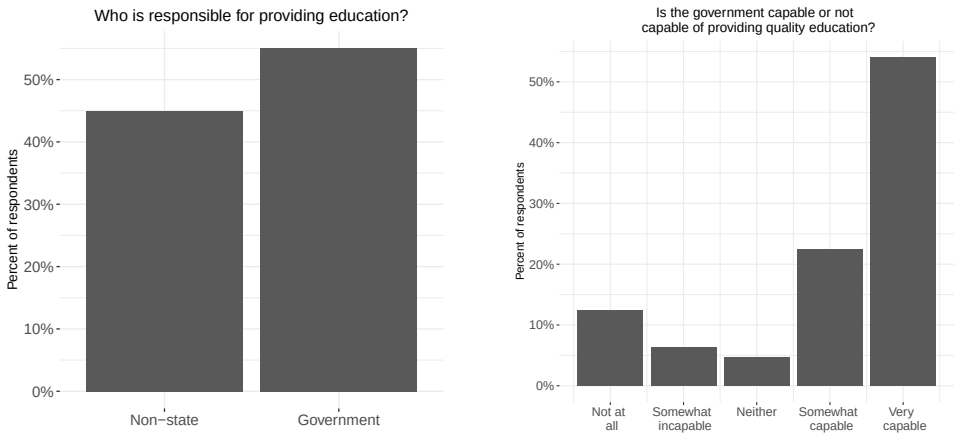


Figure 4.9: Distribution of perceptions about government education

4.3.2 School Utilization and Exposure Measures

The key explanatory variable in my argument is individual utilization of, and exposure to, non-state education providers. I create a measure of 'private school utilization' by asking respondents what type of school their children attend. This is a binary variable coded as either "government" or "private."[31]

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[29]The question included the phrase: "That is, who do you think should provide education in your community." This modifying phrase was included to reduce concerns about how the word "responsible" is interpreted.

[30]The question allowed respondents to answer either government, low-cost private, or high-cost private provider. Only 5% of respondents answered "high-cost private." Those responses are coded as 'non-state' in my analysis and in Figure 4.9

[31]Only 7% of respondents said that they send their children to a mixture of government and private schools. These respondents are not included in the analysis.

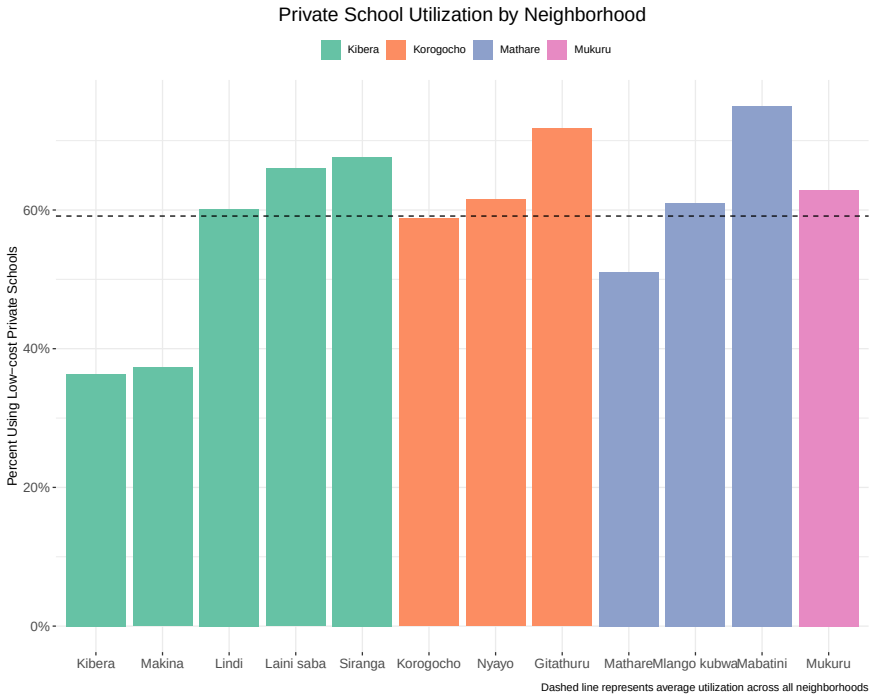

Figure 4.10: Distribution of Private School Utilization

Second, I create a measure of 'private school exposure' by calculating the percentage of respondents within each enumeration area who said they send their kids to a private school.[32] This creates a continuous measure of private school density that ranges from 36% to 75%. I argue that density of private school utilization is a strong measure of private school exposure. An increase in the proportion of private school utilization is likely to coincide with an increase in the two information signals (marketing and word-of-mouth) that I outlined in my theory. This is especially true for word-of-mouth conversations with neighbors, which is how 66% of my respondents reported hearing about the schools in their neighborhood.[33] Figure 4.10 shows the distribution of private school

[32]I calculate this at the enumeration area-level because it is the smallest geographic unit in my data. In turn, when I discuss exposure to neighbors' behavior I am defining neighbor as someone who lives within the same enumeration area. I use 'neighborhood' and 'enumeration area' interchangeably when discussing the results.

[33]One limitation of my operationalization of private school exposure is that it does not measure any disproportionate exposure to a few very prominent private schools. For example, if a neighborhood has only one private school (and therefore relatively few private school utilizers) but the school invests heavily in marketing and is widely discussed in the community, my approach will not accurately reflect the amount of information that this school emits in the neighborhood. While this scenario is possible, most private schools across Nairobi's informal settlements are small and similarly prominent in their neighborhoods. In the rare scenario where a single school is highly prominent

utilization by neighborhood (enumeration area) and community (informal settlement).

Figure 4.10 reveals that there is variation in school utilization both *across* and *within* the four communities. Overall, about 60% of respondents across the four informal settlements said that they send their kids to a private school. This aligns closely with other surveys showing that 63% of children in Nairobi's informal settlements attend private schools (Ngware et al., 2013). Private school utilization ranges from a low of 36% in the Kibera, Kibera neighborhood to a high of 75% in Mabatini, Mathare.

4.4 Observational Model and Results

For the observational analysis, I use OLS to estimate the following base equation:

$$Y_{ik} = \beta_1 E_{ik} + \delta X_{ik} + \eta_j + \epsilon_{ijk} \tag{4.1}$$

where i indexes individuals, j communities, and k enumeration areas. Y is a political behavior (contact government official or support tax increase) or perception (government's responsibility/capability of providing education) measure described above. Each of these variables is continuous except for the measure of who is responsible for providing education, which is a binary variable that = 1 for 'government'. E is one of the explanatory measures (school utilization or exposure). The school utilization variable is a binary variable that = 1 for 'private school'. The school exposure variable is a continuous variable. X is a matrix of individual-level and enumeration area controls and η is a community fixed effect. Standard errors are clustered at the enumeration area.[34]

My empirical approach guards against spurious results and considers alternative explanations. Most importantly, I confront the possibility that an unobserved factor explains both the prevalence of private schools in a community and individual political behavior/perceptions. For example, private schools may be more common in communities where the government has limited capacity and it is plausible that this low-level of government prevalence (rather than the high-level of private-

in the neighborhood (i.e. Shofco), this school is also highly utilized by community members and therefore its prominence is reflected in my operationalization.

[34]Unless otherwise stated, all regressions control for sex, age, education level, religion, ethnicity, income, partisan affiliation, political knowledge, and a measure of ethnic homogeneity in the respondent's enumeration area.

school prevalence) explains any lack of political activity.

To address this, I first include a number of individual-level controls that are otherwise known to explain political behavior, including age, education level, partisan affiliation, ethnicity, and political knowledge.[35] Second, to directly confront the possibility that levels of government education capacity explains both private-school prevalence and political behavior, I also control for each individual's distance from the closest government primary school (measured in minutes it would take for the respondent to walk to their nearest government primary school). This is a strong proxy not just for the government's capacity to provide education but for government capacity in general.[36] Recall that Kenyans consistently rank education as one of the most important problems in the country and that in the 2017 general election both major party candidates promised to extend free education to the secondary level (Afrobarometer 2016, 2018). By controlling for proximity to government schools, I mitigate concerns that my results are driven by variation in existing levels of government education provision. Figure 4.11 shows the distribution of government primary schools in Nairobi county relative to the four communities in my study.[37]

An alternative, but related, government capacity explanation is that citizens will exhibit low levels of political behavior if they do not have access to government officials. This lack of 'supply' of government officials may be driven by the absence of local government offices or by a respondent's unfamiliarity with their local representative. I address this in two ways. First, I show that respondents in the four communities have similar access to local government offices. In Nairobi, the most common local government office is known as the sub-county office.[38] Figure 3.7 in Chapter 3 showed

[35]Note that these individual level controls also help address the selection effect concern that the individuals who are more or less likely to utilize certain types of schools are also the same individuals who are more or less likely to engage in costly political behavior.

[36]One might argue that the location of government schools is explained by political factors rather than government capacity. I agree that this is possible, but I argue that when a politician or bureaucrat has the power to determine the location of government schools, this is also a function of government capacity. Local budgets might be a more robust measure of government capacity. However, the County is the lowest level of publicly available budget data and my sample is limited to a single county (Nairobi). In other words, I cannot access any variation in budgets across the four communities or 12 enumeration areas in my study. Therefore, I argue that the individual-level measure of distance to the closest government primary school is the most robust measure of government education capacity.

[37]Figure 4.11 is based on a publicly available list of schools provided by the Nairobi County government: https://nairobi.go.ke/wp-content/uploads/Public-Primary-Schools.pdf

[38]The Nairobi City County Assembly consists of 17 administrative sub-counties and 85 wards; however it is rare for the wards to have their own office. While there are other ways an individual could contact the government, showing

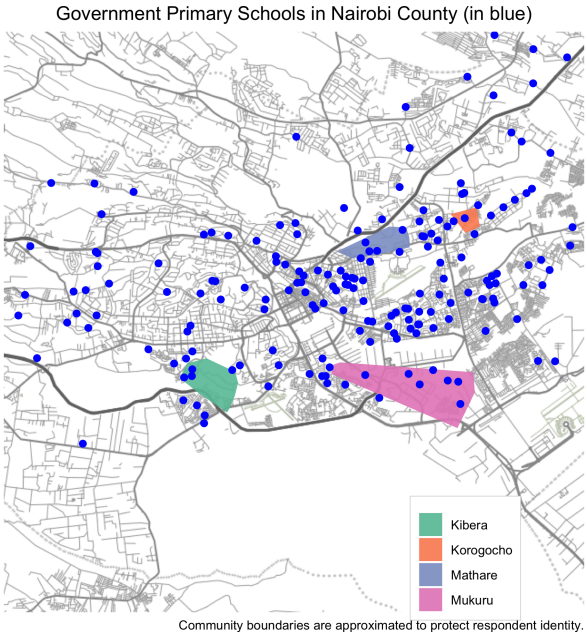

Figure 4.11: Location of Government Primary Schools

the approximate location of Nairobi's sub-county offices based on publicly available information. The sub-county offices are evenly dispersed and not clustered near one or more of the communities in this study. Second, I control for whether an individual can correctly name their local Member of County Assembly (MCA). The MCA is the lowest level elected official and the office where individuals are most likely to submit formal grievances. Residents should be more likely to correctly identify their local elected officials if these officials have made themselves readily available in the community (i.e. by increasing the supply of government access). In my sample, only 34 percent of respondents cannot correctly identify their MCA. However, by controlling for this factor I mitigate concerns that variation in access to government officials explains political behavior.

Finally, at the enumeration area, I control for levels of ethnic homogeneity, which has been shown to affect citizens' likelihood to engage in collective action (Miguel and Gugerty, 2005) and could therefore explain levels of political behavior. I also include community fixed effects to ensure that my results are not driven by the unusual political behavior of respondents in one of the four

up at the MCA office is the most common form of contact with government officials. In the most recent round of Afrobarometer data, contact with government officials was low overall but was highest for the MCA (Afrobarometer Round 7, 2018).

communities. Finally, I cluster the errors at the enumeration area, which alleviates concerns that the "treatment" of private school exposure is correlated with these neighborhood clusters (Abadie et al., 2017).

4.4.1 School Choice and Political Behavior

I begin by estimating the effect of school choice on political behavior. We might expect that individuals who utilize private schools are less likely to monitor (via contact) or support (via increased taxes) government education provision. Figure 4.12 shows the difference in probability that someone will contact the government or support increased taxes based on their school choice.[39] Individuals who send their kids to a private school (compared to those who send their kids to a government school) are slightly less likely to contact a government official when they are unhappy with government schools and slightly less likely to support a tax increase. However, neither of these differences are statistically significant.

One explanation for this result is that the political salience of government education provision in Kenya moderates the effects of private school utilization on political behavior. For example, because Kenya recently introduced free public primary education and because education was a key platform for both major parties in the recent general election, there may be strong norms to monitor and support government education provision. Indeed, my descriptive data shows that 50% of respondents think the Kenyan government is responsible for providing education and over 70% think the Kenyan government is capable of providing quality education (Figure 4.9). However, when I probe this explanation with additional interaction models, I find no evidence that perceptions about the government's role in education affect private school parents' political behavior. More specifically, I find that private school parents who think the government is responsible for providing education are not any more likely to monitor or support government education provision than private school parents who do not think the government is responsible for education delivery (Table C.2 in the Appendix). Similarly, I find that private school parents who think the government is highly capable of providing education are not any more likely to monitor or support government education provision

[39]Results are based on an OLS estimation. Table C.1 in the Appendix reports the coefficients and standard errors. All predicted probabilities are calculated with the SIMCF package (Adolph, 2015). All plots are made with ggplot (Wickham, 2016)

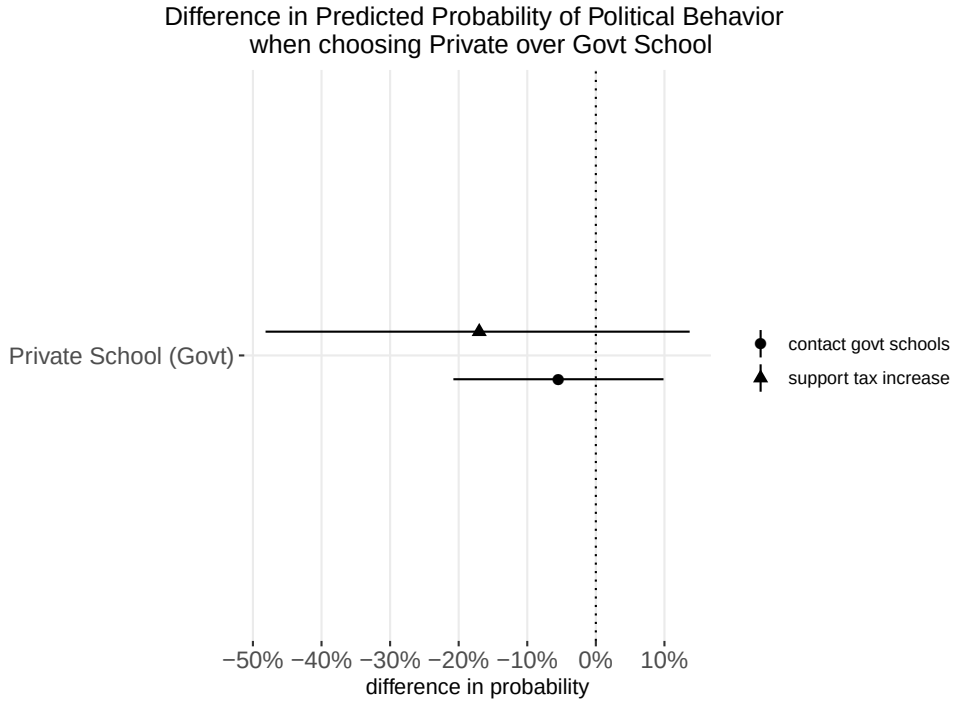

Figure 4.12: School utilization and political behavior

than private school parents who think the government is not capable of providing education (Table C.3). In sum, I find that respondents' school choice does not predict whether they are willing to contact a government official or support tax increases to improve government education. This does not change when considering whether school choice's (non)effect on political behavior is moderated by the respondent's perceptions about the government's role or capacity to provide education.

On the one hand, this is surprising because we should expect that an individual's willingness to invest in a service is at least partly explained by that individual's (non)utilization of the service. On the other hand, as I described in Section 4.1, individuals who utilize private schools will remain invested in government education provision if they foresee a need to switch from private to government in the future. This is especially common in informal settlements where private schools can close unexpectedly for reasons including lack of registration, land grabs, and lack of funding. Also, as I described in Section 4.2, private school utilization in the informal settlements is not driven by heterogeneous preferences (such as social status or religion) that would make school choice 'sticky'

and prevent parents from switching from private to government schools in the future.

Therefore, I propose that the null effect of individual school choice on political behavior actually strengthens my argument that it is an *assurance game* that explains political behavior regarding government education provision. That is, if individual utilization does not explain political behavior, citizens are even more likely to rely on perceptions of 1) whether or not the government is a credible provider and 2) whether they believe their neighbors will join them.[40] My argument is that citizens turn to information signals to form these perceptions and that the prevalence of private schools is one critical signal.[41]

4.4.2 Private School Exposure and Perceptions of Government Education and Neighbors' Political Behavior

I test this argument by evaluating whether my proposed information signal – prevalence of private schools – affects the two key components of the assurance game: perceptions about the credibility of the government provider and perceptions about neighbors' behavior. First, I examine the effect of increased private school prevalence on perceptions of the government's credibility and capacity to provide education. I argued that an increased presence of private schools can signal to residents that the state has diminished capacity, which might affect perceptions about the government's responsibility and capacity to provide education. Figure 4.13 shows the difference in these perceptions based on the prevalence of private schools.[42] I find that individuals who live in neighborhoods with a higher prevalence of private education provision (where 75% of their neighbors use private schools) are about 55-60% less likely to say the government is responsible for, or capable of, providing education than those who live in neighborhoods with a low prevalence of private education

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[40]This builds directly on Levi (1989, pp 53) argument, that "Quasi-voluntary compliance will occur only when taxpayers have confidence that (1) the rulers will keep their bargains and (2) other constituents will keep theirs."

[41]I reiterate that these information signals are especially relevant in informal settlements because 1) signals from private schools (i.e. school uniforms) are easily observed and 2) the signals are critical in overcoming low levels of social trust.

[42]Results are based on OLS estimation described in equation 4.1. To address concerns that individual school choice is endogenous to individual perceptions about government education provision, I also control for the respondents' school choice. Table C.6 in the Appendix report the coefficients and standard errors.

provision (where 35% of their neighbors use private schools).[43] These differences are statistically significant ($p<0.01$ and $p<0.05$).[44]

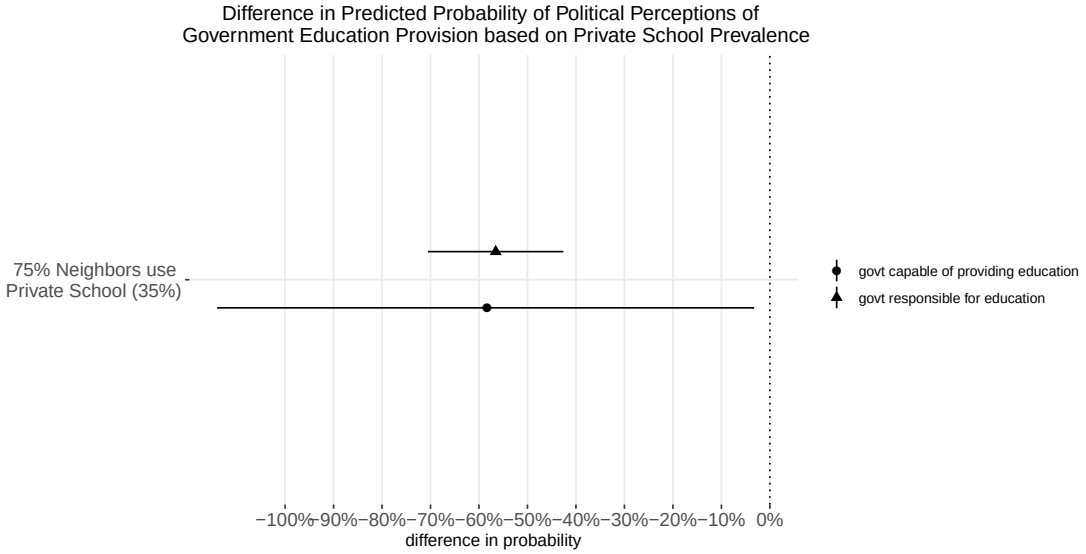

Figure 4.13: Private school prevalence and perceptions of government

Second, I examine the effect of increased private school prevalence on perceptions about neighbors' likely political behavior. Figure 4.14 shows the difference in these perceptions based on the prevalence of private schools.[45] I find that individuals who live in neighborhoods with a higher prevalence of private schools (where 75% of their neighbors use private schools) are about 70% less likely to believe that their neighbors would contact a government official about local government schools than those who live in neighborhoods with a low prevalence of private education provision (where 35% of their neighbors use private schools). Similarly, individuals living in neighborhoods with a high prevalence of private schools are about 45% less likely to believe that their neighbors would support a tax increase to improve services such as government education than those living

[43]The simulated difference of moving from a community with 35% private school utilization to 75% private school utilization reflects the actual range in my data as shown in Figure 4.10.

