THE POLITICS AND POLICY OF HIV/AIDS INCIDENCE AND MORTALITY

A Dissertation

By

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ABSTRACT

As a result of medical and technological advances in the response to HIV/AIDS, in the past five years, the overall number and rate of new HIV diagnoses in the United States has decreased. While this appears to be a success, certain subgroups have seen increases in numbers and rates of diagnoses, disparities exist in populations most affected, and stark differences exist from state to state. Utilizing panel data of the fifty U.S. states from 2004-2016, this research examines the relationships between state- and society-centered political measures, LGBT-protective policies, and HIV/AIDS outcomes. Additionally, LGBT-protective policies are conceptually tested to determine whether they mediate or moderate the relationships between state- and society-centered measures and HIV/AIDS outcomes.

Findings demonstrate that both state- and society-centered political measures are significantly associated with AIDS incidence and mortality yet provide little explanatory power in HIV incidence and mortality. Additionally, LGBT-protective policy is a stronger predictor of HIV/AIDS outcomes than state- and society-centered measures and does not fully mediate the relationship between state- and society-centered factors and HIV/AIDS outcomes, but it does significantly moderate these relationships. Finally, LGBT-protective policies provide greater protection for groups of color compared to Whites.

DEDICATION

To Randall, and the 32 million worldwide who were failed

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To Robby – thank you for the constant support, patience, understanding, and belief in me throughout this process. I could not have done it without you standing by me throughout this journey – for encouraging me to never give up, for supporting me through difficult decisions I had to make, and for celebrating all the accomplishments and progress I made along the way.

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NOMENCLATURE

ACS	American Community Survey
ADAP	AIDS Drug Assistance Programs
AIDS	Acquired Immunodeficiency Syndrome
ASA	American Sociological Association
CARE	Ryan White Care Act
CRT	Critical Race Theory
HIV	Human Immunodeficiency Virus
HRC	Human Rights Campaign
LGBT	Lesbian, Gay, Bisexual, and Transgender
MSM	Men sleeping with men
PLWA	People living with HIV/AIDS
PrEP	Pre-Exposure Prophylaxis
RCM	Random Coefficients Modeling
SAN	Sociologists AIDS Network
SEM	Structural Equation Model
SES	Socioeconomic Status
SNAP	Supplemental Nutritional Assistance Program
SSI	Supplemental Security Income
TANF	Temporary Assistance for Needy Families
WIC	Special SNAP for Women, Infants, and Children

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CHAPTER I

INTRODUCTION

As a result of medical and technological advances in the response to HIV/AIDS, in the past five years, the overall number and rate of new HIV diagnoses in the United States has decreased (Centers for Disease Control and Prevention 2017). While this appears to be a success, certain subgroups have seen increases in numbers and rates of diagnoses, disparities exist in populations most affected, and stark differences exist from state to state (see Table 1: HIV Incidence Rates 1987-2017, by State and Table 2: HIV Incidence Rates 2008-2017, by Selected States). For example, data from 2016 diagnoses suggests that more than 20 states saw increases in the rates of new HIV diagnoses from 2015 and data from 2017 shows that 19 states saw increases in the rates of new HIV diagnoses from 2016 (Centers for Disease Control and Prevention 2017; 2018). Additionally, the rates for American Indians/Alaska Natives, Asians, and Native Hawaiians/other Pacific Islanders increased from 2011 to 2017 (Centers for Disease Control and Prevention 2017) and racial disparities in HIV/AIDS are present with Whites having lower rates than groups of color, on average (See Table 3: Mississippi HIV Incidence, per 100,000 population, by Race/Ethnicity). Moreover, the incidence and prevalence rates of various population subgroups and states are not proportionate to the national figures.

While much public discourse on HIV/AIDS considers the epidemic to be a disease of the past and not a pressing public health crisis, these collective differences in

Table 1. HIV Incidence Rates, 1987-2017, by State, *gray line is U.S. Rate*
Data Compiled from Centers for Disease Control and Prevention, *HIV Surveillance Reports*, *NCHHSTP Atlas Plus*, and CDC WONDER *AIDS Public Information Data Set.*