[44]To further confirm that the results presented in Figure 4.13 are not driven by private school parents, I test whether the interaction of school choice with increased private school prevalence moderates the effect on perceptions of government education. This interaction effect is not significant (Table C.8).

[45]Results are based on OLS estimation described in equation 4.1. This model also controls for the respondents' school choice. Table C.7 in the Appendix report the coefficients and standard errors.

in neighborhoods with a low prevalence of private schools. These differences are both statistically significant at the $p<0.05$ level.

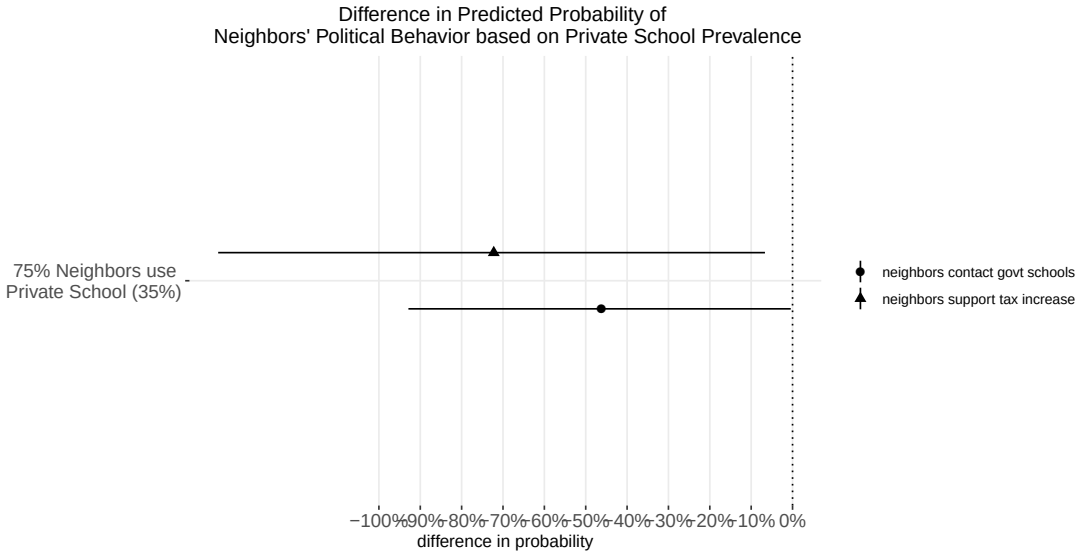

Figure 4.14: Private school prevalence and perceptions of neighbor's behavior

These results support my argument that an increase in private schools in a community can reshape important norms about the government's role in providing education and about neighbors' likely political behavior. Even if private school-choice does not affect individual political behavior (as shown in Figure 4.12), the high prevalence of private school utilization in a community can still (mis)signal to residents that the government is not a credible provider of education and that fewer people in the community are willing to monitor and support government education. The question that remains is whether the signaling from increased private schools not only reshapes perceptions but also affects one's own willingness to engage in political behavior.

4.4.3 Private School Exposure and Political Behavior

I test for this by evaluating whether my proposed information signal (prevalence of private schools) affects respondents' likely political behavior. Figure 4.15 shows the difference in probability that someone will contact the government (when dissatisfied with government schools) or support increased taxes based on whether they live in a neighborhood with low or high private school preva-

lence.[46] As I did above, I include in this model a control for individual school choice so that the results show the effect of increased private school exposure on political behavior while keeping constant the respondent's preferred school choice. I find that individuals who live in a neighborhood with high private school prevalence (where 75% of their neighbors utilize private schools) are 50% less likely to say they would contact the government in response to poor government school performance than individuals living in a neighborhood with low private school prevalence (where 35% of their neighbors utilize private schools). This difference is statistically significant ($p<0.01$). Individuals who live in neighborhoods with high private school prevalence are also slightly less likely to support a tax increase, but this difference is not statistically significant.[47]

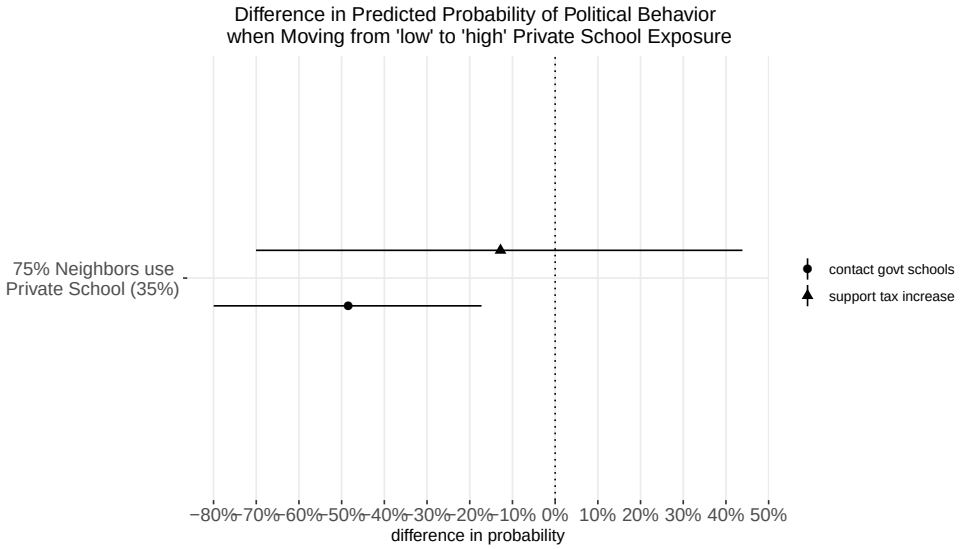

Figure 4.15: Private school exposure and political behavior

Similar to the results in Section 4.4.2 above, these results show that, even if choosing private schools over government schools does not affect one's own behavior, the high prevalence of private school utilization in a community can still affect other individuals' willingness to engage in political behavior to monitor government schools. Taken together, results from my observational analysis

[46]Results are based on OLS estimation. Table C.9 in the Appendix reports the coefficients and standard errors.

[47]Recall that my measure of 'supporting tax increase' includes mention of both education and healthcare while my measure of 'contact' focuses only on education and in response to 'poor government school performance.'

show that i) individual school choice does not affect individual political behavior regarding oversight of government education provision, but that living in a neighborhood with an increased prevalence of private schools does affect respondents': ii) perceptions about the government's capacity and responsibility to provide education, iii) perceptions about neighbors' willingness to monitor (via contact) or support (via taxes) government education, and iv) one's own willingness to contact a government official to complain about poor government school performance.

These results provide support for my theoretical argument that low-cost private schools emit signals in the community and that these signals can affect the social institution that governs political behavior.[48] The results are also substantively interesting because it is fairly easy and common for an individual to move from a neighborhood with low private school prevalence to one with high private school prevalence.[49] For example, the distance from Makina, where about 38% of residents use a private school, to Silanga, where about 70% of residents use a private school, is less than two miles. This means that when a family moves to a new neighborhood – either within the same informal settlement or in a new informal settlement across town – they could easily enter an area with a different set of information signals that begin to reshape their perceptions about government education delivery and ultimately their political behavior.

4.5 Survey Experiment

Next, I focus on whether information about neighbors' private school utilization explains the effects on political perceptions and political behavior that I reported from my observational data in Section 4.4. To do this, I randomly assigned the survey respondents to two different information treatments about their neighbors' choice of schools. This section describes the experimental design, treatments, and findings.

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[48]While I warn against over-interpreting the effects of other covariates in the models, I do want to note that there are two covariates that show a consistent effect across many of the observational models. First, increased age is consistently associated with a significant decrease in support for more taxes. Second, increased ethnic homogeneity is consistently associated with increased willingness to support a tax increase. This could be because the threat of social sanctions (i.e. for not supporting tax increases) is higher in homogeneous neighborhoods (Miguel and Gugerty, 2005) and/or because co-ethnics are more likely to engage in cooperative games (i.e. to coordinate in support of tax increases) (Habyarimana et al., 2007).

[49]Some research finds that there is a 'circular migration' system within informal settlements and that, in Nairobi, "a quarter of the total slum population [is] renewed annually" (Beguy, Bocquier and Zulu, 2010).

4.5.1 Experimental Design & Treatment

Although I cannot (and would not) randomly assign research participants to communities with more or fewer private schools, I can prime survey respondents to focus on their neighbors' use of private schools when deciding whether or not to engage in costly political activity to monitor or support government education services. To do this, I developed an experimental design with two different treatment groups. Figure 4.16 summarizes the experimental design, where R indicates random selection into groups, X indicates a treatment, and O indicates an outcome measure.

Group 1 (R_1)	X_1	$O_{1,2,3,4}$
Group 2 (R_2)	X_2	$O_{1,2,3,4}$

Figure 4.16: Experimental Design

Treatment One: Individuals randomly selected into Group 1 (private) were exposed to an information treatment (X_1) indicating that the majority of their neighbors use a private education provider.[50] The treatment read:

> *"I want you to imagine that you live in a community where these are the schools that your neighbors send their kids to: [Enumerator shows respondent Figure 4.17]. 80% of your neighbors send their kids to low-cost private schools and only 20% send their kids to government schools."*

Treatment Two: Individuals randomly selected into Group 2 (government) were exposed to an information treatment (X_2) indicating that the majority of their neighbors use a government school. The treatment read:

> *"I want you to imagine that you live in a community where these are the schools that your neighbors send their kids to: [Enumerator shows respondent Figure 4.18]. 80% of your neighbors send their kids to government schools and only 20% send their kids to low-cost private schools."*

[50]The images used in the treatments (Figures 4.17 and 4.18) are actual images taken from private and government schools in Nairobi. They are representative of the types of information signals that parents would see in their community. In addition, the distribution of school choice presented in Figures 4.17 and 4.18 align with the actual range of school choice in the surveyed neighborhoods (as shown in Figure 4.10).

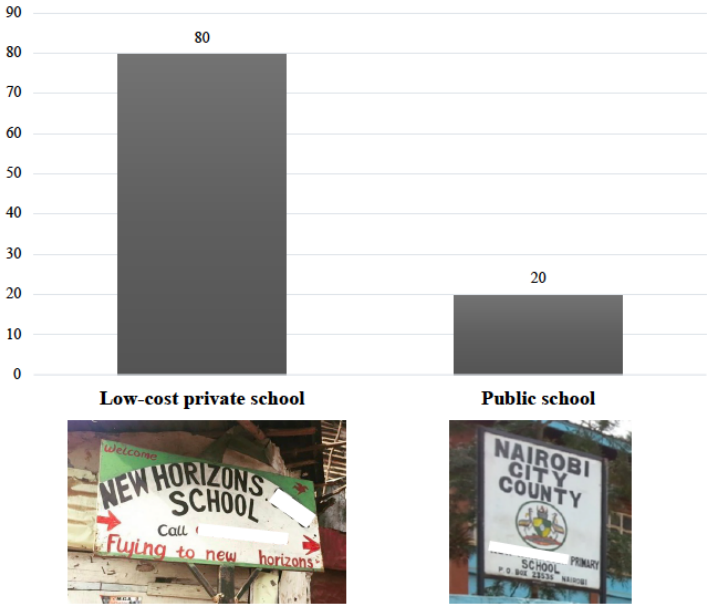


Figure 4.17: Treatment 1 (X_1)

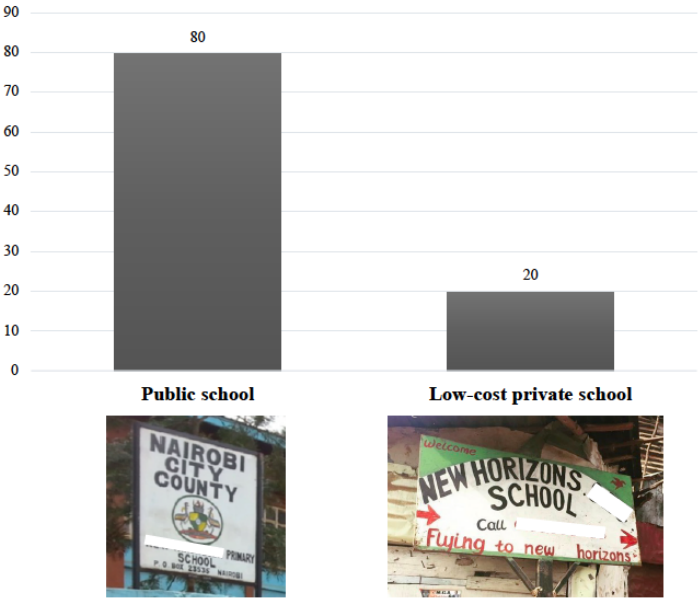


Figure 4.18: Treatment 2 (X_2)

Immediately after each treatment, the respondents were asked four questions:

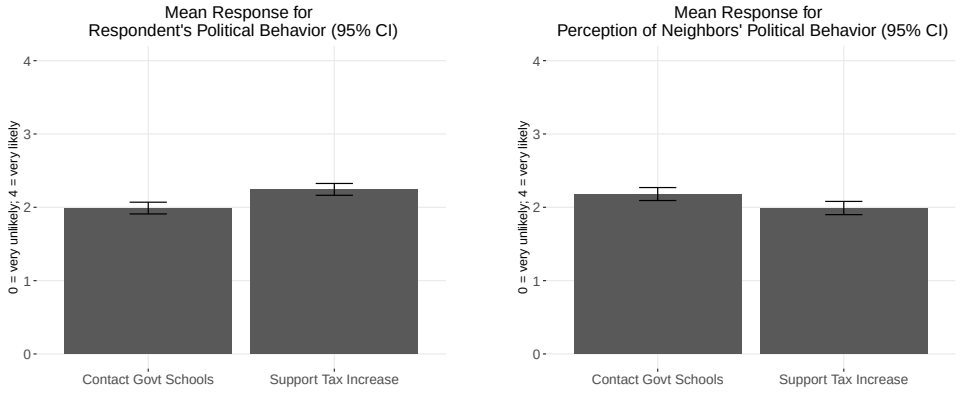
1. O_1: If you lived in this community where the majority of your neighbors send their kids to [a low-cost private school / a government school], how likely are you to contact a local government official to make a complaint about the poor quality of government schools?

2. O_2: What about your neighbors. If you lived in this community where the majority of your neighbors send their kids to [a low-cost private school / a government school], how likely do you think your neighbors are to contact a local government official to make a complaint about the poor quality of government schools?

3. O_3: If you lived in this community where the majority of your neighbors send their kids to [a low-cost private school / a government school], how likely are you to support increased taxes if it meant the government would build more schools and employ more teachers in your community?

4. O_4: What about your neighbors. If you lived in this community where the majority of your neighbors send their kids to [a low-cost private school / a government school], how likely do you think your neighbors are to support increased taxes if it meant the government would build more schools and employ more teachers in your community?

Responses to these outcomes were measured on a five point Likert scale ranging from "very unlikely" to "very likely." Figure 4.19 shows the mean response for each outcome.



(a) (b)

Figure 4.19: Mean Responses for Survey Experiment Outcomes (95% CI)

There are important limitations to this design. First, my treatments ask respondents to imagine a hypothetical scenario. This is a common practice in survey experiments, partly because it avoids focusing respondents too much on their own experience which could lead to overly subjective interpretations of the treatment.[51] However, the disadvantage is that the treatment may be substantively weak and unable to overcome prior real world treatments (Gaines, Kuklinski and Quirk, 2007). I discuss this in more detail when explaining the experimental results in Section 4.5.5. Second, there are limitations to measuring political behavior with survey questions. When answering a survey, respondents may overestimate their likelihood to engage in political action both because it is the socially desired answer and because answering a survey question is less costly than actually participating in political action (Bertrand and Mullainathan, 2001; Krosnick, 1999).[52] Others have addressed this challenge by including more costly measures of political participation, such as inviting respondents to a town hall meeting (Weigel, 2017) or asking them to submit suggestion cards to the government (Paler, 2013). However, because my theory emphasizes 'perceptions' of political behavior, I argue that there are advantages to using a survey question to measure the 'likelihood' of political behavior. This is especially true for outcomes two and four, which measure the respondent's perception of their neighbor's intended political behavior.

4.5.2 Assignment to Treatment, Spillover, Attrition, Power

The experimental component of my research includes two treatment arms that are administered at the end of the full survey.[53] The outcomes of interest are collected immediately after the treatment. In short, the treatments and outcomes are all contained within a single survey and within a single interaction between the enumerator and respondent. Therefore, I am not concerned about cross-group contamination during the period between the treatment and measurement of the outcomes

[51] For example, see Pepinsky, Liddle and Mujani (2012) discussion of using hypothetical and intentionally ambiguous information treatments in survey experiments.

[52] Randomization prevents this from creating systematic bias between the two treatment groups, but it could still lead to an imprecise estimation of the effect in both treatment groups.

[53] I intentionally place the survey experiment at the end of the survey to avoid priming the respondents' answers to other questions in the survey about perceptions of the government's responsibility/capacity and about actual political behavior and school utilization. For example, if I started the survey by presenting respondents with information that 80% of their neighbors utilize government schools (Treatment 2), it could very well affect how the respondent answers questions about the government's responsibility to provide education.

and I randomly assign the treatment to individual respondents (without regard to clustering). Random assignment to one of two treatment groups was programmed into the survey tablet and enumerators were blind to the process.[54] This study does not measure longitudinal behavior and does not include future follow-up studies so I am not concerned about attrition.

Finally, I conducted a power analysis to determine the sample size required to detect a minimum effect for my specific experimental design. I used Afrobarometer data to develop theoretical expectations about the baseline mean and standard deviations of my outcomes. I filter round six of Afrobarometer's data to the Kenyan respondents who live in Nairobi and whose primary shelter is described as a "temporary structure / shack." This yields a subset of the Kenyan data that is most similar to the target population (residents of Nairobi's informal settlements) of my survey. I focused on Afrobarometer questions 27C and 65C because these questions and the scale on which they are measured mirror my primary outcomes. 27C measures contact with a local government official and 65C measures willingness to pay more taxes to increase services.[55] See Appendix C.2 for the complete power analysis. The power analysis recommended a minimum sample of 1,168 individuals. My data includes 1,244 observations.

4.5.3 Difference in Treatment Group Means

First, I present the difference in group means between the two treatment groups and across all four outcomes. These results are only meaningful if the randomization procedures effectively created two treatment groups that are similar in all aspects other than the information treatment they received. The balance table below (Table 4.1) shows the differences in key variables between the two treatment groups. The two treatment groups are balanced on variables such as age, education level, school choice, religion, income, partisan affiliation, and ethnic identity. However, the private school treatment group has significantly more women, lower levels of political knowledge, and is

[54] At the beginning of every day, each enumerator was assigned to either 'Group A' or 'Group B.' The enumerators entered their group assignment into the tablet and the tablet used this information to reveal either treatment group one or two later in the survey. Enumerators were not explicitly told that their group assignment was connected to the treatment assignment. This process also helps to minimize enumerator effects because it ensured variation in treatment groups within each enumerator.

[55] There are slight differences between Afrobarometer's questions and my outcomes. Afrobarometer's question 27C asks about political behavior in response to government failure in general, whereas my question asks about political behavior in response to government failure on education specifically. Question 65C in Afrobarometer asks about taxes to support healthcare, whereas my question asks about taxes to support education.

slightly less ethnically homogeneous. I address this in Section 4.5.4 by estimating the treatment effect with a pre-specified equation that controls for these unbalanced variables.