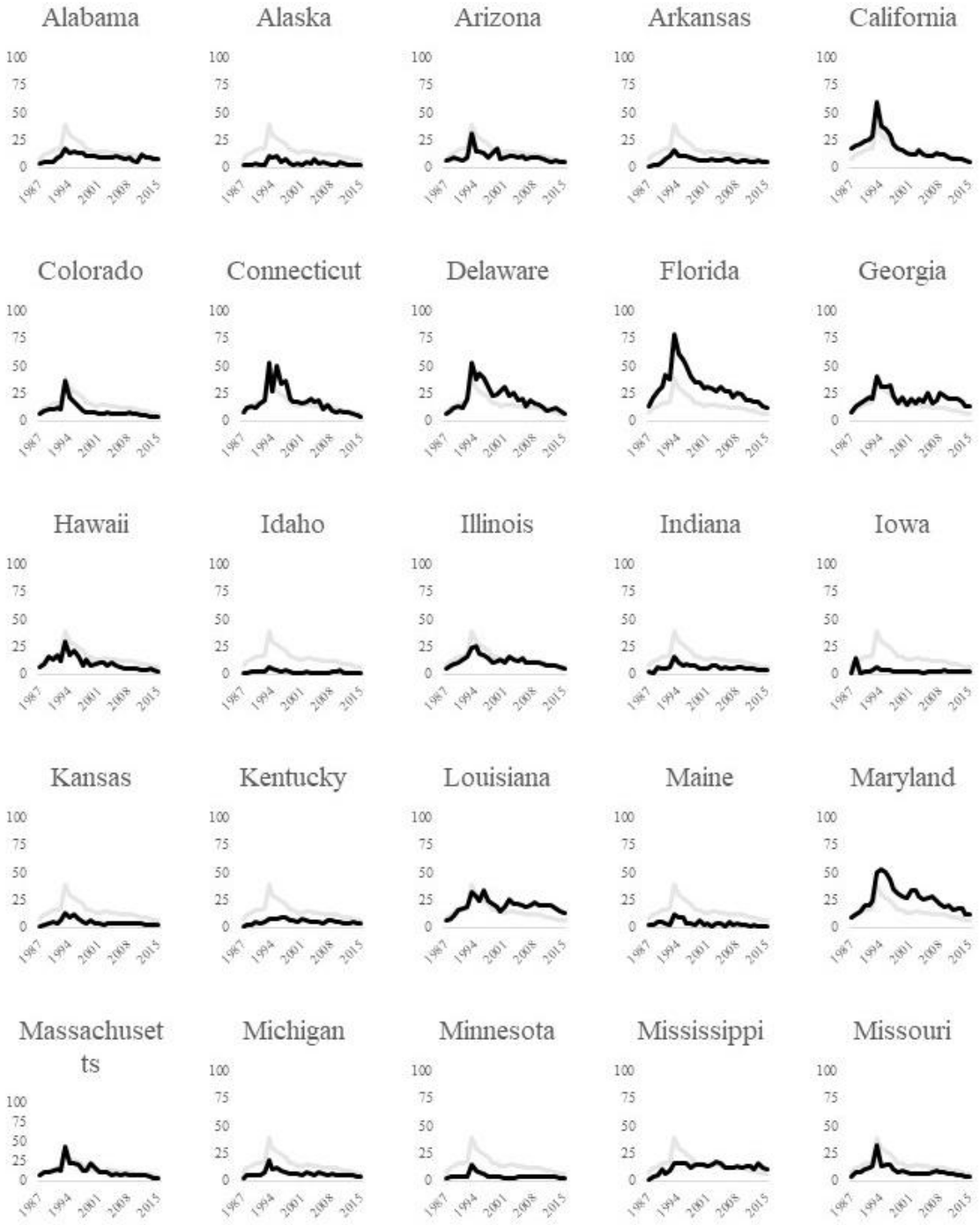


Table 1. HIV Incidence Rates, 1987-2017, by State (Continued)

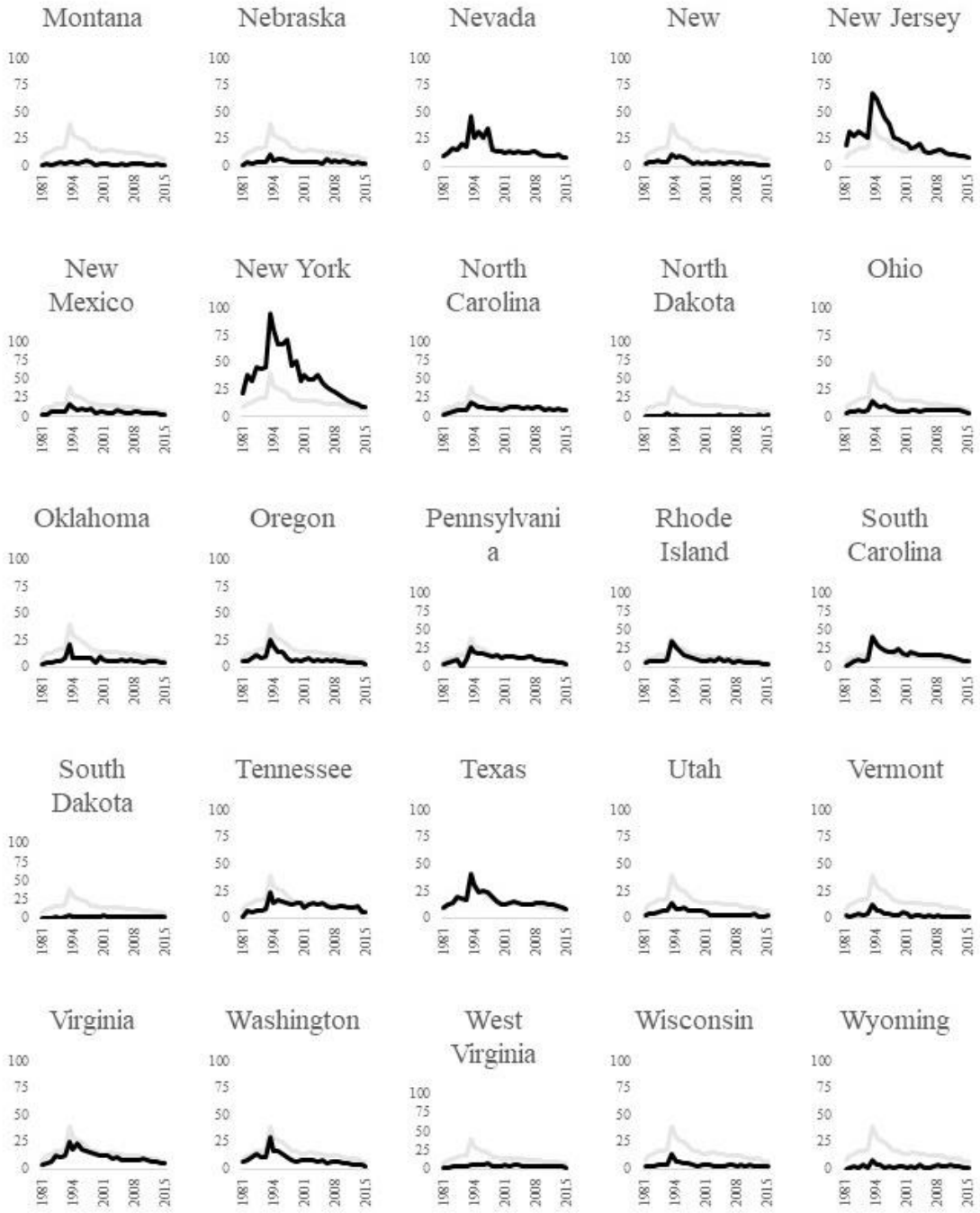
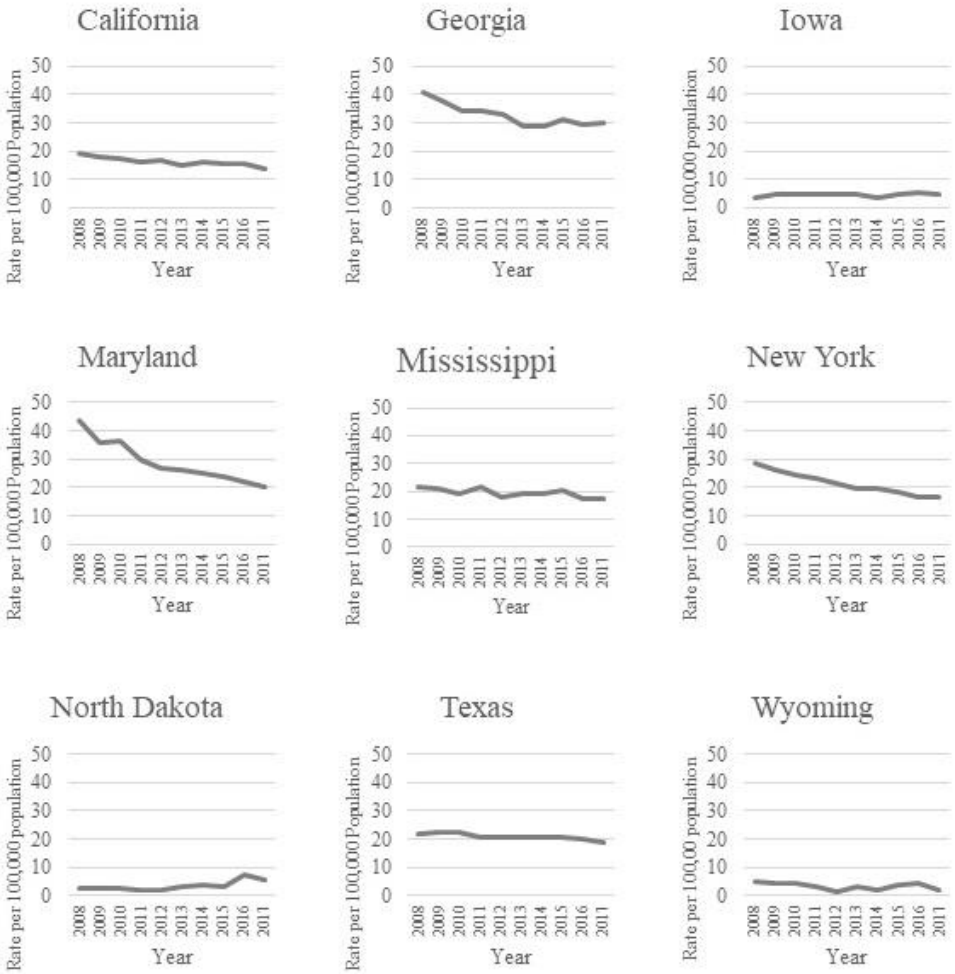
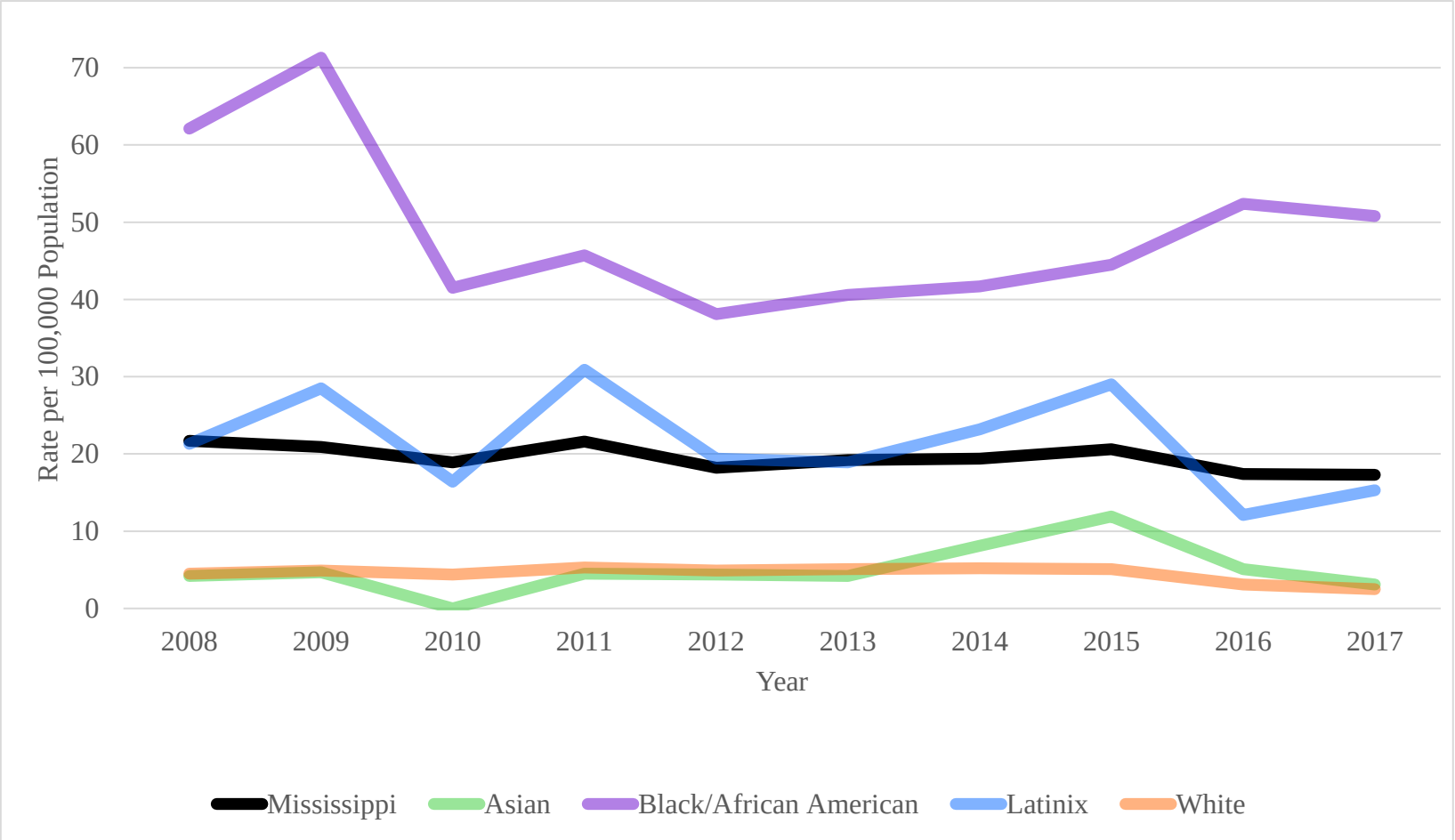