Table 4.1: Balance Table (Group Means)

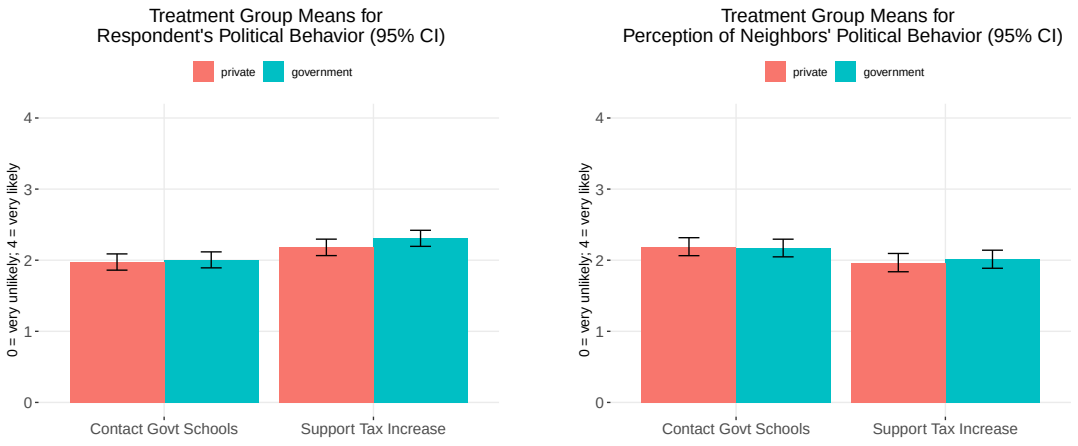
Variable	Treatment 1: Private	Treatment 2: Government	Difference	P-value
Female	0.55	0.47	0.09	0.00
Age	29.85	30.74	-0.89	0.12
Education	5.38	5.37	0.01	0.87
Private school	0.41	0.37	0.04	0.14
Christian	0.85	0.86	-0.01	0.74
Income proxy	1.24	1.28	-0.04	0.16
Support Ruling Party	0.29	0.30	-0.01	0.59
Knows MCA name	0.62	0.70	-0.08	0.00
Ethnic homogeneity	0.25	0.26	-0.01	0.02
Kamba	0.19	0.18	0.01	0.55
Kikuyu	0.15	0.17	-0.02	0.29
Kisii	0.08	0.06	0.02	0.22
Luhya	0.25	0.24	0.01	0.73
Luo	0.16	0.19	-0.03	0.14

Figure 4.20a shows the mean response rate, and 95% confidence interval around the mean, for the two political behavior outcomes: contacting the government to complain about the poor quality of government schools and willingness to support a tax increase to improve government schools. For both treatment groups and both outcomes, the mean response is about 2, or "neither likely or unlikely." There is no significant difference in means between the two treatment groups for either outcome variable. Figure 4.20b shows the mean response rate, and 95% confidence interval around the mean, for the outcomes on perceptions about neighbors' political behavior. Again, the mean response for both treatment groups and both outcomes is about 2, or "neither likely or unlikely." There is no significant difference in means between the two treatment groups for either outcome variable.[56]

In Figure 4.21, I show how the treatment group means vary based on the respondents' school choice.[57] Note that the bars in Figure 4.21 are different colors to indicate that the comparison

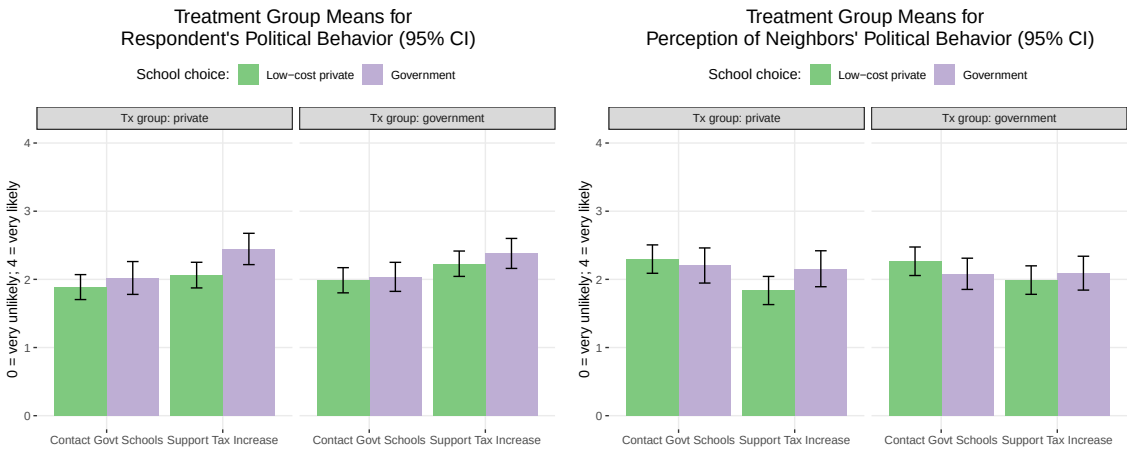
[56]Table C.11 in the Appendix reports that results of two-tailed t-tests for each of these outcomes and confirms that there is no statistical difference in treatment group means for any outcome variable.

[57]I emphasize that my power analysis and my pre-analysis plan did not account for heterogeneous effects across sub-groups.



(a) (b)

Figure 4.20: Treatment Group Means (95% CI)



(a) (b)

Figure 4.21: Treatment Group Means by School Choice (95% CI)

of interest is now between the respondents' school choice within each treatment group. For each outcome and treatment group, I show the mean response for parents who utilize low-cost private schools versus parents who utilize government schools. The mean responses remain near 2 and are not significantly different based on school choice.[58]

4.5.4 Average Treatment Effect

Next, I use the following equation to estimate the average treatment effect while keeping constant other key explanatory variables:

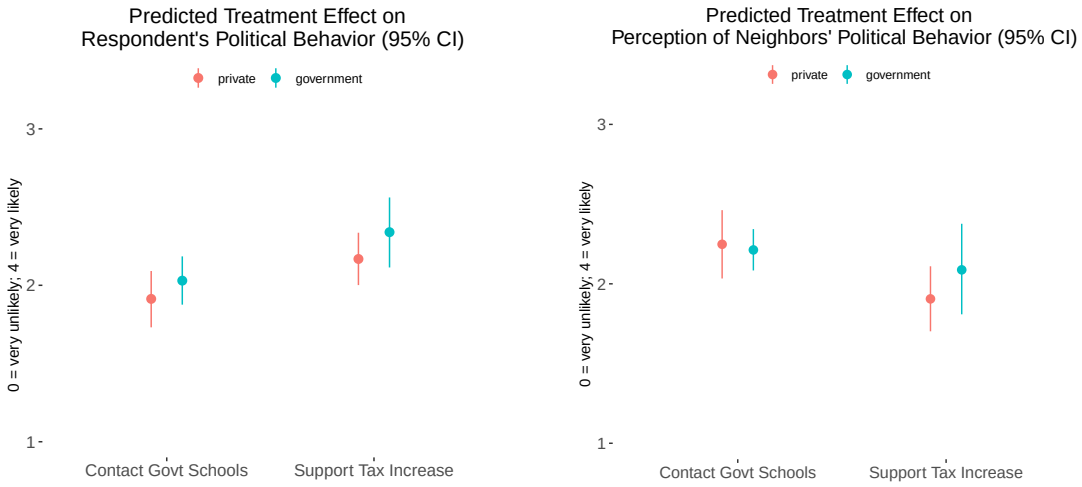
$$Y_i = \alpha + \beta_1(T_i) + \delta(X_{ik}) + \eta_j + \epsilon_{ij} \tag{4.2}$$

where i indexes individuals, j communities, and k enumeration areas. T_i is the treatment, meaning that β_1 estimates the average causal effect of the treatment (exposure to either high private or government schools) on the outcome of interest (Y_i). δ is a vector of coefficients for the control variables, X is a matrix of controls, η is a community-fixed effect to control for unobserved heterogeneity across informal settlements, and ϵ is the standard errors clustered by enumeration area. Most notably, I control for sex, political knowledge, and ethnic homogeneity which are unbalanced between the two treatment groups. I also control for school choice, rate of private school utilization in the enumeration area, age, education level, religion, ethnic identity, income, partisan identity, and proximity to the nearest public school.

Tables C.13 and C.14 in the Appendix show the results from this estimation equation. Figure 4.22 uses these results to plot the predicted effect of each treatment on every outcome. The plots show that individuals who received the government school treatment – that is, they were primed to think that most of their neighbors utilize a government school – are *slightly* more likely to say they would take action to monitor (via contact) or support (via taxes) government schools (Figure 4.22a). They are also *slightly* more likely to think their neighbors would also support a tax increase (Figure 4.22b). However, the differences are very small and both statistically and substantively insignificant. In short, individuals who were primed to think that more of their neighbors utilize

[58]Table C.12 in the Appendix reports the results of two-tailed t-tests. The only difference that is significant is the difference between private school parents and government school parents in their willingness to support a tax increase when assigned to the private school treatment.

a government (private) school are not more or less likely to engage in costly political behavior than those individuals who were primed to think that more of their neighbors utilize a private (government) school. The same is true for these individuals' perceptions of their neighbor's political behavior.



(a) (b)

Figure 4.22: Predicted Treatment Effect (95% CI)

I estimate a number of alternative specifications to evaluate the robustness of the results reported in Figure 4.22. One explanation for the null result is that respondents are disaffected with government institutions at baseline and therefore strongly agnostic about political participation and/or tax increases. This could explain why the mean outcomes and the predicted treatment effect are consistently near 'neither likely or unlikely.'[59] I evaluate this by recoding the outcomes into binary variables where 0 = very or somewhat *unlikely* and 1 = somewhat or very *likely*. In other words, I remove the 'agnostic' response and re-estimate (Equation 4.2) the treatment effect on binary outcomes of political behavior. The results, which are reported in Tables C.15 and C.16 in the Appendix, remain the same and there is no significant difference between treatment groups for any of the binary outcomes.

[59]Recall that my outcomes are measured on a 0 to 4 Likert scale where responses are: very unlikely (0), somewhat unlikely (1), neither likely or unlikely (2), somewhat likely (3), and very likely (4).

I also consider whether my outcomes, when taken individually, fail to measure respondents' views. For example, my measures of 'willingness to contact a government official' and 'willingness to support increased taxes' could reflect a larger concept of political behavior in general. To evaluate this, I create two different indices (following Berman et al. (2019) and Kling, Liebman and Katz (2007)). First, I create an index of the respondent's general political behavior by combining the respondent's willingness to contact a government official and the respondent's willingness to support a tax increase. Second, I create an index of the respondent's perception of their neighbors' general political behavior by doing the same for the two outcomes measuring perceptions of neighbors' willingness to contact a government official or support a tax increase.[60] I re-estimate the treatment effect on these indices and the results remain unchanged and insignificant (See Table C.17).

Finally, I test whether the treatment effect creates differential effects based on the respondents' school choice. To do this, I re-estimate the main equation and interact the treatment group with the respondent's school choice (private or government). Results are reported in Tables C.18 and C.19 in the Appendix. Again, my results are unchanged and none of the interaction effects are significant. This is not surprising given that both my observational results (Figure 4.12) and the treatment group means (Figure 4.21) show that school choice does not explain political behavior.

4.5.5 Discussion

In sum, the experimental results do not provide any evidence to support my theoretical argument that exposure to information about private schools in the community drives changes in political behavior to monitor or support government education provision. I emphasize that the survey experiment was designed to test the mechanism of information exposure and that it does not necessarily undermine the observational results above. Most importantly, my observational analysis shows that *living in a neighborhood* with a higher prevalence of private schools is linked to a significant change in an individual's perceptions of the government's capacity and responsibility to provide education and in an individual's willingness to contact government officials about inadequate government education provision. While I argued that these effects are driven by exposure to information about neighbors' school choice, my experimental analysis fails to support this hypothesis. I discuss two

[60] To create both indices, I subtract each outcome by the outcome mean and then divide by the standard deviation. This creates an index that is the average of the standardized outcomes.

potential explanations for this null finding.

First, it is possible that the treatments were too weak to mimic the actual effect of daily information signals about education provision in the community. Recall that the treatments primed respondents to *imagine living in* communities with different levels of government and private school utilization. Although priming respondents to think of a hypothetical scenario is a common and intentional practice in survey experiments (Pepinsky, Liddle and Mujani, 2012), it is difficult to know whether this type of treatment is powerful enough to supersede respondents' actual experiences. As, Gaines, Kuklinski and Quirk (2007, pp 16) note, "In a world where treatment is frequent and the effects last, demonstrating additional effects in the experiment should often be difficult." For example, respondents who live in a community where most of their neighbors utilize private schools are effectively receiving treatment group one (private schools) every day. If those same individuals received treatment group two (government schools) during my survey, it is unclear whether this single information treatment is strong enough to override the daily and persistent real-life treatment.[61] Randomization ensures that this does not differentially affect the two treatment groups, but it does not address the bigger issue of a potentially weak treatment relative to real world treatments.

An alternative explanation for the null result is that the mechanism – information about neighbors' school choice – does not affect the political outcomes I measured. While this is possible, it contradicts some of the observational findings from Section 4.4. In particular, it contradicts my finding that individuals who live in a neighborhood where the majority (75%) of their neighbors use private schools are 50% less likely to contact a government official to complain about government schools than are individuals who live in a neighborhood where a minority (35%) of their neighbors use private schools (Figure 4.15).

Qualitative data from focus group discussions further complicates the null result from the survey experiment. I conducted two informal focus group discussions in the Mathare informal settlement. Group one included only parents who send their kids to private schools. Group two included only parents who send their kids to government schools. I started each focus group by asking the parents to introduce themselves and state whether their children attend private or government schools. This

[61] It is also worth noting that my treatment focused on one form of information – school signs – and did not necessarily test other information signals such as school uniforms or community discussions.

acted as a quasi-treatment of information about neighbors' school choice. I then asked each group the same set of questions about school choice, political behavior, and governance of local education. While I caution against over-interpreting this qualitative data, I note that the two groups provided substantively different responses to key questions.[62]

For example, when asked, *"What do you do when you are upset with the quality of your child's schools?"* responses from the government school focus group included mentions of local government officials, including those listed in the principal-agent chain from Figure 4.5 (and emphasized in bold below):

- Eric (government): "First you go to school and do an inquiry about your concerns [...] You can also report the issue to **sub-county officials** of education."
- Sam (government): "You can inform even your **MCA** or an **MP** if you want."
- Maguifi (government): "Because public schools are run by a board of governors, we raise the issue at those board of governors meetings."

Meanwhile, responses from the private school focus group did not include mentions of any local government officials (as expected from the lack of government officials in the principal-agent chain in Figure 4.6). Instead, these parents focused more on the 'exit' option of switching schools:

- Bill (private): "When you're frustrated, you take [your student] from that school to a different school."
- Elizabeth (private): "You must transfer to another school."
- Shaban (private): "Some schools have the parent/teacher meetings, so in such meetings you ask the teachers about the problem and give them a chance to improve performance."

A similar trend emerged when I asked both groups, *"How likely are you to complain to a local government official about the quality/access of government schools?"*:

- Sam (government): "We sometimes complain through public meetings. The MCA will hold public meetings so there it is easier to make your complaint."

[62] All quotes from this section are based on focus group discussions conducted with the Author on February 26, 2019. 10 individuals (6 female, 4 male) participated in the private school focus group. 8 individuals (4 female, 4 male) participated in the government school focus group. To protect respondent identity, I include only their first name and whether they were in the government or private school focus group. A copy of the focus group questions is included in Appendix C.6. The author maintains notes and audio recordings from the focus group discussions.

- Eric (government): "It's hard to get to the high levels [i.e. Ministry of Education], but I would report issues to the local level like the sub-county officials."

- Billy (private): "This place has more private schools. So with private, actually you can't complain to the government because unless it's public you can't complain."
- Shaban (private): "You see unlike in the public schools where the parents get together to complain to get the headmaster away from the school, in private we gather like we are here in a meeting. We feel free to ask the board of the school about the problem."

Again, participants of the government school group mentioned the specific government officials outlined in the principal-agent chain for government education. Not only did the private school parents not mention government officials, they explicitly noted that they *cannot* complain to government officials and made it clear that this is different from how oversight works for government schools.

Finally, turning to the assurance game aspect of my argument, the trends between private and government focus groups persisted when I asked both groups, *"How likely do you think your neighbors are to complain to a local government official about the quality/access of government schools?"*:

- Elizabeth (government): "Yes they would join, because they are also affected."
- Eric (government): "You want things to be well. You want everything smoothly so that one time one day even the child of that neighbor can also acquire good services. [...] But, those private school parents are most unlikely to join us because they go to private school then all the concern will be about the private side of things."

- Shaban (private): "It's more difficult to get parents to organize when they go to private school. But, when we think of secondary schools it is easy because the fees are so high. So there's a reason to complain. But with the primary schools it's challenging to get parents to complain."
- Harrison (private): "It will be difficult because there's not much interest because most of these parents, their children learn in private schools. So they won't be concerned about the public schools."

Here, participants in the government focus group elicit the idea of collective interests by noting that everyone is "affected" and that neighbors might complain today so that their children will have improved access in the future. Meanwhile, participants in the private school group acknowledge

that it is difficult to get their neighbors to "organize" or to complain to the government. They also tie this lack of political activity directly to private school utilization, while emphasizing that in extreme situations – for example, in response to the very high cost of secondary school – even private school parents are willing to engage in costly political activity.

Ultimately, I cannot conclude whether the null result is a true null or a failed treatment. However, the combination of the observational results with the limited qualitative data suggests that there is enough motivation to continue exploring this question. Future research should focus on replicating this experiment in additional settings, identifying and piloting more powerful treatment effects, and identifying opportunities to test the hypotheses with a natural experiment.

4.6 Conclusion

It is critical to understand how the growth of non-state education providers might affect the governance and institutional development of public education. This is especially true in low-income countries generally, and informal settlements specifically, where a disproportionate number of children attend private schools and where public education systems are often underdeveloped. In this paper, I provide a theoretical framework and new data to help us understand the potential implications of this phenomenon. While existing research on private education in low-income countries examines important programmatic outcomes such as attendance, access, and academic performance, I advance this literature by focusing on political outcomes that could shape accountability of government education provision. In doing so, I bridge existing research from education and economics with research on social institutions (Knight, 1992; Levi, 1989), collective action (Hirschman, 1970; Olson, 1965), and government accountability (Björkman and Svensson, 2009; Olken and Pande, 2013).

My multi-method analysis provides important insight on the political effects of non-state education provision. First, using original survey data, I find that individual school choice does not necessarily affect individual political behavior – residents of Nairobi's informal settlements who send their children to private schools are not any less likely to monitor (via contact) or support (via taxes) government education. However, when private school utilization in a neighborhood increases, residents in that neighborhood are about 55-60% less likely to view the government as responsible or capable of providing education (compared to residents who live in neighborhoods

with fewer private schools). They are also about 50-70% less likely to believe that their neighbors would monitor or support government schools, and about 50% less likely to say that they themselves would monitor government schools. Although my survey experiment showed that individuals who are exposed to information suggesting that the majority of their neighbors use private (government) schools are not any less (more) likely to say they would monitor or support government education, my qualitative data suggests that the prevalence of private schools does affect how parents think about political oversight of government education in their community.

On the one hand, these results provide new insight on important policy debates. For example, my results provide some support to critics of privatization, including local and international teachers' unions and the United Nations Special Rapporteur on the right of education, who argue that increased privatization could undermine the government's role in providing education. More specifically, I provide a theory and initial evidence that reveals the specific mechanisms through which these effects operate – increased prevalence of private schools act as information signals that affect local-level perceptions about the government's capacity/responsibility to provide education (Figure 4.13) and willingness to engage in political behavior such as monitoring government schools (Figure 4.15).

However, because I find that individual school choice does not affect individual political behavior (Figure 4.12), my results also suggest that the demobilization effects of private schools may be driven by individuals' *misconceptions* about their neighbors' political behavior. While more research is required to confirm this finding, it suggests that there are policy and program solutions that could moderate the demobilization effects of increased private schools in a neighborhood. For example, government or advocacy organizations could enact information campaigns to signal that individuals who utilize private schools are still willing to monitor and support government education provision. However, as my survey experiment suggests, information interventions may not be effective if they cannot credibly convince residents of a change in their neighbors' behavior.

On the other hand, my mixed-results, and especially the null finding from my survey experiment, underscore the limitations of prescribing policy solutions based on this research. Although the limited qualitative data that I presented reinforces my theoretical argument, including the principal-agent chains and specific decisions I outlined in Sections 4.1 and 4.2, the null experimental results create uncertainty about what types of information about private schools really drive political

behavior and perceptions and under what conditions. Future research can address this by replicating the same treatment in other settings or testing new treatments that overcome the challenge of prior real world treatment (Gaines, Kuklinski and Quirk, 2007). In addition, more systematic qualitative data collection and alternative research designs could maximize causal inference without succumbing to the necessary weaknesses of information treatments in a survey experiment. Natural experiments that exploit the roll-out of private education programs is one such tool. Regardless, as non-state education provision continues to grow across low-income countries, my findings show that this could affect the social institutions that incentivize or undermine accountability of government education provision. This underscores the importance of studying both the programmatic *and* the political effects of non-state education provision.

Chapter 5

CONCLUSION

Despite abundant research on information's effects on political behavior, it is important to develop a deeper understanding of why information matters and under what conditions. I advance this research by testing existing theories about information's effects on public opinion in new settings and by developing and testing a novel theory about the role of information in shaping social institutions that govern political behavior.

First, I argued that media consumption affects public opinion of LGBTQs but that these effects vary across mediums because of differences in how queer identity is represented (or censored) across mediums. While similar arguments have been made across Europe and North America, I am the first to use representative survey data to show the effects of media on pro-gay attitudes across the majority of African countries. I also make the case for a more nuanced approach to studying censorship by showing that governments often promote their censorship of queer content. This differs from existing research showing that governments strategically conceal other forms of political censorship.

Second, I presented a new theory about information's effects on social institutions and political behavior. I argued that non-government organizations emit information signals about the government's credibility in providing services and about other citizens' likely political behavior. In turn, these signals (re)shape the social institutions that incentivize or undermine the political behavior that is critical to government accountability. I showed that changes in the prevalence of non-government organizations in general, and private education providers specifically, affect individual perceptions of the government's credibility, expectations about others' political behavior, and, in some cases, the individual's own political behavior. In doing so, I connect research on information's effects to research on NGOs, education, social institutions, and government accountability. I also illustrate how information affects political behavior not necessarily through direct consumption but by reshaping larger social institutions that, in turn, shape political behavior.

I tested my theories with a range of data, including nationally representative cross-national surveys, an original survey in Nairobi's informal settlements, qualitative content analysis, focus group discussions, and a survey experiment. However, there are important limitations to my findings that I outlined within each chapter alongside recommendations for future research. My recommendations included more studies that: examine whether media's effects on LGBTQ support are long-lasting or easily negated by counter-exposure; isolate the different types of 'NGO exposure' and the unique effects these different signals have on the social institutions that govern political behavior; and test programs and interventions that would credibly shift residents' perceptions of their neighbors' political behavior and therefore mitigate any demobilization effects from the prevalence of non-state service providers.