Table 2. HIV Incidence Rates, 2008-2017, by Selected State[1]
Data Compiled from Centers for Disease Control and Prevention, *HIV Surveillance Reports*, *NCHHSTP Atlas Plus*, and CDC WONDER *AIDS Public Information Data Set.*



[1] HIV Incidence rates, 2008-2017, by Selected States. Selection criteria: *Wyoming* had the lowest HIV incidence rate in 2017; *Georgia* had the highest HIV incidence rate in 2017; *Maryland* had the largest decline in HIV incidence from 2008-2017; *North Dakota* had the largest increase in HIV incidence from 2008-2017; *California, Iowa, New York,* and *Texas* are selected for regional representation.

Table 3. Mississippi HIV Incidence, per 100,000 population, by Race/Ethnicity
Data Compiled from Centers for Disease Control and Prevention, *HIV Surveillance Reports*, *NCHHSTP Atlas Plus*, and CDC WONDER *AIDS Public Information Data Set.*



incidence, mortality, and prevalence of HIV/AIDS establishes a continued public health disparity in HIV/AIDS. This leads to the overarching question which guides this research: what is causing the observed differences and racial disparities in HIV/AIDS incidence and mortality? In order to answer this key question I contribute in three key ways: 1) I bridge sociology, political science, and public health literature and methodology; 2) I develop a unique data set built from 20+ publicly available data sources, and 3) I provide insight on the impact non-health and non-HIV-focused policy can have on HIV/AIDS outcomes.

Where medical and technological solutions exist for many illness and diseases, additional health disparities remain among racial and ethnic minorities, along the socioeconomic gradient, and among sexual minorities. A potential explanation for the persistence of health disparities is that politics and public policy has not been successful in providing solutions to remedy these problems and, instead, actually reproduce these disparities. Political actors, institutions and bureaucracies, and public policy have control in determining and implementing health and social policy agendas. Similarly, political ideologies guide how policy is framed so that health policy is often ineffective.

The influence of political actors and party politics is evident when examining specific health outcomes. For example, party administration can have effects on mortality and suicide (Gilligan 2011; Page et al. 2002; Rodriguez et al. 2013; Shaw et al. 2002). In the United States, infant mortality rates are about three percent higher under Republican presidential administrations than during Democratic presidential administrations (Rodriguez et al. 2013), and the rates of homicides and suicides are

higher under Republican presidencies than under Democratic administrations (Gilligan 2011). Similarly, suicide rates in Australia and the UK are higher under more conservative administrations (Page et al. 2002; Shaw et al. 2002).

A connection exists between HIV/AIDS outcomes, politics, and public policy. States with higher spending on public health and social services per person in poverty have significantly lower HIV/AIDS cases and fewer AIDS-related deaths (Bhattacharya et al. 2003; Dieffenbach and Fauci 2011; Goldman et al. 2014; Sood et al. 2014; Talbert-Slagle et al. 2015; Talbert-Slagle et al. 2016). Additionally, social factors such as housing and food insecurity are associated with increased risk of HIV infection (Anema et al. 2009; Wolitski et al. 2007), and average HIV diagnosis rates increase among people with less than a high school education and among those who live below the federal poverty level (Centers for Disease Control and Prevention 2013d). While it is clear that general public health and social policies influences HIV/AIDS outcomes, the relationship between LGBT-protective policies, such as policies that forbid discrimination on the basis of sexual orientation and gender identity, and HIV/AIDS incidence, prevalence, and mortality has remained understudied. Hypothetically, LGBT-protective policies will lower HIV/AIDS incidence and mortality.

The connection between politics and the policy adoption process is widely debated. The analysis of social and public policy results in a debate between state-centered perspectives and society-centered perspectives. State-centered theory holds that states are autonomous from the external environment, are power holders in their own right, and that state elites exercise a degree of power over the policy adoption process. In

contrast, society-centered theorists argue that groups, classes, and the public are important power holders whose power originates outside of the state, influencing the policy adoption process.

This project 1) analyzes the connection between HIV/AIDS-related outcomes and (a) state-centered political measures, such as partisanship of state elites and elite support for LGBT-policies, and (b) society-centered political measures, such as LGBT population and LGBT-focused interest group resources; 2) analyzes the connection between LGBT-protective policies and HIV/AIDS-related outcomes, and evaluates the utility of state- and society-centered perspectives in influencing LGBT-protective policy's effects on HIV/AIDS incidence and mortality; and 3) considers the differential impact LGBT-protective policies and state- and society-centered political measures have by race. I test the impact state- and society-centered political measures have on HIV/AIDS-related outcomes, the impact LGBT-protective policies have on HIV/AIDS-related outcomes, the mediating and moderating effects LGBT policies have in the relationship between state- and society-centered predictors and HIV/AIDS-related outcomes, and the differential impact LGBT-protective policies and state- and society-centered political measures have on HIV/AIDS incidence and mortality by racial/ethnic group.

In order to test these relationships, I posit the following research questions:

1. What impact do state- and society-centered political measures have on HIV/AIDS incidence and mortality?

2. What impact do LGBT-protective policies have on HIV/AIDS incidence and mortality?
3. How do LGBT-protective policies impact the relationship between state- and society-centered political measures and HIV/AIDS incidence and mortality?
4. What impact do LGBT-protective policies and state- and society-centered political measures have on HIV/AIDS incidence and mortality, by racial/ethnic group?

Chapter 2, the background chapter, reviews the literature on the politics and policy of health disparities, the politics and policy of HIV/AIDS, and state-centered versus society-centered perspectives on the policy adoption process. Chapter 3, the methods chapter, presents a summary of the data, variables, and the analytic strategy. Chapter 4, the analysis chapter, presents descriptive statistics, direct effects of state- and society-centered political measures on HIV/AIDS outcomes, direct effects of LGBT-protective policy on HIV/AIDS outcomes, mediation models of LGBT-protective policy, moderation models of LGBT-protective policy, and direct effects by race/ethnicity. Chapter 5 summarizes the key findings and discusses limitations and future directions for research.

CHAPTER II

BACKGROUND

The Sociology of HIV/AIDS

The sociology of HIV/AIDS was birthed in the 1980s when Judith Auerbach, Benjamin Bowser, Samuel Friedman, the late Martin Levine, Beth Schneider, Rose Weitz, and colleagues[2] began publishing work on AIDS in social science journals, teaching the sociology of HIV/AIDS at major universities, organizing sessions on HIV/AIDS at various conferences and meetings, and building the Sociologists AIDS Network (SAN) of the American Sociological Association (ASA) (Watkins-Hayes 2014). Contemporarily, most work on the sociology of HIV/AIDS is not found in flagship sociological journals and instead appears in interdisciplinary health and public health journals (Watkins-Hayes 2014). In fact, Bronwen Lichtenstein wrote in a 2001 edition of the ASA newsletter Footnotes that "The dearth of AIDS-related articles in the reviewed journals suggests that AIDS has never truly been perceived to be a sociological issue" (Lichtenstein 2001; Watkins-Hayes 2014). Sociological research since then has followed this same pattern.