Despite important limitations, my research helps to inform active policy debates. My findings on public opinion of LGBTQs are especially timely given the increased salience of gay rights in Africa and the changing media consumption habits across the continent. Meanwhile, my findings on the political effects of NGOs and private schools come at a time when a disproportionate number of children in low-income countries rely on non-state providers for education. Each chapter concludes with an overview of the policy and programmatic implications of my research, including important insights for gay rights activists, NGOs (private education providers in particular), and anyone interested in improving accountability and institutional development of government service provision.

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Appendix A

SUPPORTING EVIDENCE FOR CHAPTER 2

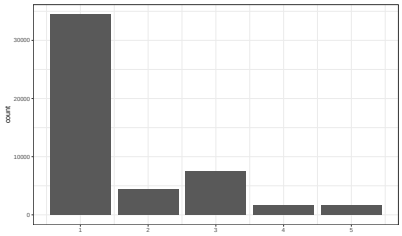
A.1 Descriptive Data

Table A.1: Descriptive Statistics of Primary Variables

	Min	Max	Mean	StDev
LGBTQ tolerance	0.00	1.00	0.22	0.41
Religous tolerance	0.00	1.00	0.88	0.32
Ethnic tolerance	0.00	1.00	0.91	0.28
HIV+ tolerance	0.00	1.00	0.71	0.45
Immigrant tolerance	0.00	1.00	0.81	0.39
Aggregate media consumption	1.00	21.00	8.68	5.60
Radio consumption	1.00	5.00	3.80	1.52
TV consumption	1.00	5.00	3.08	1.81
Newspaper consumption	1.00	5.00	2.04	1.44
Internet consumption	1.00	5.00	1.89	1.51
Social media consumption	1.00	5.00	1.85	1.50
Sex (1=female)	0.00	1.00	0.50	0.50
Education level	1.00	10.00	4.47	2.23
Religiosity	1.00	7.00	4.61	1.91
Age	18.00	105.00	37.27	14.54
Water access	1.00	3.00	1.73	0.85
Urban	0.00	1.00	0.41	0.49
Freedom House scale	0.19	0.73	0.47	0.14
KOF Score	28.15	73.30	47.01	10.73

Figure A.1: Distribution of Support for Homosexuality

(a) Unbinned



(b) Binned

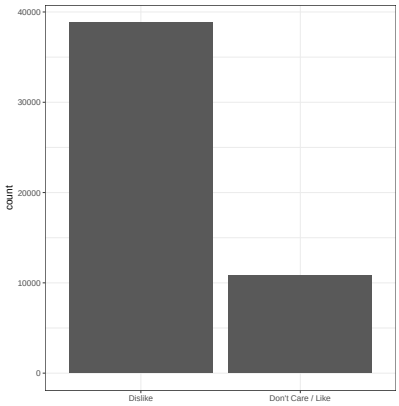


Table A.2: Pearson Correlation Matrix of Media Consumption

	Radio	Tv	Newspaper	Internet	Social media
Radio	1	0.225	0.229	0.119	0.112
Tv	0.225	1	0.492	0.451	0.425
Newspaper	0.229	0.492	1	0.542	0.502
Internet	0.119	0.451	0.542	1	0.878
Social media	0.112	0.425	0.502	0.878	1

Figure A.2: Support for Homosexuality by Country

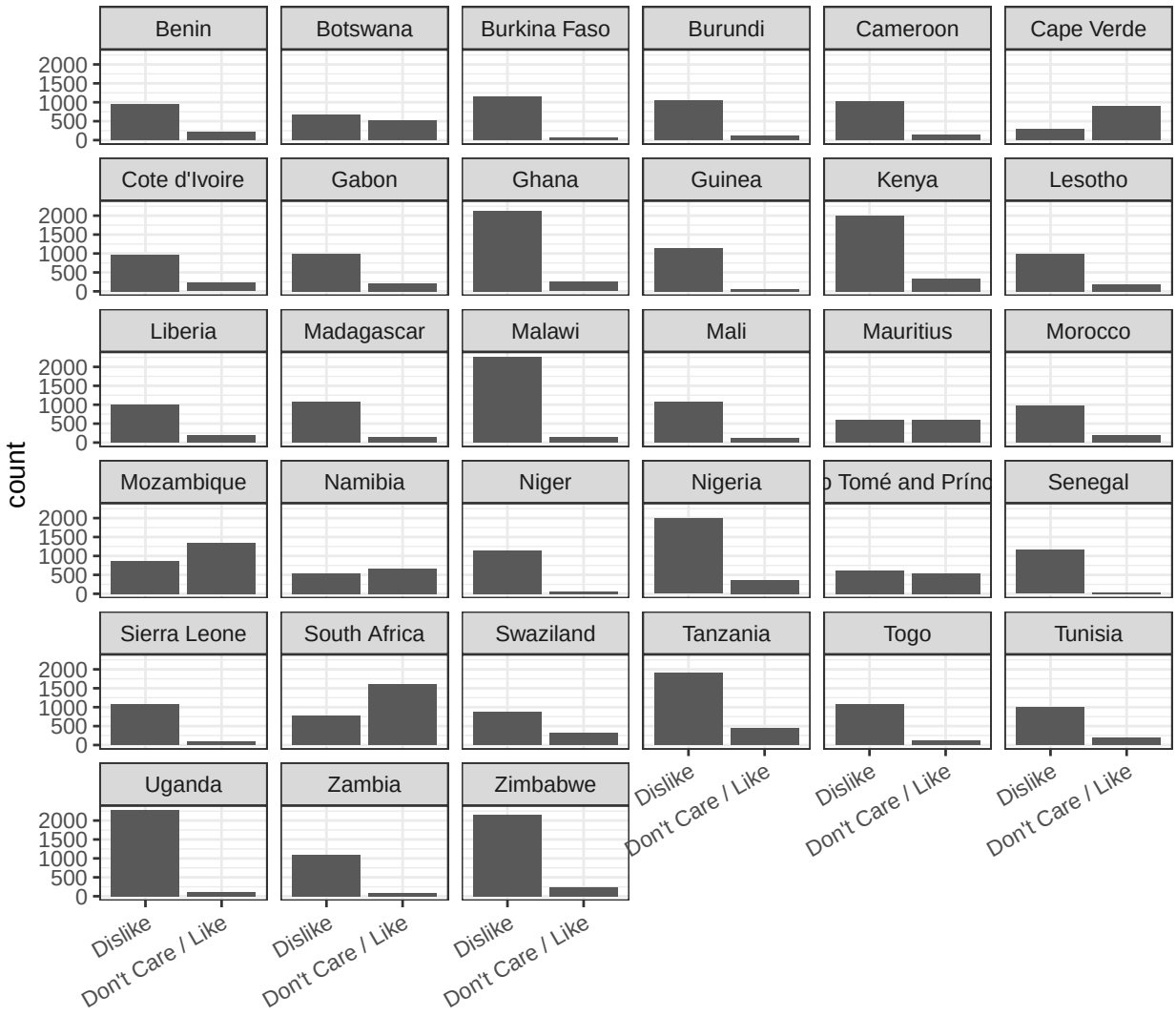
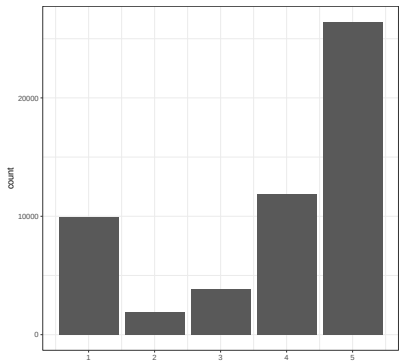
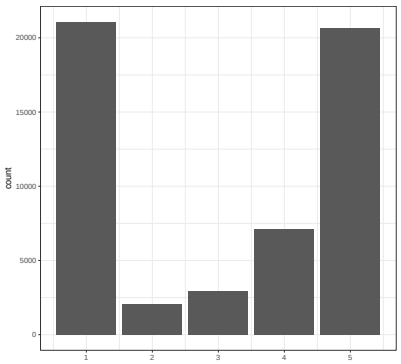


Figure A.3: Distribution of Explanatory Variables

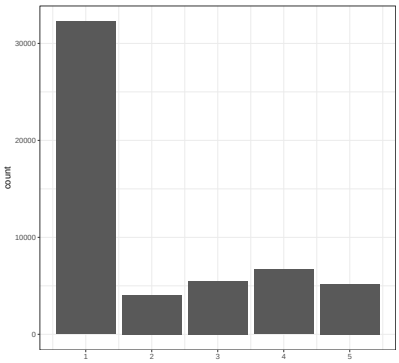
(a) Radio



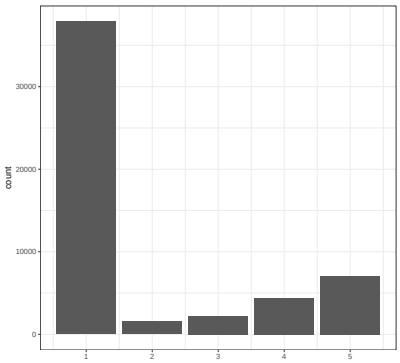
(b) TV



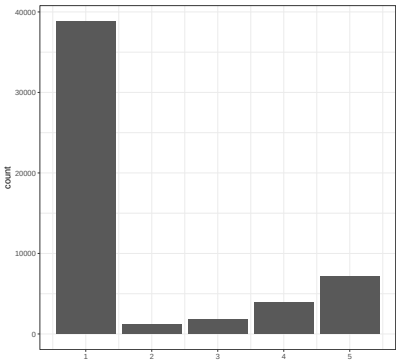
(c) Newspaper



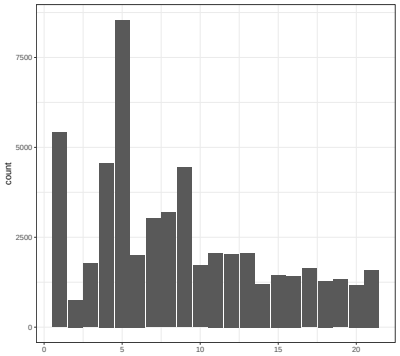
(d) Internet



(e) Social Media



(f) All Mediums



A.2 Alternative Modeling

Table A.3 replicates the main results with ordinary least squares regression rather than binomial logit. Table A.4 replicates the main results with an unbinned ordinal outcome variable. Table A.5 replicates the main results with a multi-level model (varying-slope and varying-intercept for every country and a varying-intercept for every district).

Table A.3: Effect of Media Consumption on LGBT Attitudes (OLS Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.004***					
	(0.001)					
Radio		−0.003**				
		(0.001)				
TV			−0.0004			
			(0.002)			
Newspaper				0.009***		
				(0.002)		
Internet					0.010***	
					(0.002)	
Social media						0.010***
						(0.002)
Other media		0.005***	0.005***	0.002***	0.002**	0.002*
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tolerance	0.086***	0.086***	0.086***	0.086***	0.086***	0.086***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Female	0.020***	0.019***	0.021***	0.021***	0.020***	0.020***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Education	0.0001	−0.0004	−0.00003	−0.0001	−0.0002	−0.0001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Religiosity	−0.008***	−0.008***	−0.008***	−0.008***	−0.008***	−0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Income	0.014***	0.012***	0.015***	0.014***	0.014***	0.014***
	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Urban	−0.006	−0.008	−0.004	−0.006	−0.005	−0.005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Constant	−0.096***	−0.093***	−0.111***	−0.106***	−0.104***	−0.105***
	(0.024)	(0.025)	(0.025)	(0.025)	(0.026)	(0.025)
Observations	46,803	46,802	46,802	46,802	46,802	46,802
R^2	0.286	.287	0.286	0.286	0.287	0.287

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.4: Effect of Media Consumption on LGBT Attitudes (Ordered Probit Models)

	DV: Homosexual as Neighbor (Ordinal from Strong Dislike to Strong Like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.013***					
	(0.002)					
Radio		−0.006				
		(0.005)				
TV			0.006			
			(0.007)			
Newspaper				0.027***		
				(0.007)		
Internet					0.028***	
					(0.007)	
Social media						0.024***
						(0.006)
Other media		0.016***	0.014***	0.009***	0.008**	0.009***
		(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
Tolerance	0.057***	0.057***	0.057***	0.057***	0.057***	0.057***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Female	0.066***	0.063***	0.067***	0.068***	0.066***	0.066***
	(0.012)	(0.013)	(0.012)	(0.012)	(0.013)	(0.013)
Education	0.010**	0.009*	0.010*	0.010*	0.009*	0.010*
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Religiosity	−0.037***	−0.036***	−0.037***	−0.037***	−0.036***	−0.037***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Age	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***	−0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.060***	0.057***	0.062***	0.060***	0.060***	0.061***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Urban	0.006	−0.0003	0.009	0.004	0.007	0.007
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
1|2	1.331***	1.331***	1.381***	1.366***	1.365***	1.371***
	(0.052)	(0.054)	(0.053)	(0.053)	(0.053)	(0.053)
2|3	1.682***	1.681***	1.731***	1.716***	1.715***	1.721***
	(0.052)	(0.054)	(0.053)	(0.053)	(0.053)	(0.053)
3|4	2.575***	2.575***	2.625***	2.610***	2.608***	2.615***
	(0.053)	(0.055)	(0.054)	(0.054)	(0.054)	(0.054)
4|5	2.951***	2.951***	3.001***	2.986***	2.984***	2.991***
	(0.054)	(0.056)	(0.055)	(0.055)	(0.055)	(0.055)
Observations	46,844	46,844	46,844	46,844	46,844	46,844
AIC	79,120	79,104	79,120	79,115	79,114	79,118

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.5: Effect of Media Consumption on LGBT Attitudes (Main Effects from Multilevel Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.022***					
	(0.007)					
Radio		−0.032**				
		(0.015)				
TV			0.019			
			(0.022)			
Newspaper				0.053**		
				(0.025)		
Internet					0.055***	
					(0.020)	
Social media						0.055***
						(0.019)
Other media		0.033***	0.025***	0.019***	0.019***	0.017***
		(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Tolerance	0.976***	0.978***	0.979***	0.979***	0.974***	0.975***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Female	0.139***	0.133***	0.143***	0.149***	0.144***	0.143***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
Education	0.007	0.007	0.007	0.004	0.006	0.007
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Religiosity	−0.058***	−0.056***	−0.058***	−0.059***	−0.058***	−0.058***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Age	−0.010***	−0.010***	−0.011***	−0.011***	−0.010***	−0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.105***	0.102***	0.101***	0.108***	0.110***	0.111***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Urban	0.022	0.013	0.025	0.017	0.017	0.019
	(0.041)	(0.041)	(0.042)	(0.041)	(0.041)	(0.041)
Constant	−4.966***	−4.923***	−5.040***	−5.053***	−5.077***	−5.069***
	(0.236)	(0.219)	(0.239)	(0.239)	(0.242)	(0.240)
Observations	46,844	46,844	46,844	46,844	46,844	46,844
AIC	34,725	34,770	34,744	34,751	34,760	34,768

Note: *p<0.1; **p<0.05; ***p<0.01

A.3 Controlling for Religion

This table replicates my main results in Table 2.2, but with the inclusion of religion as a control variable. Religion is a factor with 59 different responses (including 'none' and 'other').

Table A.6: Effect of Media Consumption on LGBT Attitudes (Logit Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.022***					
	(0.004)					
Radio		−0.018				
		(0.011)				
TV			0.010			
			(0.015)			
Newspaper				0.059***		
				(0.014)		
Internet					0.044***	
					(0.014)	
Social media						0.045***
						(0.013)
Other media		0.030***	0.025***	0.014***	0.016**	0.015**
		(0.005)	(0.005)	(0.005)	(0.007)	(0.006)
Tolerance	0.947***	0.947***	0.947***	0.948***	0.947***	0.947***
	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)
Female	0.143***	0.137***	0.145***	0.147***	0.142***	0.141***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Education	0.005	0.001	0.004	0.003	0.003	0.004
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Religiosity	−0.056***	−0.055***	−0.056***	−0.056***	−0.055***	−0.055***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age	−0.010***	−0.010***	−0.010***	−0.011***	−0.010***	−0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.100***	0.092***	0.103***	0.100***	0.100***	0.101***
	(0.031)	(0.031)	(0.030)	(0.031)	(0.031)	(0.031)
Urban	−0.001	−0.012	0.005	−0.004	0.001	0.002
	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)
Religion Control	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−4.828***	−4.799***	−4.917***	−4.882***	−4.891***	−4.894***
	(0.212)	(0.219)	(0.216)	(0.216)	(0.219)	(0.218)
Observations	46,843	46,843	46,843	46,843	46,843	46,843
AIC	35,538	35,522	35,339	35,531	35,537	35,536

Note: *p<0.1; **p<0.05; ***p<0.01

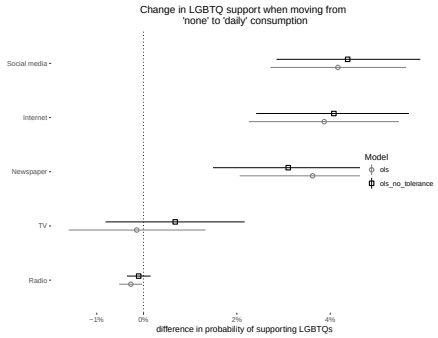
All models include country fixed effects. Standard errors are clustered at the district level.

A.4 Controlling for Social Tolerance

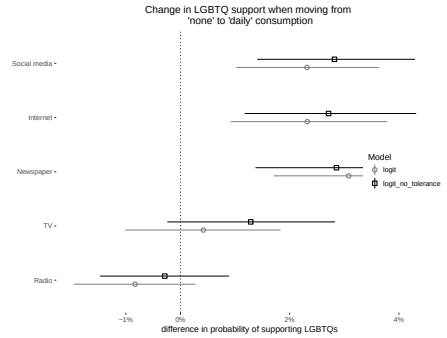
Figure A.4 shows that the substantive results are stable across every model when I remove 'social tolerance' as an individual control variable.

Figure A.4: Marginal Effects with and without 'Social Tolerance' Control

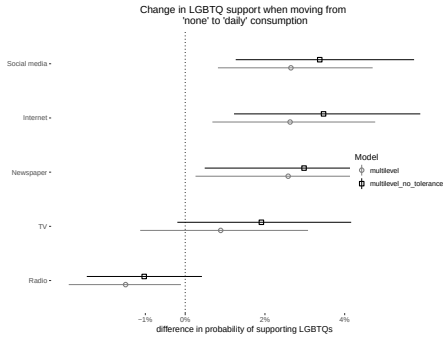
(a) OLS



(b) Logit



(c) Multilevel



A.5 Placebo Tests

This section reports the full regression results from Figure 2.3 in the paper, where I ran the main models on four other measures of out-group tolerance. Table A.7 reports how media consumption correlates with support for individuals from a different religion. Table A.8 reports how media consumption correlates with support for individuals from a different ethnicity. Table A.9 reports how media consumption correlates with support for individuals who are HIV/AIDS positive. Table A.10 reports how media consumption correlates with support for immigrants and/or foreigners.