Three core approaches have dominated the sociology of HIV/AIDS in an attempt to explain the HIV/AIDS epidemic and the disparities in incidence, prevalence, and mortality that we see (Watkins-Hayes 2014). These approaches center on 1) the

[2] See, for example, Auerbach et al. 1994; Bowser 1989; Marmor et al. 1984; Schneider 1988; Siegel et al. 1989; Weitz 1987; Weitz 1991.

demographics of those impacted by the epidemic and the structural-, neighborhood-, and individual-level risk factors associated with HIV/AIDS; 2) the lived experiences of HIV-positive people; and 3) the collective responses to HIV/AIDS. This work largely encompasses and has been guided by the social determinants of health (see Figure 1, Acheson 1998).

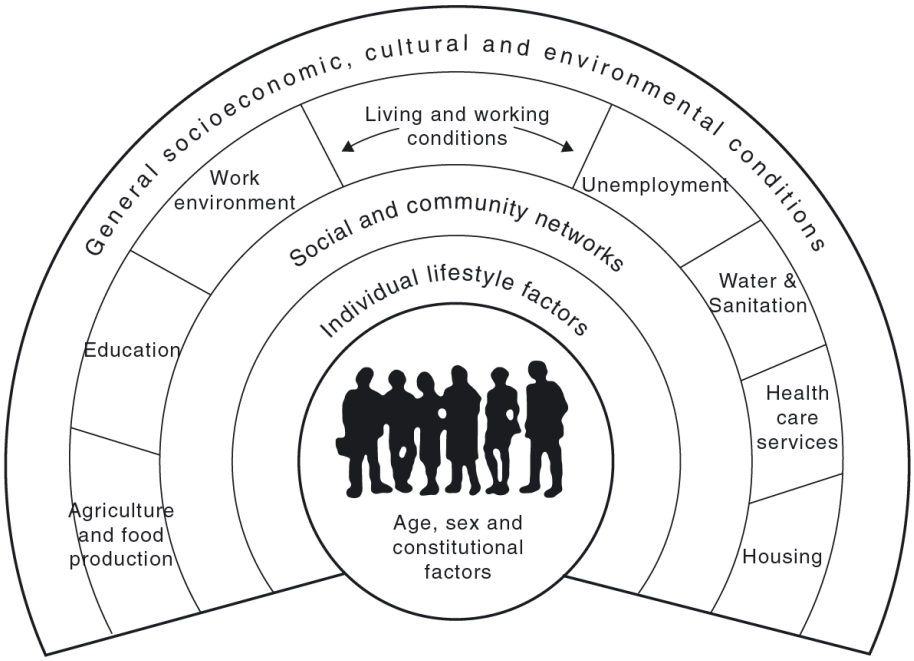


Figure 1. The Main Determinants of Health (reprinted from Acheson 1998)

Individual Demographic Characteristics. Much of this literature focusing on the social determinants of health has considered individual demographic characteristics of the HIV/AIDS epidemic such as sexual orientation and contraction type and racial, gender, and regional differences of the disease. For example, in the United States, most HIV infections have occurred and still occur through male-to-male contact (Centers for Disease Control and Prevention 2012). Additionally, Black populations face the starkest

disparity in the disease – making up around 13% of the U.S. population yet 42% of new HIV infections in 2018 (Centers for Disease Control and Prevention 2019). Age plays a role as well. Younger men sleeping with men (MSM) in all racial groups are more likely to receive diagnoses of a STI/HIV and young Black MSM are seven times more likely to have an undiagnosed HIV infection than other young MSM (Centers for Disease Control and Prevention 2012; Millett et al. 2012).

Individual Lifestyle Factors and Behaviors. However, demographic factors alone should not be considered a proxy for HIV risk (Treichler 1999). The sociology of HIV/AIDS has also considered individual lifestyle factors and behaviors such as risky sexual behaviors and drug usage. HIV is most transmitted through unprotected sex and sharing of drug injection equipment (Watkins-Hayes 2008).

Social and Community Networks. Social and community networks play a role in preventing HIV/AIDS as well. Communities with greater social cohesion or community support have lower rates of HIV/AIDS. However, discrimination and social stigma increases risk for contracting HIV/AIDS, especially for trans women (Herbst et al. 2008; Centers for Disease Control and Prevention 2013; Brennan et al. 2012; Operario and Nemoto 2010). Finally, incarceration and institutionalization has impacted the epidemic. Mass incarceration has contributed to the proliferation of HIV and other STIs (Johnson and Raphael 2006; Kim et al. 2002). HIV rates are five times higher in prison populations than the general population (Millett et al. 2006; Braithwaite and Arriola 2003; Lichtenstein 2000) and formerly incarcerated populations are more likely to

engage in risky sexual behaviors when returning to their communities (Blankenship et al. 2005).