Table A.7: Effect of Media Consumption on Religious Tolerance (Logit)

	DV: Other Religion as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.012**					
	(0.005)					
Radio		0.032**				
		(0.014)				
TV			0.041***			
			(0.016)			
Newspaper				−0.047**		
				(0.023)		
Internet					−0.013	
					(0.020)	
Social media						−0.002
						(0.019)
Other media		0.007	0.005	0.025***	0.019**	0.016**
		(0.006)	(0.006)	(0.007)	(0.008)	(0.007)
Ethnic tolerance	2.713***	2.712***	2.714***	2.712***	2.713***	2.713***
	(0.072)	(0.072)	(0.072)	(0.072)	(0.072)	(0.072)
LGBTQ tolerance	0.596***	0.598***	0.598***	0.602***	0.597***	0.597***
	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)
HIV+ tolerance	0.826***	0.825***	0.823***	0.822***	0.825***	0.825***
	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)
Immigrant tolerance	0.664***	0.664***	0.663***	0.663***	0.664***	0.664***
	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)
Female	−0.112***	−0.108***	−0.118***	−0.116***	−0.112***	−0.111***
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
Education	0.071***	0.073***	0.072***	0.073***	0.072***	0.072***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Religiosity	−0.028**	−0.029**	−0.028**	−0.028**	−0.029**	−0.028**
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Age	0.006***	0.005***	0.005***	0.006***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	−0.081**	−0.077**	−0.089**	−0.080**	−0.082**	−0.082**
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Urban	0.247***	0.254***	0.234***	0.250***	0.245***	0.246***
	(0.060)	(0.061)	(0.060)	(0.060)	(0.060)	(0.060)
Constant	−1.286***	−1.369***	−1.307***	−1.347***	−1.345***	−1.338***
	(0.243)	(0.249)	(0.244)	(0.242)	(0.244)	(0.243)
Observations	46,843	46,843	46,843	46,843	46,843	46,843
AIC	22,265	22,264	22,263	22,256	22,266	22,267

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.8: Effect of Media Consumption on Ethnic Tolerance (Logit)

	DV: Other Ethnicity as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.015**					
	(0.006)					
Radio		0.042***				
		(0.016)				
TV			0.011			
			(0.019)			
Newspaper				−0.005		
				(0.024)		
Internet					0.003	
					(0.023)	
Social media						−0.014
						(0.023)
Other media		0.007	0.016**	0.019**	0.018*	0.022**
		(0.007)	(0.007)	(0.008)	(0.009)	(0.010)
Religious tolerance	2.730***	2.728***	2.730***	2.729***	2.730***	2.730***
	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)
LGBTQ tolerance	0.623***	0.624***	0.623***	0.625***	0.623***	0.624***
	(0.094)	(0.094)	(0.094)	(0.095)	(0.094)	(0.094)
HIV+ tolerance	0.487***	0.487***	0.488***	0.486***	0.487***	0.487***
	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)
Immigrant tolerance	1.392***	1.393***	1.392***	1.392***	1.392***	1.392***
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)
Female	−0.038	−0.033	−0.037	−0.040	−0.037	−0.036
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Education	0.045***	0.048***	0.045***	0.046***	0.045***	0.046***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Religiosity	0.021	0.020	0.021	0.021	0.021	0.020
	(0.013)	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)
Age	0.004***	0.004**	0.004***	0.005***	0.004***	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Income	−0.002	0.005	−0.001	−0.001	−0.002	−0.002
	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
Urban	0.068	0.076	0.070	0.069	0.067	0.066
	(0.080)	(0.081)	(0.080)	(0.080)	(0.080)	(0.079)
Constant	−1.671***	−1.781***	−1.732***	−1.735***	−1.735***	−1.738***
	(0.241)	(0.255)	(0.248)	(0.247)	(0.250)	(0.249)
Observations	46,843	46,843	46,843	46,843	46,843	46,843
AIC	17,378	17,376	17,380	17,379	17,380	17,378

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.9: Effect of Media Consumption on HIV Tolerance (Logit)

	DV: HIV+ as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.033***					
	(0.004)					
Radio		0.048***				
		(0.011)				
TV			0.089***			
			(0.012)			
Newspaper				−0.016		
				(0.015)		
Internet					0.002	
					(0.017)	
Social media						−0.021
						(0.016)
Other media		0.029***	0.017***	0.043***	0.041***	0.046***
		(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Ethnic tolerance	0.423***	0.422***	0.426***	0.423***	0.423***	0.423***
	(0.080)	(0.080)	(0.080)	(0.080)	(0.080)	(0.079)
LGBTQ tolerance	1.450***	1.451***	1.454***	1.453***	1.451***	1.453***
	(0.082)	(0.082)	(0.083)	(0.082)	(0.082)	(0.082)
Religious tolerance	0.797***	0.796***	0.794***	0.793***	0.796***	0.797***
	(0.056)	(0.056)	(0.057)	(0.057)	(0.056)	(0.056)
Immigrant tolerance	1.545***	1.546***	1.544***	1.544***	1.546***	1.546***
	(0.048)	(0.048)	(0.048)	(0.048)	(0.048)	(0.048)
Female	0.033	0.037	0.022	0.031	0.034	0.036
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Education	0.112***	0.114***	0.115***	0.114***	0.114***	0.114***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Religiosity	0.023**	0.022**	0.022**	0.023**	0.022**	0.021**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Age	0.009***	0.008***	0.008***	0.009***	0.008***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.112***	0.114***	0.099***	0.111***	0.111***	0.111***
	(0.031)	(0.031)	(0.032)	(0.031)	(0.031)	(0.031)
Urban	0.292***	0.297***	0.264***	0.293***	0.290***	0.287***
	(0.055)	(0.055)	(0.054)	(0.055)	(0.054)	(0.054)
Constant	−1.095***	−1.252***	−1.175***	−1.239***	−1.238***	−1.237***
	(0.149)	(0.150)	(0.150)	(0.150)	(0.150)	(0.150)
Observations	46,843	46,843	46,843	46,843	46,843	46,843
AIC	37,979	37,978	37,946	37,967	37,975	37,963

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.10: Effect of Media Consumption on Immigrant Tolerance (Logit)

	DV: Immigrant/Foreigner as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.004					
	(0.004)					
Radio		−0.003				
		(0.011)				
TV			0.020			
			(0.012)			
Newspaper				−0.020		
				(0.015)		
Internet					0.015	
					(0.016)	
Social media						0.009
						(0.015)
Other media		0.006	0.0001	0.010*	0.001	0.003
		(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Ethnic tolerance	1.366***	1.366***	1.366***	1.365***	1.366***	1.366***
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)
LGBTQ tolerance	0.757***	0.757***	0.758***	0.759***	0.757***	0.757***
	(0.057)	(0.057)	(0.057)	(0.057)	(0.058)	(0.058)
HIV+ tolerance	1.538***	1.538***	1.536***	1.537***	1.538***	1.538***
	(0.048)	(0.048)	(0.048)	(0.048)	(0.048)	(0.048)
Religious tolerance	0.688***	0.688***	0.687***	0.686***	0.688***	0.688***
	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)	(0.055)
Female	−0.128***	−0.129***	−0.130***	−0.130***	−0.128***	−0.128***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Education	0.035***	0.035***	0.036***	0.037***	0.035***	0.035***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Religiosity	0.016	0.016	0.016	0.016	0.016	0.016
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.018	0.016	0.015	0.018	0.018	0.018
	(0.032)	(0.033)	(0.032)	(0.032)	(0.032)	(0.032)
Urban	0.036	0.034	0.029	0.039	0.037	0.037
	(0.045)	(0.044)	(0.045)	(0.044)	(0.045)	(0.045)
Constant	−1.699***	−1.702***	−1.703***	−1.725***	−1.711***	−1.714***
	(0.140)	(0.143)	(0.140)	(0.140)	(0.141)	(0.141)
Observations	46,843	46,843	46,843	46,843	46,843	46,843
AIC	36,046	36,048	36,046	36,045	36,048	36,048

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

A.6 Interacting Press Freedom

Tables A.11 and A.12 report the OLS and binomial logit results for the models where free press is interacted with media consumption. Table A.13 reports the results from a multilevel model with the same interaction. Note that only the interaction effects should be interpreted based on sign and significance, not the independent effect of each medium.

Table A.11: Effect of Media Consumption on LGBT Attitudes (OLS Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.004*					
	(0.002)					
Radio		−0.003				
		(0.006)				
TV			0.002			
			(0.007)			
Newspaper				0.003		
				(0.008)		
Internet					0.016**	
					(0.007)	
Social media						0.014*
						(0.007)
Other media		0.005***	0.005***	0.003***	0.002**	0.002**
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tolerance	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	0.017***	0.016***	0.018***	0.018***	0.017***	0.017***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Education	0.003**	0.003**	0.003**	0.003**	0.003**	0.003**
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Religiosity	−0.009***	−0.009***	−0.009***	−0.009***	−0.009***	−0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Income	0.015***	0.013***	0.015***	0.015***	0.015***	0.015***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Urban	0.002	0.0002	0.004	0.002	0.003	0.003
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
Media aggregate:Free Press	−0.0003					
	(0.005)					
Radio:Free Press		0.001				
		(0.012)				
TV:Free Press			−0.001			
			(0.015)			
Newspaper:Free Press				0.011		
				(0.017)		
Internet:Free Press					−0.013	
					(0.015)	
Social media:Free Press						−0.008
						(0.014)
Constant	0.040*	0.039	0.024	0.026	0.032	0.031
	(0.023)	(0.025)	(0.024)	(0.023)	(0.023)	(0.023)
Observations	45,783	45,783	45,783	45,783	45,783	45,783
R^2	0.259	0.259	0.259	0.259	0.259	0.259

Note: *p<0.1; **p<0.05; ***p<0.01
All models include country fixed effects. Standard errors are clustered at the district level.

Table A.12: Effect of Media Consumption on LGBT Attitudes (Logit Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.052***					
	(0.014)					
Radio		−0.004				
		(0.045)				
TV			0.079*			
			(0.046)			
Newspaper				0.093*		
				(0.050)		
Internet					0.153***	
					(0.043)	
Social media						0.140***
						(0.042)
Other media		0.034***	0.027***	0.020***	0.021***	0.020***
		(0.005)	(0.005)	(0.006)	(0.007)	(0.006)
Tolerance	0.080***	0.080***	0.080***	0.080***	0.080***	0.080***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Female	0.132***	0.125***	0.131***	0.135***	0.131***	0.130***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Education	0.032***	0.029**	0.032***	0.031***	0.032***	0.032***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Religiosity	−0.071***	−0.070***	−0.070***	−0.071***	−0.071***	−0.070***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age	−0.008***	−0.007***	−0.008***	−0.008***	−0.008***	−0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.104***	0.096***	0.105***	0.103***	0.104***	0.104***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Urban	0.043	0.033	0.045	0.041	0.045	0.045
	(0.047)	(0.047)	(0.048)	(0.047)	(0.047)	(0.047)
Media aggregate:Free press	−0.050*					
	(0.028)					
Radio:Free press		−0.015				
		(0.091)				
TV:Free press			−0.113			
			(0.094)			
Newspaper:Free press				−0.071		
				(0.094)		
Internet:Free press					−0.214***	
					(0.077)	
Social media:Free press						−0.180**
						(0.077)
Constant	−2.710***	−2.746***	−2.821***	−2.818***	−2.798***	−2.804***
	(0.168)	(0.179)	(0.170)	(0.169)	(0.170)	(0.169)
Observations	45,783	45,783	45,783	45,783	45,783	45,783
AIC	36,431	36,424	36,437	36,433	36,425	36,428

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.13: Effect of Media Consumption on LGBT Attitudes (Multilevel Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	0.003					
	(0.025)					
Radio		−0.007				
		(0.056)				
TV			−0.081			
			(0.078)			
Newspaper				−0.087		
				(0.085)		
Internet					0.030	
					(0.063)	
Social media						0.039
						(0.060)
Other media		0.032***	0.024***	0.017***	0.018***	0.016***
		(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Tolerance	0.970***	0.971***	0.972***	0.972***	0.967***	0.968***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Female	0.138***	0.131***	0.141***	0.148***	0.143***	0.142***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Education	0.007	0.007	0.007	0.004	0.006	0.008
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Religiosity	−0.062***	−0.060***	−0.062***	−0.062***	−0.061***	−0.061***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Age	−0.010***	−0.010***	−0.010***	−0.010***	−0.010***	−0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.110***	0.107***	0.106***	0.114***	0.115***	0.117***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Urban	0.012	0.006	0.016	0.009	0.007	0.010
	(0.042)	(0.042)	(0.043)	(0.042)	(0.042)	(0.042)
Media aggregate:Free press	0.039					
	(0.049)					
Radio:Free press		−0.057				
		(0.112)				
TV:Free press			0.207			
			(0.153)			
Newspaper:Free press				0.300*		
				(0.165)		
Internet:Free press					0.052	
					(0.120)	
Social media:Free press						0.034
						(0.116)
Constant	−4.978***	−4.920***	−5.043***	−5.056***	−5.086***	−5.076***
	(0.241)	(0.223)	(0.243)	(0.242)	(0.245)	(0.244)
Observations	45,783	45,783	45,783	45,783	45,783	45,783
AIC	33,437.810	33,482.690	33,455.320	33,457.610	33,472.310	33,480.480

Note: *p<0.1; **p<0.05; ***p<0.01

A.7 Interacting KOF Measure

Tables A.15 and A.16 report the OLS and binomial logit results for the models where the KOF social globalization variable is interacted with media consumption. Table A.17 reports the full main effect results from a multilevel model with the same interaction. Note that only the interaction effects should be interpreted based on sign and significance, not the independent effect of each medium.

Table A.14: KOF Social Globalisation Index Variables

Variables	Sources	Definitions
Interpersonal Globalisation (de facto)		
International voice traffic	ITU (2017)	Sum of international incoming and outgoing fixed and mobile telephone traffic in minutes per capita.
Transfers	World Bank WDI (2017)	Sum of gross inflows and outflows of goods, services, income or financial items without a quid pro quo per capita.
International tourism	World Bank WDI (2017)	Sum of arrivals and departures of international tourists as a share of population.
Migration	World Bank WDI (2017)	Number of foreign or foreign-born residents as percentage of total population.
Informational Globalisation (de facto)		
Patent applications	Based on World Bank WDI (2017)	Patent applications by non residents filed through the Patent Cooperation Treaty procedure or with a national patent office (stocks as % of population)
International students	UNESCO (2017)	Sum of inbound and outbound number of tertiary students (% of population)
High technology exports	World Bank WDI (2017)	Exports of products with high R&D intensity as share of total merchandise exports.
Cultural Globalisation (de facto)		
Trade in cultural goods	UN Comtrade (2017)	Sum of exports and imports of cultural goods as defined in UNESCO (2009).
Trademark applications	World Bank WDI (2017)	Applications to register a trademark with a national or regional Intellectual Property (IP)
office by non residents in percent of all applications.		
Trade in personal services	IMF BOPS (2017)	Sum of exports and imports in personal services.
McDonald's restaurant	Various sources.	Number of McDonald's restaurants (per capita).
IKEA stores	IKEA	Number of IKEA stores (per capita)
Interpersonal Globalisation (de jure)		
Telephone subscriptions	World Bank WDI (2017)	Fixed telephone and mobile subscriptions as percentage of population.
Freedom to visit	Gwartney et al. (2017)	Percentage of countries for which a country requires a visa from foreign visitors.
International airports	ICAO (2017)	Number of airports that offers at least one international flight connection (per capita).
Informational Globalisation (de jure)		
Television	World Bank WDI (2017)	Share of households with a television set
Internet user	World Bank WDI (2017)	Individuals using the internet (as % of population). Internet users are individuals who have used the internet in the last three months.
Press freedom	Gwartney et al. (2017)	Numerical scores evaluating the legal environment for the media, political pressure that influence reporting and economic factor that affect access to news and information.
Internet bandwidth	ITU (2017)	Total used capacity of international internet bandwidth in bits per second per capita.
Cultural Globalisation (de jure)		
Gender parity	UNESCO (2017)	Ratio of girls to boys enrolled in primary education level in public and private schools.
Expenditure on education	UNESCO (2017)	General government expenditure on education (current, capital and transfers) per capita.
Civil freedom	Gwartney et al. (2017)	Quantification of aspects on freedom of expression and belief, associational and organizational rights, rule of law and personal autonomy and individual rights.

Note: See Gygli, Haelg and Sturm (2018).

Table A.15: Effect of Media Consumption on LGBT Attitudes (OLS Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	−0.013***					
	(0.004)					
Radio		−0.030***				
		(0.007)				
TV			−0.042***			
			(0.014)			
Newspaper				−0.043***		
				(0.013)		
Internet					−0.033**	
					(0.013)	
Social media						−0.028**
						(0.013)
Other media		0.006***	0.005***	0.004***	0.003***	0.003***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tolerance	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	0.018***	0.017***	0.019***	0.019***	0.018***	0.018***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Education	0.003**	0.003**	0.004**	0.003**	0.003**	0.003**
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Religiosity	−0.009***	−0.009***	−0.009***	−0.009***	−0.009***	−0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***	−0.001***
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Income	0.013***	0.013***	0.013***	0.014***	0.014***	0.014***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Urban	0.005	0.0001	0.005	0.003	0.003	0.004
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Media aggregate:KOFSoGI	0.0004***					
	(0.0001)					
Radio:KOFSoGI		0.001***				
		(0.0001)				
Tv:KOFSoGI			0.001***			
			(0.0003)			
Newspaper:KOFSoGI				0.001***		
				(0.0003)		
Internet:KOFSoGI					0.001***	
					(0.0003)	
Social media:KOFSoGI						0.001***
						(0.0002)
Constant	0.042**	0.039*	0.022	0.025	0.026	0.025
	(0.021)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Observations	46,844	46,844	46,844	46,844	46,844	46,844
R^2	0.2594	0.2582	0.2584	0.2586	0.2585	0.2584

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.16: Effect of Media Consumption on LGBT Attitudes (Logit Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	−0.033					
	(0.021)					
Radio		−0.184***				
		(0.046)				
TV			−0.146**			
			(0.072)			
Newspaper				−0.126*		
				(0.069)		
Internet					−0.079	
					(0.070)	
Social media						−0.049
						(0.069)
Other media		0.036***	0.030***	0.024***	0.025***	0.024***
		(0.005)	(0.005)	(0.006)	(0.007)	(0.006)
Tolerance	0.081***	0.081***	0.081***	0.081***	0.081***	0.081***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Female	0.132***	0.126***	0.135***	0.137***	0.133***	0.133***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Education	0.031***	0.030***	0.033***	0.030***	0.030***	0.031***
	(0.011)	(0.011)	(0.012)	(0.011)	(0.011)	(0.011)
Religiosity	−0.067***	−0.066***	−0.068***	−0.068***	−0.067***	−0.067***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age	−0.008***	−0.008***	−0.008***	−0.008***	−0.008***	−0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.097***	0.091***	0.094***	0.098***	0.099***	0.100***
	(0.029)	(0.030)	(0.028)	(0.030)	(0.030)	(0.030)
Urban	0.055	0.036	0.057	0.046	0.049	0.049
	(0.044)	(0.045)	(0.044)	(0.044)	(0.044)	(0.044)
Media aggregate:KOFSoGI	0.001***					
	(0.0004)					
Radio:KOFSoGI		0.004***				
		(0.001)				
TV:KOFSoGI			0.004**			
			(0.001)			
Newspaper:KOFSoGI				0.003***		
				(0.001)		
Internet:KOFSoGI					0.002*	
					(0.001)	
Social media:KOFSoGI						0.002
						(0.001)
Constant	−2.737***	−2.722***	−2.857***	−2.844***	−2.858***	−2.865***
	(0.167)	(0.170)	(0.169)	(0.167)	(0.168)	(0.167)
Observations	46,844	46,844	46,844	46,844	46,844	46,844
AIC	37,815	37,814	37,830	37,825	37,836	37, 839

Note: *p<0.1; **p<0.05; ***p<0.01

All models include country fixed effects. Standard errors are clustered at the district level.

Table A.17: Effect of Media Consumption on LGBT Attitudes (Multilevel Models)

	DV: Homosexual as Neighbor (0: dislike, 1: don't care/like)					
	(1)	(2)	(3)	(4)	(5)	(6)
Media aggregate	−0.070***					
	(0.025)					
Radio		−0.230***				
		(0.057)				
TV			−0.174**			
			(0.087)			
Newspaper				−0.251***		
				(0.084)		
Internet					−0.179***	
					(0.063)	
Social media						−0.130**
						(0.065)
Other media		0.033***	0.025***	0.019***	0.020***	0.017***
		(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Tolerance	0.977***	0.978***	0.979***	0.979***	0.974***	0.975***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Female	0.139***	0.132***	0.143***	0.149***	0.144***	0.143***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
Education	0.007	0.007	0.008	0.004	0.006	0.007
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Religiosity	−0.058***	−0.056***	−0.058***	−0.059***	−0.057***	−0.058***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Age	−0.010***	−0.010***	−0.011***	−0.011***	−0.010***	−0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income	0.104***	0.101***	0.100***	0.107***	0.108***	0.110***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Urban	0.023	0.014	0.026	0.018	0.017	0.019
	(0.041)	(0.041)	(0.042)	(0.041)	(0.041)	(0.041)
Media aggregate:KOFSoGI	0.002***					
	(0.0005)					
Radio:KOFSoGI		0.004***				
		(0.001)				
TV:KOFSoGI			0.004**			
			(0.002)			
Newspaper:KOFSoGI				0.006***		
				(0.002)		
Internet:KOFSoGI					0.005***	
					(0.001)	
Social media:KOFSoGI						0.004***
						(0.001)
Constant	−8.888***	−8.846***	−8.974***	−8.978***	−8.991***	−8.979***
	(0.279)	(0.262)	(0.279)	(0.280)	(0.283)	(0.281)
Observations	46,844	46,844	46,844	46,844	46,844	46,844
AIC	34,716	34,762	34,742	34,743	34,750	34,763

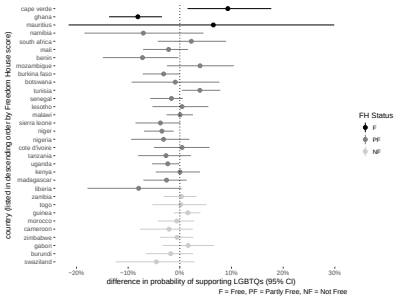
Note: *p<0.1; **p<0.05; ***p<0.01

A.8 Country Level Results

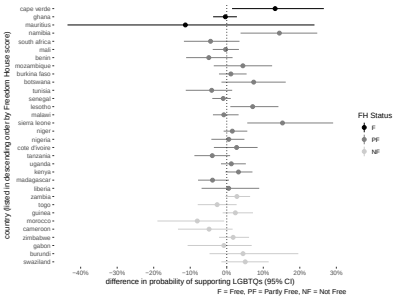
Figures A.5 and A.6 show the main effects of each medium within each country. Each country is allowed to have a unique slope and intercept and every district within each country is allowed to have a unique intercept. Figure A.5 ranks the countries according to their Freedom House score and Figure A.6 ranks the countries according to their KOF score.