Wider Social Conditions. Wider social conditions such as education and economic stability, employment and work type, and access to health and health care play a role in the epidemic. For example, sex workers (Campbell 1999; Centers for Disease Control and Prevention 2013c; McMahon et al. 2006) and workers in settings where sex is indirectly sold such as massage parlors or exotic dance clubs (Sherman et al. 2011) have higher risk for contracting HIV. States with greater income inequality have higher AIDS case rates (Holtgrave and Crosby 2003), and residential segregation compounds other economic disadvantage to increase risk (Forbes 1993; Fullilove et al. 1993). State budgetary decisions in early years of the epidemic contributed to a slow response to HIV and limited access to HIV health care services (Arnold et al. 2009), and weak community health-care systems continue to impact the epidemic today (Chow et al. 2003).

The Impact of Politics and Policy. Although the sociology of HIV/AIDS has led researchers to advocate for structural HIV prevention through "targeted interventions fostering changes in individual behavior, but also interventions creating local environments conducive to, and supportive of, individual and community-level behavior change" (Rhodes et al. 2005), much of the existing literature and structural change is focused on individual or community behavior and local interventions. The sociology of HIV/AIDS has been informative and has certainly aided in the decline of HIV/AIDS incidence and mortality, yet it does not fully capture the differences seen across states,

nor does it fully explain the racial disparities that are observed. Largely missing from this literature then is a consideration of the impact that politics and policy may have on health disparities at large, as well as on HIV/AIDS.

The Politics and Policy of Health Disparities

Politics and policy play a key role in determining health outcomes. State actors, political ideologies, and downstream efforts in policy implementation influence public health and often create and reproduce health disparities. Government type, party ideology, and public policy implementation correlate with public health outcomes (Navarro and Shi 2001; Navarro et al. 2003; Rodriguez, Bound, and Geronimus 2014). Political actors, institutions and bureaucracies have control in determining and implementing health and social policy agendas. For example, suicide rates are higher in Europe and the UK under more conservative administrations (Gilligan 2011; Page, Morrell, and Taylor 2002; Shaw, Dorling, and Davey 2002), infant mortality rates are below trend during Democratic presidential administrations and above trend during Republican administrations in the United States (Rodriguez, Bound, and Geronimus 2014), and teen birth rates on average are lower in liberal states than those in conservative states (Zhu and Walker 2013). Although untested, Rodriguez and colleagues (2014) posit that the disparity they identify in infant mortality by administration could be a result of high-risk infants being more likely to be born versus aborted during Republican administrations because evidence suggests that aborted fetuses would have been more likely to die as infants than those carried to term.

Alternatively, they suggest that the social and economic conditions existing for mothers and infants during Democratic versus Republican administrations may explain the differences in infant mortality rates (Rodriguez, Bound, and Geronimus 2014).

The effect of political and policy actors is well established in the representative bureaucracy literature. Descriptive representation, which occurs when physical and social identities of the clients and the bureaucrats who serve them match, leads to successful policy outcomes across various areas including social welfare (Riccucci and Meyers 2004; Wilkins and Keiser 2006); education (Pitts 2007); and law enforcement (Theobald and Haider-Markel 2009; Yates and Fording 2005). In health policy, racial minority healthcare professionals and teachers contribute to reduced minority teen birth rates (Atkins and Wilkins 2013; Zhu and Walker 2013), and clients are more likely to utilize AIDS services when providers share social identities with them (Thielemann and Steward 1996). Teenage childbearing policies implemented in states with more minority healthcare professionals are more effective than in states with a White-dominated healthcare workforce (Zhu and Walker 2013). It is evident that the social identity of "frontline" policy implementers is also influential and has consequences for policy outcomes.

While it is clear that political actors can have positive impacts on policy implementation and related inequality when they are descriptively representative, evidence also suggests that when descriptive representation is not present, more privileged members reap unequitable rewards at the expense of poor communities and communities of color. Communities made up of racial minorities with lower

socioeconomic status face disproportionate environmental risks in the prevalence of pollution facilities, the exposure to pollution, and the regulation of these facilities (Bryant 1995; Bullard 1993; Bullard and Johnson 2000; Konisky 2009; Konisky and Reenock 2013; Ringquist 2005). This disproportionate exposure leads to disproportionate health risk.

Similarly, political ideologies guide how policy is framed so that health policy is often ineffective. Public policy agendas and proposals frequently rely upon ideologies that are racially or socioeconomically biased towards norms and behaviors of Whites and those with higher socioeconomic status. These ideologies have direct negative implications for the health of people of color and those with lower socioeconomic status (Geronimus and Thompson 2004). These policies result in racially motivated stress and add additional burdens to already disadvantaged communities (Geronimus 1994, 2001). For example, welfare policies requiring beneficiaries to have paid jobs generally do not ease poverty because jobs available to poor recipients of welfare do not improve the economic situation of the poor and make it nearly impossible to fulfil responsibilities within the community and extended family (Edin 1995; Geronimus and Thompson 2004).