Figure A.5: Change in LGBTQ support when moving from 'none' to 'daily' media consumption within each country by Freedom House score

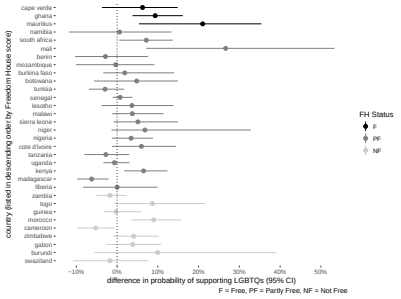
(a) Radio



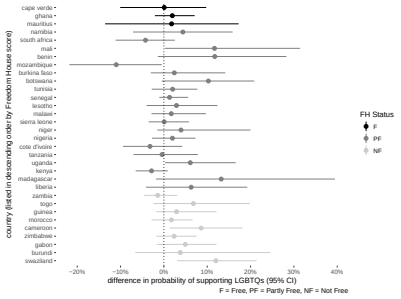
(b) TV



(c) Newspaper



(d) Internet



(e) Social Media

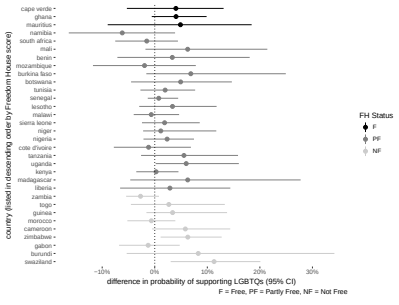
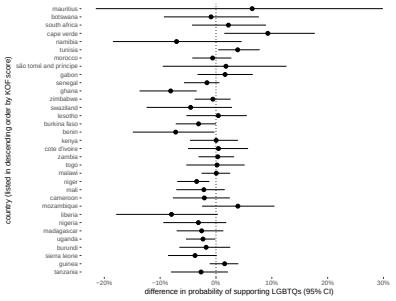
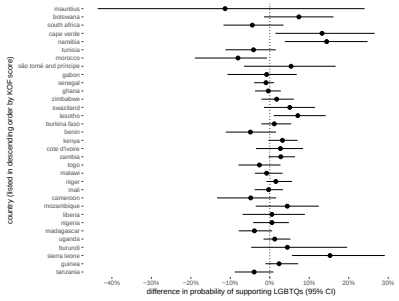


Figure A.6: Change in LGBTQ support when moving from 'none' to 'daily' media consumption within each country by KOF score

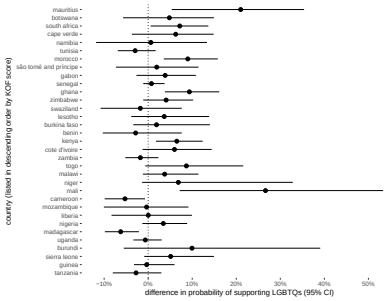
(a) Radio



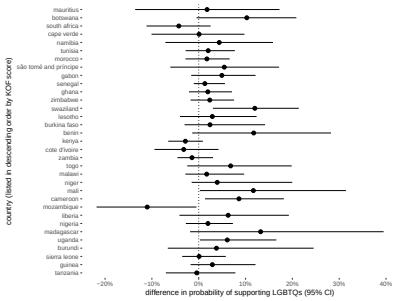
(b) TV



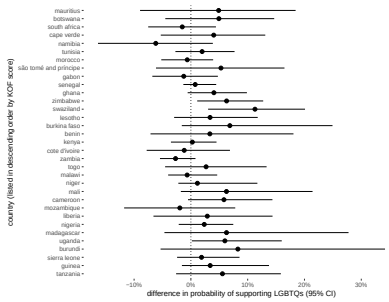
(c) Newspaper



(d) Internet



(e) Social Media



A.9 Content Analysis

Figures A.7 and A.8 show relative popularity of 'gay' Google searches in Kenya and the United Kingdom. Note that these data are not the absolute values of searches on the given day, rather they represent the popularity of searches for the word 'gay' in relation to the highest point on the chart for the specified time. Further, data provided by Google is only a sample of the total Google search corpus. In other words, these results may vary slightly across samples. However, Varian and Stephens-Davidowitz (2015, pp. 13) note that, "the data is large enough that each sample should give similar results." In other words, a value of 100 (reached on 1 May 2017) indicates the peak popularity for searches of 'gay' during the given time period. A value of 50 indicates that searches for 'gay' were half as popular on that day than they were on the peak popularity day.

Figure A.7: Relative interest in Google searches for 'gay' (23 Jan - 15 Oct 2017 in Kenya)

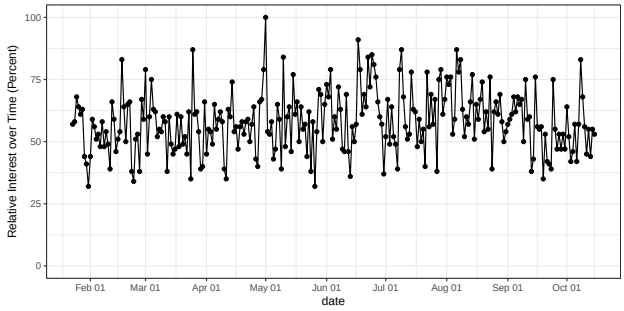


Figure A.8: Relative interest in Google searches for 'gay' (23 Jan - 15 Oct 2017 in Kenya & U.K.)

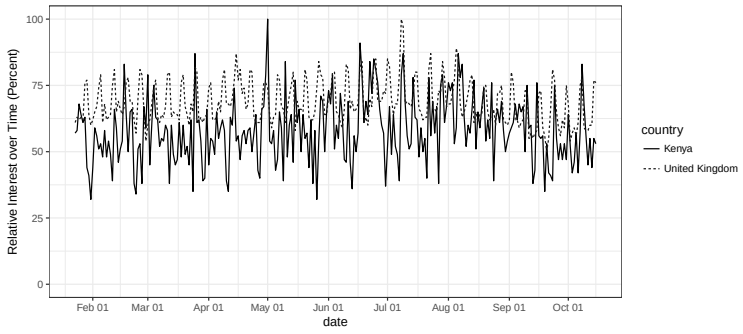


Table A.18 lists the most popular topics overall, as well as the rising topics, searched alongside

'gay' for the given time period. *Top topics* are those that are most often searched for alongside 'gay' in Kenya, regardless of time. A top topic with a value of 100 is the most commonly searched topic alongside 'gay,' whereas a top topic with a value of 50 is searched for only half as often as the topic with a value of 100. *Rising topics* are the topics searched alongside 'gay' that saw the largest increase in search frequency during the given time period. In other words, rising topics are those that received relatively few searches alongside 'gay' in the past, but were frequently searched for alongside 'gay' during the given time period. Rising topics do not have corresponding values.[1]

Table A.18: Topics searched alongside 'gay'
in Kenya from 23 Jan - 15 Oct 2017

Top Topics	Relative Popularity of Top Topics	Rising Topics
Black	100	Wattpad
Men who have sex with men	55	Homosexual behavior in animals
man	35	giant
Boy	25	Pride
male	10	Wrestling

[1]Google provides values, but most often the rising topics are labeled as "Breakout," meaning that the topic had a large increase in searches alongside 'gay' during the given time period compared to prior searches.

Table A.19: Topics searched alongside 'gay' from 2012-2017

Country	Top Topics	Relative Popularity of Top Topics	Rising Topics
Burundi	Black	100	Kiss
	History	15	Tumblr
	Kiss	15	male
	Tumblr	10	Eroticism
	Homosexuality	10	Cartoon
Cameroon	Black	100	Tumblr
	Men who have sex with men	10	Short Film
	Boy	10	Striptease
	PlanetRomeo	5	Trio
	Homosexuality	5	Black
Ghana	Black	100	Jussie Smollett
	Men who have sex with men	45	Sam Smith
	man	25	Chub
	Boy	15	Andrew Solomon
	Same-sex marriage	10	Tumblr
Kenya	Black	100	Jussie Smollett
	Men who have sex with men	65	Jamal Lyon
	man	45	Tumblr
	Boy	30	Pinoy
	male	15	Short Film
Liberia	Men who have sex with men	100	Homosexuality
	Black	95	Nightclub
	man	50	Shemale
	Same-sex marriage	50	Semen
	Marriage	45	Boy
Niger	Black	100	Eroticism
	Boy	10	Rape
	Eroticism	10	male
	Rape	5	Monster
	male	5	Fat
Senegal	Black	100	Tumblr
	Boy	10	Heterosexuality
	Men who have sex with men	5	Monster
	Homosexuality	5	Michael Scofield
	Same-sex marriage	5	Chatroulette
Swaziland	Black	100	Tumblr
	Men who have sex with men	45	Shemale
	man	40	Semen
	Tumblr	15	Monster
	male	10	Short Film
Uganda	Black	100	Tumblr
	Men who have sex with men	65	Short Film
	man	45	Michelle Obama
	Boy	30	Pride
	male	15	Sam Smith
Zimbabwe	Black	100	Top, bottom and versatile
	Men who have sex with men	40	Exotic dancer
	man	30	Hookup culture
	Boy	15	Marvin Gaye
	Tumblr	10	LGBT

Appendix B

SUPPORTING EVIDENCE FOR CHAPTER 3

B.1 Observational Results

Table B.1: Effect of NGO Utilization on Political Behavior (OLS)

	DV: Contact Government		**DV: Support Increased Taxes**	
Utilized NGO	0.114^{**}		-0.081	
	(0.055)		(0.105)	
Utilized Service-Delivery NGO		-0.412^{***}		0.066
		(0.157)		(0.373)
Male	0.179^{**}	0.185	-0.237	-0.127
	(0.074)	(0.129)	(0.156)	(0.132)
Age	0.003	0.008	-0.024^{***}	-0.016
	(0.003)	(0.005)	(0.005)	(0.011)
Education	0.048^{**}	0.054	-0.057	-0.114^{*}
	(0.024)	(0.043)	(0.039)	(0.067)
Religion	-0.001	-0.042	0.100	0.190^{*}
	(0.050)	(0.110)	(0.117)	(0.109)
Ethnicity	0.002	0.003	0.008	-0.006
	(0.007)	(0.013)	(0.024)	(0.035)
Income proxy	0.046	0.187	-0.024	0.081
	(0.056)	(0.115)	(0.089)	(0.122)
Party ID	0.099^{***}	0.014	0.016	-0.068
	(0.032)	(0.046)	(0.090)	(0.135)
Knows MCA name	0.156^{*}	0.026	-0.132^{**}	-0.031
	(0.082)	(0.145)	(0.061)	(0.156)
Ethnic homogeneity	-0.744	-0.037	-0.207	0.127
	(0.841)	(1.332)	(0.870)	(0.622)
Distance to Public School	-0.001	-0.001	0.001	0.011^{**}
	(0.003)	(0.003)	(0.003)	(0.006)
Mathare	0.080	-0.091	0.200^{*}	0.177
	(0.087)	(0.124)	(0.104)	(0.167)
Mukuru	-0.202^{***}	-0.098	-0.266^{***}	-0.224^{***}
	(0.065)	(0.096)	(0.095)	(0.055)
Korogocho	-0.144	-0.252	0.286^{***}	0.604^{***}
	(0.125)	(0.197)	(0.092)	(0.090)
Constant	0.994^{***}	2.023^{***}	4.163^{***}	3.211^{**}
	(0.311)	(0.546)	(0.717)	(1.530)
Observations	1244	457	1244	457
R2	0.052	0.05	0.038	0.046

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Standard errors are clustered at enumeration areas within each community.

Table B.2: Effect of NGO Utilization/Exposure on Views of Government's Capacity (OLS)

	DV: Government's Capacity to Provide Education		
Utilized NGO	−0.042		
	(0.112)		
Utilized Service-Delivery NGO		0.057	
		(0.147)	
Pct Neigbors Using NGOs			0.374
			(0.544)
Male	−0.052	0.060	−0.056
	(0.068)	(0.151)	(0.067)
Age	−0.013***	−0.017***	−0.013***
	(0.003)	(0.004)	(0.003)
Education	0.011	−0.067***	0.010
	(0.021)	(0.013)	(0.020)
Religion	0.127*	0.156	0.107*
	(0.068)	(0.122)	(0.058)
Ethnicity	0.013	0.022	0.014*
	(0.009)	(0.014)	(0.008)
Income proxy	0.004	0.100	0.004
	(0.052)	(0.107)	(0.053)
Party ID	0.061	0.015	0.063
	(0.056)	(0.089)	(0.056)
Knows MCA name	−0.064	−0.016	−0.079
	(0.084)	(0.145)	(0.087)
Ethnic homogeneity	0.856	0.872	1.064
	(0.945)	(2.239)	(0.900)
Distance to Public School	−0.010***	−0.018***	−0.010***
	(0.003)	(0.006)	(0.003)
Mathare	−0.104	−0.249	−0.113
	(0.157)	(0.329)	(0.180)
Mukuru	0.013	0.168	0.079
	(0.090)	(0.137)	(0.095)
Korogocho	0.150	−0.055	0.159*
	(0.102)	(0.211)	(0.085)
Constant	4.041***	4.209***	3.864***
	(0.308)	(0.740)	(0.338)
Observations	1244	457	1244
R2	0.027	0.058	0.028

***p < .01; **p < .05; *p < .1

Standard errors are clustered at enumeration areas within each community.

Table B.3: Effect of NGO Utilization/Exposure on Views of Government's Capacity (OLS)

	DV: Government's Capacity to Provide Healthcare		
Utilized NGO	−0.061		
	(0.153)		
Utilized Service-Delivery NGO		−0.316**	
		(0.158)	
Pct Neigbors Using NGOs			0.170
			(0.430)
Male	−0.243**	−0.157	−0.247**
	(0.112)	(0.156)	(0.105)
Age	−0.006	−0.008	−0.007
	(0.005)	(0.009)	(0.005)
Education	−0.0002	−0.079***	−0.003
	(0.022)	(0.030)	(0.023)
Religion	0.046	0.164	0.034
	(0.174)	(0.290)	(0.163)
Ethnicity	0.022	0.029	0.022
	(0.014)	(0.024)	(0.014)
Income proxy	0.107	0.131	0.106
	(0.066)	(0.121)	(0.068)
Party ID	0.054	0.040	0.056
	(0.048)	(0.064)	(0.050)
Knows MCA name	−0.226*	−0.315**	−0.239*
	(0.123)	(0.155)	(0.123)
Ethnic homogeneity	−0.396	−1.220	−0.276
	(1.019)	(2.497)	(0.974)
Distance to Public School	−0.005*	−0.014**	−0.005*
	(0.003)	(0.007)	(0.003)
Mathare	−0.140	−0.090	−0.145
	(0.098)	(0.297)	(0.098)
Mukuru	−0.182***	0.248**	−0.146
	(0.070)	(0.100)	(0.090)
Korogocho	0.025	−0.087	0.028
	(0.091)	(0.187)	(0.086)
Constant	4.469***	5.508***	4.361***
	(0.581)	(1.114)	(0.622)
Observations	1244	457	1244
R2	0.023	0.055	0.023

***p < .01; **p < .05; *p < .1

Standard errors are clustered at enumeration areas within each community.

Table B.4: Effect of NGO Utilization/Exposure on Views of Government's Responsibility (OLS)

	DV: Government Responsible for Education Provision		
Utilized NGO	−0.111*		
	(0.060)		
Utilized Service-Delivery NGO		0.030	
		(0.092)	
Pct Neigbors Using NGOs			−0.389
			(0.420)
Male	−0.001	0.053	−0.006
	(0.027)	(0.050)	(0.024)
Age	−0.005**	−0.008**	−0.006**
	(0.003)	(0.004)	(0.003)
Education	0.012*	−0.002	0.007
	(0.006)	(0.012)	(0.008)
Religion	0.157***	0.149*	0.168***
	(0.043)	(0.080)	(0.043)
Ethnicity	−0.007**	−0.004	−0.009***
	(0.003)	(0.004)	(0.003)
Income proxy	0.076**	0.113**	0.070**
	(0.034)	(0.057)	(0.033)
Party ID	−0.024	−0.069***	−0.024
	(0.019)	(0.023)	(0.020)
Knows MCA name	0.028	0.069	0.020
	(0.045)	(0.082)	(0.049)
Ethnic homogeneity	0.569	0.524	0.444
	(0.879)	(1.588)	(0.812)
Distance to Public School	−0.003**	−0.005**	−0.004**
	(0.001)	(0.002)	(0.001)
Mathare	−0.160	−0.252	−0.155
	(0.128)	(0.214)	(0.114)
Mukuru	−0.251***	−0.095	−0.297***
	(0.067)	(0.090)	(0.080)
Korogocho	−0.112*	−0.128	−0.123*
	(0.065)	(0.108)	(0.068)
Constant	0.458	0.286	0.542
	(0.286)	(0.441)	(0.330)
Observations	1219	450	1219
R2	0.107	0.129	0.102

***p < .01; **p < .05; *p < .1

Standard errors are clustered at enumeration areas within each community.

Table B.5: Effect of NGO Utilization/Exposure on Views of Government's Responsibility (OLS)

	DV: Government Responsible for Healthcare Provision		
Utilized NGO	-0.162^{***}		
	(0.062)		
Utilized Service-Delivery NGO		-0.239^{***}	
		(0.086)	
Pct Neigbors Using NGOs			-0.758^{***}
			(0.168)
Male	-0.055	-0.043	-0.064^{*}
	(0.038)	(0.065)	(0.035)
Age	-0.003	-0.003	-0.003^{*}
	(0.002)	(0.003)	(0.002)
Education	0.003	-0.007	-0.005
	(0.010)	(0.015)	(0.008)
Religion	0.069	0.111^{*}	0.095
	(0.043)	(0.065)	(0.058)
Ethnicity	-0.009^{***}	-0.0002	-0.012^{***}
	(0.003)	(0.007)	(0.003)
Income proxy	0.051	0.127^{**}	0.039
	(0.031)	(0.060)	(0.037)
Party ID	-0.009	-0.034	-0.009
	(0.012)	(0.021)	(0.013)
Knows MCA name	-0.057	-0.108	-0.063
	(0.050)	(0.078)	(0.054)
Ethnic homogeneity	0.342	0.451	0.057
	(0.593)	(0.870)	(0.428)
Distance to Public School	-0.002	-0.002	-0.002
	(0.002)	(0.001)	(0.001)
Mathare	-0.031	-0.103	-0.019
	(0.110)	(0.161)	(0.068)
Mukuru	-0.094^{**}	0.128^{***}	-0.193^{***}
	(0.046)	(0.038)	(0.038)
Korogocho	0.031	0.057	0.011
	(0.040)	(0.060)	(0.033)
Constant	0.794^{***}	0.841^{***}	0.992^{***}
	(0.212)	(0.242)	(0.207)
Observations	1206	454	1206
R2	0.06	0.086	0.058

***p $<$ .01; **p $<$ .05; *p $<$ .1

Standard errors are clustered at enumeration areas within each community.

Table B.6: Effect of Neighbors' Political Behavior on Own Behavior (OLS)

	DV: Contact Government	**DV: Support Increased Taxes**
Neighbors Contact Govt	0.348***	
	(0.032)	
Neighbors Raise Taxes		0.819***
		(0.021)
Male	0.044**	−0.017
	(0.022)	(0.021)
Age	0.003***	−0.002**
	(0.001)	(0.001)
Education	0.014**	0.002
	(0.007)	(0.006)
Religion	0.023	0.010
	(0.021)	(0.029)
Ethnicity	−0.0002	−0.001
	(0.003)	(0.003)
Income proxy	0.008	0.002
	(0.023)	(0.025)
Party ID	0.026**	−0.012
	(0.013)	(0.012)
Knows MCA name	0.019	−0.008
	(0.024)	(0.019)
Ethnic homogeneity	−0.193	−0.070
	(0.320)	(0.181)
Distance to Public School	0.00002	0.0005
	(0.001)	(0.001)
Mathare	0.005	0.030*
	(0.031)	(0.017)
Mukuru	−0.058***	−0.052**
	(0.020)	(0.025)
Korogocho	−0.091**	0.037
	(0.044)	(0.028)
Constant	−0.095	0.226**
	(0.108)	(0.090)
Observations	920	984
R2	0.22	0.607

***p < .01; **p < .05; *p < .1

Standard errors are clustered at enumeration areas within each community.

Table B.7: Effect of NGO Exposure on Perceptions of Neighbors' Behavior (OLS)

	DV: Contact Government	**DV: Support Increased Taxes**
Pct Neighbors Using NGOs	-0.154^{***}	-0.168
	(0.047)	(0.136)
Male	0.051^{*}	-0.061^{*}
	(0.029)	(0.036)
Age	-0.001	-0.005^{***}
	(0.001)	(0.001)
Education	0.021^{*}	-0.023^{***}
	(0.011)	(0.008)
Religion	-0.044^{*}	0.049^{***}
	(0.026)	(0.018)
Ethnicity	0.004^{*}	0.004
	(0.003)	(0.006)
Income proxy	-0.023	-0.022
	(0.034)	(0.033)
Party ID	-0.001	0.015
	(0.014)	(0.022)
Knows MCA name	0.093^{**}	-0.044
	(0.044)	(0.030)
Ethnic homogeneity	-0.133	-0.013
	(0.276)	(0.212)
Distance to Public School	-0.002	-0.0004
	(0.001)	(0.001)
Mathare	0.037	0.045
	(0.034)	(0.037)
Mukuru	-0.142^{***}	-0.024
	(0.027)	(0.019)
Korogocho	0.028	0.099^{***}
	(0.034)	(0.029)
Constant	0.420^{***}	0.718^{***}
	(0.132)	(0.122)
Observations	920	984
R2	0.055	0.048

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Standard errors are clustered at enumeration areas within each community.

Appendix C

SUPPORTING EVIDENCE FOR CHAPTER 4

C.1 Observational Results

Table C.1: Effect of School Choice on Political Behavior (OLS)

	Contact Govt School	**Support Increased Taxes**
Private School	−0.055	−0.170
	(0.078)	(0.159)
Male	0.133**	−0.245
	(0.053)	(0.160)
Age	−0.00001	−0.020***
	(0.005)	(0.006)
Education	0.042*	−0.035
	(0.025)	(0.043)
Religion	0.297***	0.071
	(0.078)	(0.180)
Ethnicity	0.013	0.023
	(0.010)	(0.032)
Income proxy	−0.018	−0.080
	(0.082)	(0.125)
Party ID	0.087*	−0.008
	(0.047)	(0.105)
Knows MCA name	0.198**	−0.077
	(0.098)	(0.135)
Ethnic homogeneity	−0.917	2.096***
	(0.967)	(0.717)
Distance to Public School	−0.005	0.001
	(0.003)	(0.004)
Mathare	0.250	0.191
	(0.153)	(0.124)
Mukuru	−0.078	−0.108
	(0.093)	(0.071)
Korogocho	0.109	0.571***
	(0.093)	(0.142)
Constant	0.634	3.210***
	(0.458)	(0.830)
Observations	793	793
R2	0.061	0.047

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.2: Interaction Effect of: Private School Choice * Govt is Responsible for Education (OLS)

	Contact Govt School	**Support Increased Taxes**
Private School*Govt Responsible	−0.019	0.180
	(0.146)	(0.271)
Private School	0.023	−0.358
	(0.119)	(0.297)
Male	0.188*	−0.237
	(0.098)	(0.328)
Age	0.140**	−0.228
	(0.054)	(0.163)
Education	−0.0004	−0.020***
	(0.005)	(0.008)
Religion	0.038	−0.038
	(0.025)	(0.041)
Ethnicity	0.298***	0.060
	(0.078)	(0.207)
Income proxy	0.013	0.024
	(0.010)	(0.032)
Party ID	−0.027	−0.080
	(0.084)	(0.139)
Knows MCA name	0.089*	−0.017
	(0.047)	(0.108)
Ethnic homogeneity	0.191*	−0.082
	(0.102)	(0.116)
Distance to Public School	−0.949	2.304***
	(0.888)	(0.755)
Mathare	−0.004	0.00003
	(0.004)	(0.004)
Mukuru	0.268**	0.155
	(0.124)	(0.121)
Korogocho	−0.039	−0.137**
	(0.087)	(0.069)
Korogocho	0.094	0.467***
	(0.088)	(0.142)
Constant	0.512	3.461***
	(0.437)	(0.816)
Observations	776	776
R2	0.071	0.046

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.3: Interaction Effect of: Private School Choice * Govt is Capable of Providing Education (OLS)

	Contact Govt School	**Support Increased Taxes**
Private School*Govt is Capable	0.021	0.117
	(0.039)	(0.107)
Private School	−0.123	−0.605
	(0.202)	(0.469)
Male	0.036	0.035
	(0.031)	(0.080)
Age	0.138***	−0.229
	(0.052)	(0.155)
Education	0.001	−0.018***
	(0.004)	(0.006)
Religion	0.043*	−0.035
	(0.024)	(0.042)
Ethnicity	0.294***	0.068
	(0.078)	(0.186)
Income proxy	0.012	0.022
	(0.010)	(0.032)
Party ID	−0.023	−0.090
	(0.084)	(0.127)
Knows MCA name	0.082*	−0.019
	(0.047)	(0.108)
Ethnic homogeneity	0.199**	−0.073
	(0.096)	(0.147)
Distance to Public School	−0.943	1.981***
	(0.947)	(0.698)
Mathare	−0.004	0.002
	(0.003)	(0.004)
Mukuru	0.259*	0.214
	(0.144)	(0.139)
Korogocho	−0.086	−0.128*
	(0.093)	(0.069)
Korogocho	0.094	0.533***
	(0.096)	(0.143)
Constant	0.476	3.054***
	(0.469)	(0.900)
Observations	793	793
R2	0.067	0.057

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.4: Effect of Perception of Govt's Responsibility for Education on Political Behavior (OLS)

	Contact Govt School	**Support Increased Taxes**
Govt Responsible for Education	0.176**	−0.122
	(0.069)	(0.198)
Private School	0.011	−0.248
	(0.077)	(0.198)
Male	0.141**	−0.234
	(0.056)	(0.161)
Age	−0.0005	−0.020***
	(0.005)	(0.008)
Education	0.038	−0.038
	(0.025)	(0.042)
Religion	0.298***	0.057
	(0.078)	(0.207)
Ethnicity	0.013	0.024
	(0.010)	(0.032)
Income proxy	−0.027	−0.078
	(0.085)	(0.140)
Party ID	0.089*	−0.022
	(0.046)	(0.109)
Knows MCA name	0.191*	−0.083
	(0.102)	(0.116)
Ethnic homogeneity	−0.953	2.341***
	(0.896)	(0.737)
Distance to Public School	−0.004	−0.0001
	(0.004)	(0.004)
Mathare	0.268**	0.150
	(0.126)	(0.124)
Mukuru	−0.038	−0.143*
	(0.085)	(0.073)
Korogocho	0.094	0.473***
	(0.086)	(0.138)
Constant	0.519	3.395***
	(0.428)	(0.802)
Observations	776	776
R2	0.071	0.046

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.5: Effect of Perception of Govt's Capacity to Provide Education on Political Behavior (OLS)

	Contact Govt School	**Support Increased Taxes**
Govt Capable of Providing Education	0.051***	0.116***
	(0.016)	(0.034)
Male	−0.037	−0.129
	(0.076)	(0.169)
Age	0.137***	−0.235
	(0.052)	(0.155)
Education	0.001	−0.018***
	(0.004)	(0.007)
Religion	0.043*	−0.033
	(0.025)	(0.042)
Ethnicity	0.293***	0.062
	(0.079)	(0.189)
Income proxy	0.012	0.021
	(0.010)	(0.031)
Party ID	−0.023	−0.093
	(0.084)	(0.126)
Knows MCA name	0.082*	−0.019
	(0.047)	(0.108)
Ethnic homogeneity	0.199**	−0.075
	(0.096)	(0.148)
Distance to Public School	−0.926	2.074***
	(0.947)	(0.705)
Mathare	−0.004	0.002
	(0.003)	(0.004)
Mukuru	0.259*	0.212
	(0.144)	(0.139)
Korogocho	−0.085	−0.125*
	(0.092)	(0.068)
Korogocho	0.095	0.541***
	(0.094)	(0.141)
Constant	0.412	2.700***
	(0.459)	(0.868)
Observations	793	793
R2	0.067	0.055

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.6: Effect of Private School Prevalence on Perception of Govt Education (OLS)

	Govt. Capable	**Govt Responsible**
Pct Neighbors Using Private School	-1.162^{**}	-1.132^{***}
	(0.569)	(0.142)
Private School	-0.319^{***}	-0.255^{***}
	(0.065)	(0.064)
Male	-0.084	0.046
	(0.075)	(0.029)
Age	-0.015^{***}	-0.008^{***}
	(0.004)	(0.003)
Education	-0.020	0.002
	(0.026)	(0.010)
Religion	0.004	0.049^{*}
	(0.123)	(0.029)
Ethnicity	0.023	0.001
	(0.014)	(0.006)
Income proxy	0.089	0.070^{**}
	(0.077)	(0.034)
Party ID	0.106	-0.024
	(0.073)	(0.018)
Knows MCA name	-0.033	-0.019
	(0.142)	(0.048)
Ethnic homogeneity	-0.111	0.853^{***}
	(0.925)	(0.315)
Distance to Public School	-0.008^{***}	-0.002
	(0.003)	(0.002)
Mathare	-0.069	-0.111^{**}
	(0.139)	(0.056)
Mukuru	0.184^{***}	-0.132^{***}
	(0.065)	(0.021)
Korogocho	0.338^{***}	0.031
	(0.080)	(0.047)
Constant	5.246^{***}	1.320^{***}
	(0.551)	(0.253)
Observations	793	776
R2	0.054	0.202

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Standard errors are clustered at sublocations within each community.

Table C.7: Effect of Private School Prevalence on Perception of Neighbors' Political Behavior (OLS)

	Neighbor Contact Govt Schools	**Neighbor Support Tax Increase**
Pct Neighbors Using Private School	-0.928^{**}	-1.441^{**}
	(0.467)	(0.679)
Private School	-0.101	-0.117
	(0.077)	(0.153)
Male	0.110	-0.246
	(0.109)	(0.157)
Age	-0.003	-0.018^{***}
	(0.004)	(0.006)
Education	0.030	-0.062
	(0.036)	(0.048)
Religion	0.188^{*}	0.028
	(0.104)	(0.203)
Ethnicity	-0.003	0.028
	(0.013)	(0.035)
Income proxy	-0.020	0.008
	(0.088)	(0.141)
Party ID	0.037	0.017
	(0.036)	(0.093)
Knows MCA name	0.206^{**}	-0.097
	(0.083)	(0.158)
Ethnic homogeneity	-0.320	0.587
	(1.165)	(1.106)
Distance to Public School	-0.007	-0.0003
	(0.004)	(0.005)
Mathare	0.322^{***}	0.250^{**}
	(0.110)	(0.099)
Mukuru	-0.090	-0.077
	(0.102)	(0.115)
Korogocho	0.111	0.595^{***}
	(0.151)	(0.196)
Constant	2.032^{***}	4.101^{***}
	(0.492)	(1.161)
Observations	580	631
R2	0.059	0.054

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Standard errors are clustered at sublocations within each community.

Table C.8: Interaction Effect of: Private School Prevalence*School Choice on Perception of Govt's Responsibility and Capacity for Education (OLS)

	Govt Responsible for Education	**Govt Capable of Education Delivery**
Pct Neighbors Using Private School*Private School	−0.224	0.732
	(0.375)	(0.547)
Pct Neighbors Using Private School	−1.020***	−1.529***
	(0.217)	(0.496)
Private School	−0.120	−0.761**
	(0.210)	(0.314)
Male	0.046	−0.084
	(0.029)	(0.075)
Age	−0.008***	−0.015***
	(0.003)	(0.004)
Education	0.002	−0.019
	(0.010)	(0.026)
Religion	0.049*	0.006
	(0.029)	(0.123)
Ethnicity	0.001	0.023*
	(0.006)	(0.014)
Income proxy	0.069**	0.093
	(0.033)	(0.077)
Party ID	−0.023	0.105
	(0.017)	(0.073)
Knows MCA name	−0.018	−0.033
	(0.048)	(0.143)
Ethnic homogeneity	0.820**	−0.010
	(0.357)	(0.954)
Distance to Public School	−0.002	−0.008***
	(0.002)	(0.003)
Mathare	−0.107*	−0.081
	(0.060)	(0.147)
Mukuru	−0.135***	0.194***
	(0.023)	(0.069)
Korogocho	0.031	0.339***
	(0.047)	(0.077)
Constant	1.265***	5.429***
	(0.266)	(0.451)
Observations	776	793
R2	0.202	0.054

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.9: Effect of School Exposure on Political Behavior (OLS)

	Contact Govt School	**Support Increased Taxes**
Pct Neighbors Using Private School	-1.213^{***}	-0.317
	(0.405)	(0.731)
Private School	-0.025	-0.162
	(0.076)	(0.166)
Male	0.138^{***}	-0.244
	(0.052)	(0.160)
Age	0.0002	-0.020^{***}
	(0.005)	(0.006)
Education	0.040^{*}	-0.036
	(0.024)	(0.044)
Religion	0.219^{**}	0.051
	(0.085)	(0.207)
Ethnicity	0.016	0.024
	(0.010)	(0.032)
Income proxy	-0.038	-0.085
	(0.080)	(0.131)
Party ID	0.096^{**}	-0.005
	(0.048)	(0.108)
Knows MCA name	0.182^{*}	-0.081
	(0.094)	(0.138)
Ethnic homogeneity	-1.236^{*}	2.013^{***}
	(0.723)	(0.720)
Distance to Public School	-0.004	0.001
	(0.004)	(0.003)
Mathare	0.365^{***}	0.221^{*}
	(0.098)	(0.115)
Mukuru	-0.043	-0.099^{*}
	(0.072)	(0.058)
Korogocho	0.189^{*}	0.592^{***}
	(0.106)	(0.127)
Constant	1.529^{***}	3.444^{***}
	(0.495)	(1.182)
Observations	793	793
R2	0.072	0.047

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Standard errors are clustered at sublocations within each community.

C.2 Power Analysis

I conduct a power analysis to determine the sample size that is required to detect a minimum effect for my specific experimental design. The treatment is assigned at the individual level, so I do not need to account for any clustering. I use the following formula[1] to calculate power:

$$\beta = \theta\left(\frac{|\mu_t - \mu_c|\sqrt{N}}{2\sigma}) - \theta^{-1}(1 - \frac{\alpha}{2})\right) \tag{C.1}$$

where β is the measure of power, θ is the cumulative distribution function (CDF) of the normal distribution, μ_t is the mean outcome of the treatment groups, μ_c is the mean outcome of the control group, σ is the standard deviation of the treatment and control outcomes (I assume they are equivalent), α is the significance level, and N is the total number of subjects.

My experimental analysis will focus on the four specific outcomes listed above. The responses to these questions are measured on a continuous scale from 1 to 5. To ensure that my power analysis accounts for comparisons across multiple outcomes, I include a Bonferroni correction in equation C.1. This means that, rather than set α to the standard value of 0.05, I set α to: (0.05) / (# of outcomes).[2]

I turn to Afrobarometer's data to develop theoretical expectations about the baseline mean outcomes (μ_c) and standard deviations (σ). I filter round six of Afrobarometer's data to the Kenyan respondents who live in Nairobi and whose primary shelter is described as a "temporary structure / shack." This yields a subset of the Kenyan data that is most similar to the target population (residents of Nairobi's informal settlements) of my proposed survey. I focus on these respondents' answers to questions 27C and 65C because these questions and the scale on which they are measured mirror my primary outcomes.[3] Table C.10 reports the mean outcome (μ_c) and standard deviation (σ) for the two relevant questions in the Afrobarometer survey. I calculate a

[1] Adapted from Evidence in Governance and Politics (EGAP) http://egap.org/methods-guides/10-things-you-need-know-about-statistical-power

[2] The Bonferroni correction is important when considering multiple outcomes, even if it is rarely used in most power analyses (Djimeu and Houndolo, 2016).

[3] There are slight differences. Afrobarometer's question asks about political behavior in response to government failure in general, whereas my question asks about political behavior in response to government failure on education specifically. Question 65C in Afrobarometer asks about taxes to support healthcare, whereas my question asks about taxes to support education.

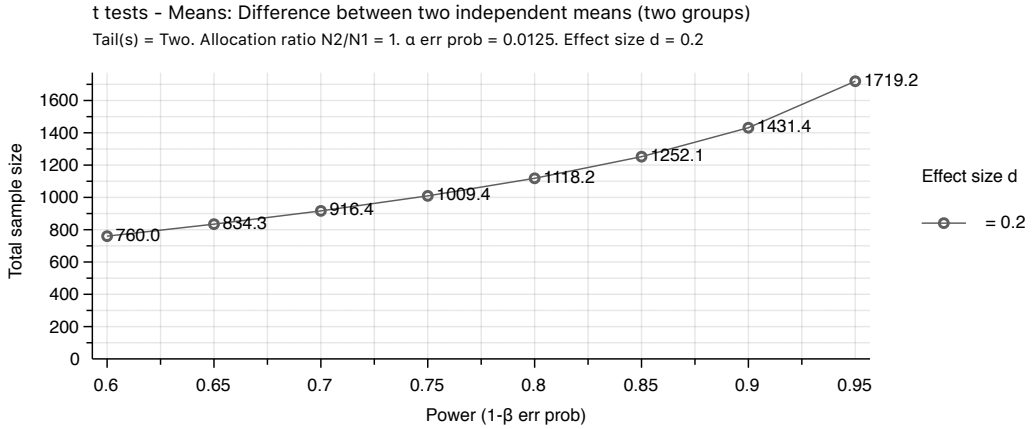
predicted mean treatment outcome (μ_t) by adding 0.2 standard deviations to the baseline mean outcome.[4] With this information, and with power (β) set to 0.80, I am able to calculate the sample size (N) that is necessary to detect an effect of 0.2 standard deviations from the baseline mean. I report these sample sizes in the last column of Table C.10. I require a total sample size of at least 1,168 (or 584 per each treatment group) to detect a minimum effect from my treatment.

Table C.10: Power Analysis

Afrobarometer Variable	μ_c	σ	$\hat{\mu_t}$	N
27C: complain to government official	2.19	0.83	2.356	1,168
65C: pay more taxes for healthcare	2.00	1.44	2.288	1,168

Figure C.1 replicates my power analysis for Q27C with the *G Power* software. As with my calculations above, I used a Bonferroni correction and set α to 0.0167. The results from *G Power* confirm my own calculations – I need a sample size of 1,116 to detect an effect of 0.2.

Figure C.1: Power Analysis with *G Power*



[4] 0.2 is considered a standard small effect size (Cohen, 1988).

C.3 Experimental Results

Table C.11: T-test (two-tailed) of Treatment Group Means

Outcome	Treatment 1: Private	Treatment 2: Government	Difference	P-value
Contact Govt Schools	1.97	2.00	-0.03	0.76
Support Tax Increase	2.18	2.31	-0.13	0.19
Neighbors Contact Govt Schools	2.19	2.17	0.02	0.86
Neighbors Support Tax Increase	1.97	2.01	-0.05	0.66

Treatment group	Outcome	School choice: Low-cost private	School choice: Government	Difference	P-value
A-private	Contact Govt Schools	1.89	2.02	-0.13	0.47
B-public	Contact Govt Schools	1.99	2.04	-0.05	0.77
A-private	Support Tax Increase	2.06	2.45	-0.38	0.03
B-public	Support Tax Increase	2.23	2.38	-0.15	0.39
A-private	Neighbors Contact Govt Schools	2.30	2.20	0.09	0.64
B-public	Neighbors Contact Govt Schools	2.27	2.08	0.18	0.33
A-private	Neighbors Support Tax Increase	1.84	2.16	-0.32	0.12
B-public	Neighbors Support Tax Increase	1.99	2.09	-0.10	0.61

Table C.12: T-test (two-tailed) Results of Outcomes by Treatment Group and School Choice

C.4 Alternative Specifications for Average Treatment Effect

Table C.13: Effect of Government School Treatment on Political Behavior (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School	0.115	0.172
	(0.131)	(0.164)
Private school	0.140	0.401**
	(0.158)	(0.182)
Pct Neighbors using Private School	−1.230*	0.473
	(0.711)	(0.687)
Male	−0.102	−0.295*
	(0.205)	(0.175)
Age	−0.003	−0.026***
	(0.006)	(0.006)
Education	0.086	−0.008
	(0.055)	(0.039)
Religion	−0.087	0.142
	(0.168)	(0.119)
Ethnicity	0.025	−0.010
	(0.016)	(0.020)
Income proxy	−0.198	0.149
	(0.191)	(0.155)
Party ID	0.053	0.043
	(0.077)	(0.079)
Knows MCA name	0.207**	0.064
	(0.090)	(0.132)
Ethnic homogeneity	−3.365***	−1.174
	(1.166)	(1.657)
Distance to Public School	0.001	0.007*
	(0.006)	(0.004)
Mathare	0.823***	0.538**
	(0.266)	(0.211)
Mukuru	0.112	−0.113
	(0.103)	(0.182)
Korogocho	0.480***	0.486***
	(0.173)	(0.182)
Constant	2.600***	1.979***
	(0.852)	(0.685)
Observations	793	793
R2	0.032	0.065

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.14: Effect of Government School Treatment on Perception of Neighbors' Political Behavior (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School	−0.038	0.184
	(0.111)	(0.202)
Private school	−0.129	0.308**
	(0.193)	(0.131)
Pct Neighbors using Private School	−0.141	−1.001
	(1.039)	(0.876)
Male	−0.0004	−0.364**
	(0.115)	(0.141)
Age	−0.0001	−0.017**
	(0.008)	(0.008)
Education	0.026	−0.035
	(0.058)	(0.056)
Religion	0.072	0.036
	(0.184)	(0.169)
Ethnicity	0.002	0.016
	(0.016)	(0.016)
Income proxy	−0.146	0.241
	(0.244)	(0.172)
Party ID	0.124	0.167***
	(0.105)	(0.049)
Knows MCA name	0.138	0.074
	(0.199)	(0.172)
Ethnic homogeneity	−2.922*	−2.569
	(1.553)	(1.908)
Distance to Public School	−0.004	0.015***
	(0.006)	(0.005)
Mathare	0.500	0.718**
	(0.319)	(0.285)
Mukuru	−0.174	−0.048
	(0.178)	(0.239)
Korogocho	0.332*	0.651***
	(0.179)	(0.247)
Constant	2.545**	2.440**
	(1.262)	(1.018)
Observations	623	649
R2	0.022	0.073

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.15: Effect of Government School Treatment on Political Behavior (Binary DV) (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School	0.036	0.056
	(0.039)	(0.047)
Private school	0.048	0.098*
	(0.047)	(0.051)
Pct Neighbors using Private School	−0.301	0.128
	(0.224)	(0.194)
Male	−0.030	−0.084*
	(0.055)	(0.045)
Age	−0.001	−0.007***
	(0.002)	(0.002)
Education	0.024	−0.003
	(0.016)	(0.011)
Religion	0.001	0.054
	(0.062)	(0.036)
Ethnicity	0.007	−0.0004
	(0.005)	(0.006)
Income proxy	−0.052	0.047
	(0.053)	(0.041)
Party ID	0.002	0.020
	(0.018)	(0.023)
Knows MCA name	0.073***	0.026
	(0.024)	(0.039)
Ethnic homogeneity	−1.219***	−0.528
	(0.367)	(0.477)
Distance to Public School	0.0002	0.001
	(0.002)	(0.001)
Mathare	0.235***	0.145**
	(0.078)	(0.057)
Mukuru	0.025	−0.046
	(0.029)	(0.052)
Korogocho	0.128***	0.144***
	(0.047)	(0.047)
Constant	1.723***	1.617***
	(0.304)	(0.204)
Observations	730	752
R2	0.033	0.063

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community. Dependent variable: 0=unlikely; 1= likely

Table C.16: Effect of Government School Treatment on Perception of Neighbors' Political Behavior (Binary DV) (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School	−0.013	0.050
	(0.034)	(0.062)
Private school	−0.038	0.088**
	(0.056)	(0.044)
Pct Neighbors using Private School	0.049	−0.161
	(0.295)	(0.232)
Male	−0.005	−0.112***
	(0.030)	(0.042)
Age	−0.001	−0.005**
	(0.003)	(0.002)
Education	0.005	−0.011
	(0.020)	(0.016)
Religion	0.023	0.031
	(0.056)	(0.049)
Ethnicity	−0.003	0.006
	(0.005)	(0.006)
Income proxy	−0.025	0.085*
	(0.068)	(0.049)
Party ID	0.031	0.049***
	(0.028)	(0.013)
Knows MCA name	0.043	0.022
	(0.063)	(0.055)
Ethnic homogeneity	−0.872*	−0.786
	(0.501)	(0.547)
Distance to Public School	−0.002	0.004***
	(0.001)	(0.001)
Mathare	0.122	0.191**
	(0.096)	(0.080)
Mukuru	−0.042	−0.053
	(0.051)	(0.072)
Korogocho	0.057	0.175**
	(0.044)	(0.069)
Constant	1.650***	1.630***
	(0.399)	(0.278)
Observations	573	606
R2	0.02	0.083

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community. Dependent variable: 0=unlikely; 1= likely

Table C.17: Effect of Government School Treatment on Index of Political Behavior (OLS)

	Own Political Behavior	**Neighbor Political Behavior**
Tx: Govt School	0.137	0.085
	(0.115)	(0.097)
Private school	0.075	0.050
	(0.116)	(0.083)
Pct Neighbors using Private School	−0.477	−0.278
	(0.599)	(0.654)
Male	−0.202*	−0.154*
	(0.112)	(0.085)
Age	−0.007	−0.005
	(0.005)	(0.005)
Education	0.024	−0.001
	(0.034)	(0.030)
Religion	0.031	0.018
	(0.136)	(0.153)
Ethnicity	0.006	0.004
	(0.008)	(0.010)
Income proxy	−0.061	−0.003
	(0.115)	(0.104)
Party ID	0.075	0.112*
	(0.063)	(0.059)
Knows MCA name	0.056	0.068
	(0.089)	(0.133)
Ethnic homogeneity	−1.881	−1.886
	(1.165)	(1.191)
Distance to Public School	0.005	0.004
	(0.003)	(0.003)
Mathare	0.664***	0.487***
	(0.179)	(0.175)
Mukuru	0.012	−0.022
	(0.107)	(0.144)
Korogocho	0.491***	0.416***
	(0.119)	(0.143)
Constant	0.334	0.240
	(0.775)	(0.920)
Observations	580	580
R2	0.072	0.05

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community. "Own Political Behavior" is a z-score index of Contact Government Schools and Support Tax Increase. "Neighbor Political Behavior" is a z-score index of Neighbor Contact Government Schools and Neighbor Support Tax Increase.

Table C.18: Interaction Effect of Government School Treatment * School Choice on Political Behavior (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School*Private school	−0.078	−0.277
	(0.208)	(0.262)
Tx: Govt School	0.146	0.280*
	(0.168)	(0.161)
Private school	0.179	0.540**
	(0.164)	(0.239)
Pct Neighbors using Private School	−1.232*	0.464
	(0.711)	(0.695)
Male	−0.104	−0.304*
	(0.201)	(0.175)
Age	−0.003	−0.025***
	(0.006)	(0.005)
Education	0.086	−0.007
	(0.055)	(0.039)
Religion	−0.088	0.139
	(0.168)	(0.118)
Ethnicity	0.024	−0.010
	(0.016)	(0.020)
Income proxy	−0.198	0.152
	(0.191)	(0.152)
Party ID	0.052	0.041
	(0.078)	(0.078)
Knows MCA name	0.208**	0.065
	(0.089)	(0.133)
Ethnic homogeneity	−3.386***	−1.248
	(1.157)	(1.669)
Distance to Public School	0.001	0.007*
	(0.006)	(0.004)
Mathare	0.825***	0.547***
	(0.266)	(0.208)
Mukuru	0.108	−0.128
	(0.101)	(0.185)
Korogocho	0.481***	0.487***
	(0.173)	(0.183)
Constant	2.734***	2.360***
	(0.912)	(0.704)
Observations	793	793
R2	0.032	0.067

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.19: Interaction Effect of Government School Treatment * School Choice on Perception of Neighbors' Political Behavior (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx Group: Govt School*Private school	−0.149	−0.267
	(0.217)	(0.208)
Tx: Govt School	0.023	0.288
	(0.142)	(0.178)
Private school	−0.053	0.441**
	(0.243)	(0.183)
Pct Neighbors using Private School	−0.145	−1.007
	(1.031)	(0.873)
Male	−0.003	−0.372**
	(0.113)	(0.145)
Age	−0.00003	−0.016**
	(0.008)	(0.008)
Education	0.026	−0.035
	(0.057)	(0.056)
Religion	0.068	0.034
	(0.188)	(0.175)
Ethnicity	0.002	0.016
	(0.016)	(0.016)
Income proxy	−0.145	0.243
	(0.245)	(0.174)
Party ID	0.123	0.162***
	(0.106)	(0.048)
Knows MCA name	0.138	0.075
	(0.200)	(0.171)
Ethnic homogeneity	−2.990*	−2.647
	(1.549)	(1.891)
Distance to Public School	−0.003	0.015***
	(0.006)	(0.005)
Mathare	0.507	0.728***
	(0.318)	(0.280)
Mukuru	−0.184	−0.062
	(0.175)	(0.240)
Korogocho	0.333*	0.654***
	(0.179)	(0.246)
Constant	2.412*	2.738***
	(1.299)	(0.990)
Observations	623	649
R2	0.023	0.074

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.20: Interaction Effect of Government School Treatment * Private School Prevalence on Political Behavior (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School*Pct Neighbors Private School	1.382	−0.182
	(0.892)	(1.603)
Tx: Govt School	−0.728	0.283
	(0.576)	(0.949)
Private school	−1.906**	0.562
	(0.817)	(1.029)
Pct Neighbors using Private School	0.145	0.400**
	(0.158)	(0.180)
Male	−0.097	−0.296*
	(0.208)	(0.176)
Age	−0.003	−0.026***
	(0.006)	(0.005)
Education	0.086	−0.008
	(0.055)	(0.039)
Religion	−0.098	0.144
	(0.166)	(0.116)
Ethnicity	0.024	−0.010
	(0.015)	(0.020)
Income proxy	−0.194	0.148
	(0.189)	(0.154)
Party ID	0.052	0.043
	(0.077)	(0.079)
Knows MCA name	0.205**	0.065
	(0.091)	(0.132)
Ethnic homogeneity	−3.340***	−1.178
	(1.196)	(1.653)
Distance to Public School	0.001	0.007*
	(0.006)	(0.004)
Mathare	0.829***	0.537**
	(0.267)	(0.211)
Mukuru	0.119	−0.114
	(0.107)	(0.181)
Korogocho	0.487***	0.485***
	(0.175)	(0.182)
Constant	3.168***	2.323***
	(0.952)	(0.855)
Observations	793	793
R2	0.034	0.065

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

Table C.21: Interaction Effect of Government School Treatment * Private School Prevalence on Perception of Neighbors' Political Behavior (OLS)

	Contact Govt Schools	**Support Increased Taxes**
Tx: Govt School*Pct Neighbors Prviate School	1.174	1.613
	(1.161)	(1.951)
Tx: Govt School	−0.758	−0.805
	(0.771)	(1.188)
Private school	−0.755	−1.791
	(1.347)	(1.116)
Pct Neighbors using Private School	−0.128	0.311**
	(0.193)	(0.131)
Male	0.003	−0.360**
	(0.117)	(0.144)
Age	−0.0004	−0.017**
	(0.008)	(0.008)
Education	0.027	−0.034
	(0.058)	(0.055)
Religion	0.069	0.024
	(0.185)	(0.175)
Ethnicity	0.001	0.016
	(0.017)	(0.016)
Income proxy	−0.143	0.245
	(0.245)	(0.172)
Party ID	0.122	0.167***
	(0.105)	(0.049)
Knows MCA name	0.136	0.069
	(0.200)	(0.170)
Ethnic homogeneity	−2.937*	−2.540
	(1.556)	(1.889)
Distance to Public School	−0.003	0.015***
	(0.006)	(0.005)
Mathare	0.509	0.724**
	(0.322)	(0.283)
Mukuru	−0.171	−0.042
	(0.180)	(0.240)
Korogocho	0.336*	0.658***
	(0.180)	(0.248)
Constant	2.807**	3.229***
	(1.424)	(1.043)
Observations	623	649
R2	0.023	0.074

***p < .01; **p < .05; *p < .1

Standard errors are clustered at sublocations within each community.

C.5 Survey

Response options are listed in parentheses after each question. Where appropriate, the response options were randomly ordered in the tablet.

1. Respondent Gender (Female; Male)
2. Respondent Age
3. There are many different providers of healthcare in Kenya. Who do you think is responsible for providing healthcare to your community? That is, who do you think should provide healthcare in Kenya? (The government; Private clinics; NGOs; Other/don't know)
4. There are many different providers of education in Kenya. Who do you think is responsible for providing education to your community? That is, who do you think should provide education in Kenya? (The government; low-cost private schools; high-cost private schools; other/don't know)
5. Overall, would you say that the Kenyan government is capable or not capable of providing quality healthcare to its citizens? (Not at all capable; somewhat incapable; neither capable or incapable; somewhat capable; very capable)
6. Overall, would you say that the Kenyan government is capable or not capable of providing quality education to its citizens? (Not at all capable; somewhat incapable; neither capable or incapable; somewhat capable; very capable)
7. Here is a list of actions that people sometimes take when they are unhappy with government performance. For each of these, please tell me whether you, personally, have done any of these things in the past year. If not, would you do this if you had the chance? (No, would never do this; No, would if had chance; Yes, once or twice; Yes, several times)
    a) Contacted a government official to ask for help or make a complaint
    b) Contacted the media, like calling a radio program or writing a letter to a newspaper?
    c) Refused to pay a tax or fee to government?
    d) Participated in a demonstration or protest march?
8. What about your neighbors? Please tell me whether you think your neighbors have done any of these things during the past year when they were unhappy with government performance. If not, do you think they would if they had the chance? (No, would never do this; No, would if had chance; Yes, once or twice; Yes, several times)
    a) Contacted a government official to ask for help or make a complaint
    b) Contacted the media, like calling a radio program or writing a letter to a newspaper?
    c) Refused to pay a tax or fee to government?
    d) Participated in a demonstration or protest march?
9. If the government decided to raise taxes in order to increase spending on services such as education and healthcare, would you support this decision or oppose it? (Strongly oppose; Somewhat oppose; Neither support nor oppose; Somewhat support; Strongly support)
10. What about your neighbors? If the government decided to raise taxes in order to increase spending on services such as education and healthcare, do you think your neighbors would

support this decision or oppose it? (Strongly oppose; Somewhat oppose; Neither support nor oppose; Somewhat support; Strongly support)

11. Now let's talk specifically about actions you may take when you are unhappy with local *public schools*. For each of these, please tell me whether you, personally, have done any of these things in the past year when you were unhappy with the *public schools*. If not, would you do this if you had the chance? (No, would never do this; No, would if had chance; Yes, once or twice; Yes, several times)
    a) Contacted a government official to ask for help or make a complaint
    b) Contacted the media, like calling a radio program or writing a letter to a newspaper?
    c) Refused to pay a tax or fee to government?
    d) Participated in a demonstration or protest march?
12. What about your neighbors? For each of these, please tell me whether you think your neighbors have done any of these things during the past year when they were unhappy with the local *public schools*. If not, do you think they would if they had the chance? (No, would never do this; No, would if had chance; Yes, once or twice; Yes, several times)
    a) Contacted a government official to ask for help or make a complaint
    b) Contacted the media, like calling a radio program or writing a letter to a newspaper?
    c) Refused to pay a tax or fee to government?
    d) Participated in a demonstration or protest march?
13. When you get together with your friends or family, would you say you discuss political matters: (Never; occasionally; frequently)
14. Are you a member of any religious group that meets outside of regular worship services? (Not a member; Inactive member; Active member; Official leader)
15. Are you a member of any other voluntary association or community group? (Not a member; Inactive member; Active member; Official leader)
16. What is the name of your elected Member of County Assembly (MCA)?
17. How much do you trust each of the following? (Not at all; just a little; somewhat; a lot)
    a) President (Kenyatta)
    b) MPs
    c) Kenya Revenue Authority (KRA)
    d) Your County Assembly
    e) Your County Governor (Sonko)
    f) The Ruling Coalition (Jubilee)
    g) Opposiiton political parties
    h) The police
    i) Courts of law
    j) Traditional leaders
    k) Religious leaders
    l) The media
18. Have you attended a meeting or spoken with someone from an NGO in the past year? (No; Yes)
19. Have you received a service or benefit from an NGO in the past year? (No; Yes)
20. If you have received a service or benefit from an NGO in the past year, which of the following

statements best describes what you received: (The NGO provided a service for you or your family, such as healthcare, education, or sanitation; The NGO helped you be more involved in your community, for example by helping you contact your government.)

21. In some communities it is common for NGOs, including international NGOs and Kenyan NGOs, to provide services to people in the community. What about in your community, how common is it for your neighbors to receive services from NGOs? (Not at all common; somewhat uncommon; neither common nor uncommon; somewhat common; very common)
22. When you think about the types of services these NGOs provide in your community, which of the following best describes what they provide? (They provide things like healthcare, education, or sanitation; They help citizens be more involved in the community, for example by helping them contact the government)
23. When you think about these NGOs that are in your community, which of the following best describes the majority of these NGOs? (They are Kenyan NGOs and are funded mostly by Kenyans; They are foreign NGOs and are funded mostly be foreigners; They are both)
24. Which of the following best describes how you find out about the NGOs that are active in your community? (the NGO contacts you directly; from discussions with your neighbors in the community; from flyers/adverts around the community; a government official tells you)
25. In communities like yours, some parents choose to send their kids to public schools and some parents choose to send their kids to low-cost private schools. Thinking about conversations you have had with your neighbors in the community, what type of school do you think most parents choose for their kids in this community? (Public; Low-cost private)
26. What about your children, which type of school do they attend? (Public; low-cost private; Some attend public and some attend private; No children)
27. Which of the following best describes how you find out about the schools that are available to you in your community? (school director contacts you directly; from discussions with your neighbors in the community; from flyers/adverts around the community; a government official tells you)
28. When it comes to making a decision about what type of school you choose, please tell me which of the following factors is most important to you: (Cost of the school; The school's exam scores; The teachers; Reputation of the school; Ability to access the school)
29. And, which of the following is the second most important factor when making a decision about what type of school to choose? (Cost of the school; The school's exam scores; The teachers; Reputation of the school; Ability to access the school)
30. Think about the schools in your community. Are any of these schools low-cost, private schools? (No; Yes)
31. Information Treatment: I want you to imagine that you live in a community where these are the schools that your neighbors send their kids to: [Show image]. 80% of your neighbors send their kids to low-cost private [public] schools and only 20% send their kids to public [low-cost private] schools.

    a) If you lived in this community where most of your neighbors send their kids to a [x] school, how likely are you to take the time to contact a government official to complain about the quality of public schools? (Very unlikely; somwhat unlikely; neither likely or unlikely;

somewhat likely; very likely)

b) What about your neighbors. If you lived in this community where most of your neighbors send their kids to a [x] school, how likely do you think your neighbors are to take the time to contact a government official to complain about the quality of public schools? (Very unlikely; somewhat unlikely; neither likely or unlikely; somewhat likely; very likely)

c) If you lived in this community where most of your neighbors send their kids to [x] school, how likely are you to support increased taxes if it meant the government would build more schools and employ more teachers in your community? (Very unlikely; somewhat unlikely; neither likely or unlikely; somewhat likely; very likely)

d) What about your neighbors. If you lived in this community where most of your neighbors send their kids to [x] school, how likely do you think your neighbors are to support increased taxes if it meant the government would build more schools and employ more teachers in your community? (Very unlikely; somewhat unlikely; neither likely or unlikely; somewhat likely; very likely)

32. How long have you lived in this community? (0 to 6 months; 6 months to 1 year; 1 to 3 years; more than 3 years)
33. If you were to send your child to the local public primary school, about how much would you expect to spend for that child's education per month (include cost of uniforms, materials, fees): (KSH)
34. If you were to send your child to a low-cost private school, about how much would you expect to spend for that child's education per month (include cost of uniforms, materials, fees): (KSH)
35. Now, I want you to think about the quality of the local public schools and of the low-cost private schools in your community. Given their existing quality, please tell me which school you would choose for each of the following options: (public; low-cost private)
    a) public = 500 KSH / month VS. low-cost private = 500 KSH / month
    b) public = 500 KSH / month VS. low-cost private = 750 KSH / month
    c) public = 500 KSH / month VS. low-cost private = 1000 KSH / month
    d) public = 500 KSH / month VS. low-cost private = 1500 KSH / month
    e) public = 500 KSH / month VS. low-cost private = 2000 KSH / month
36. About how long would it take you to walk to the nearest public primary school? (minutes)
37. About how long would it take you to walk to the nearest low-cost private primary school? (minutes)
38. How much do you trust each of the following:(not at all; just a little; somewhat; a lot)
    a) Neighbors who you know personally.
    b) Neighbors who you do not know personally.
39. Please tell me whether your main source of water is available inside your house, inside your compound, or outside your compound? (none, not available; outside the compound; inside the compound; inside the house
40. What is your highest level of education? (No formal schooling; informal schooling only (including Koranic schooling); some primary schooling; primary school completed; intermediate school or Some secondary school / high school; secondary school / high school completed; post-secondary qualifications, other than university e.g. a diploma or degree from a polytech-

nic or college; some university; university completed; post-graduate)

41. What is your religion, if any?
42. Understanding that some people were unable to vote in the most recent national election in 2017, which of the following statements is true for you? (not registered; voted; decided not to vote; could not find polling station; you were prevented from voting; did not have time to vote; did not vote b/c could not find name in voters' register; did not vote for some other reason [do not read]; too young to vote)
43. What is your ethnic community, cultural group or tribe?
44. If the election were held tomorrow, would you support or oppose the re-election of your current member of county assembly (MCA)? (Oppose; Support; don't know)
45. If the election were held tomorrow, which party's candidate would you vote for? (Ruling Jubilee Party; Some other party; Don't know; Refused)

Enumerator answers:

46. Primary language used during the interview?
47. What type of shelter does respondent live?
48. Are the following services present in the enumeration area:
    a) electricity grid that most houses could access?
    b) piped water system
49. What was the roof of respondents home made of?

C.6 Focus Group Questions

1. To start, let's introduce ourselves. Please tell us your name, the name of the school your children attend, and whether the school is public or private.
2. When you think about choosing a school for your children, what factors matter? (If necessary, probe with following: Cost, access, exam scores, reputation, teachers).
3. How do you get information on these factors? For example, how do you find out which school has good teachers or bad teachers?
4. Would you say that you know where most of your neighbors send their children to school or is this information kept secret?
5. What do you do when you are upset with the quality of your children's school?
6. How likely are you to complain to a local government official about the quality/access of public schools? Why or why not?
7. How likely do you think your neighbors are to complain to a local government official about the quality/access of public schools? Why or why not?
8. What are the main reasons that prevent you and your neighbors from demanding improved services (education, healthcare, etc.) from the government?
9. How common are NGOs in your community? If the NGOs weren't there, would you be more or less likely to demand services from the government?