This White normative ideology bleeds into policy interventions that are presented as holding structural solutions to health disparities; however, these policies do not actually address the larger structure of inequality. For example, universal health care policy was strongly advocated for by both health care practitioners and politicians as a remedy to the health consequences resulting from racial segregation and residential

inequality. However, lack of access to physicians and health-providing institutions within the community in addition to characteristics of segregated neighborhoods (poor housing, toxic environmental hazards, crime, inadequate access to healthy foods) cause more disparities in access to care than lack of insurance (Fossett and Perloff 1995; Fossett et al 1990; Geronimus and Thompson 2004; Nelson 2002; Prinz and Soffel 2003). This ideology is also problematic in that the literature overwhelmingly demonstrates that access to care generally has consequences on health once a person is sick. Universal health care does not remedy the causal structures which make people sick. So while increased access to care may reduce mortality by lengthening the time sick people live, it will have minimal effect on morbidity and rates of illness.

Yet another policy that has disproportionate effects based on ideology involves public smoking bans. Ideological arguments in favor of smoking bans in public places suggested that exposure to secondhand smoke would be reduced; however, Adda and Cornaglia (2005) found that public smoking bans only reduced exposure to secondhand smoke among rich families and had the opposite effect among families with lower levels of socioeconomic status. Instead, public smoking bans increased exposure to secondhand smoke among children in poor families. By preventing parents with lower socioeconomic status from smoking outside of their homes, they are left to smoke at home more frequently than if designated public place smoking locations exist (Adda and Cornaglia 2005).

Ideologically motivated public policies regarding segregation and housing vouchers have been largely unsuccessful as well. Residential segregation is linked to

poor health outcomes independent of poverty and individual demographic characteristics (LaVeist 1989; Polednak 1991; Williams and Collins 2001). Segregation is associated with all-cause mortality, chronic disease, and infectious disease, among other poor health outcomes (Acevedo-Garcia 2001; Cooper 2001; Jackson et al. 2000). Ideological support for housing vouchers and relocation programs suggests that "freeing" individual families from segregated environments where health hazards, stressors, and economic constraints are prevalent will allow them to improve their socioeconomic standing, find better jobs, reduce their levels of stress, and in turn return resources to their originating communities (Geronimus and Thompson 2004). Unsurprisingly, these programs have been largely ineffective and scaled back, and health and socioeconomic status remain largely unaffected for the families selected to move to a new neighborhood (Kling et al. 2004). The failure of these programs highlights policy makers' inability to consider the strengths of Black communities as well as the policy's lack of true structural intervention which would involve removing health hazards, stressors, and economic constraints from these origin communities rather than experimentally plucking individual families from them and leaving the origin neighborhood largely untouched.

Finally, these ideologies affect public support for policies aimed at improving health. By focusing on individual and behavioral changes, these policies ideologically suggest that problems are self-inflicted and can be remedied by hard work (Geronimus and Thompson 2004). Blame-the-victim mentality is formed by the general public which can often result in interventions failing in local contexts (Geronimus and Thompson 2004). Where structural public policy interventions are important in addressing health

disparities, public support for such policies is minimal because these ideologies suggest that structural policy interventions are unjust and that individual behavioral change will resolve any inequality.

A focus on downstream interventions (McKinlay 1979) and individual behavior change has plagued public policy and resulted in the reproduction of health disparities. Targeting individual health behaviors rather than structural causes can backfire and result in poorer health conditions through increased stress and weathering (Geronimus 1994, 2001). Jackson and colleagues (2010) find that those who live in chronically stressful environments cope with their stressors by engaging in the unhealthy behaviors that individual level public policy often seeks to eradicate (Jackson, Knight, and Rafferty 2010). Policies aimed at reducing these behaviors do not remedy the chronic stressful environments which produce them as coping strategies people utilize to survive.

Fundamental Cause Theory

The focus on individual changes in behavior rather than structural changes to socioeconomic status and racial stratification results in medical and technological solutions not being accessible to all. Fundamental Cause Theory argues that SES is a fundamental cause of health inequalities, and as such, SES inequalities in health persist over time despite radical changes in the diseases, risks, and interventions that happen to produce them at any given time (Link and Phelan 1995, 1996). Additionally, Fundamental Cause Theory suggests that when a new screening tool or medical technology is introduced, those with the greatest resources have better access to and benefit from the use of new technology first, leading to better health outcomes for these

groups (Kim, Dolecek, and Davis 2010). This is evidenced by those with more education adopting mammography and Pap smear tests in the 1980s and 1990s before those with less education did (Link et al. 1998). Those with higher socioeconomic status exhibited smoking cessation faster than those with lower socioeconomic status after health dangers of smoking became widely known, and the wealthy were among the first to stop cocaine use in the late 1980s when the narrative of cocaine use shifted from glamorous to unhealthy (Pampel 2005; Miech 2008). Among adolescents, those with higher socioeconomic status have had less prevalence of obesity (Miech et al. 2006). Finally, those with higher socioeconomic status were more likely to use statins when the drugs first came to market and benefited first from highly active antiretroviral therapy (HAART) medications to treat HIV/AIDS (Chang and Lauderdale 2009; Goldman and Lakdawalla 2005).

Taken collectively, when those with lower socioeconomic status close the gap in uptake or usage of new medical technology, individuals with higher socioeconomic status have already moved on to the newest medical improvement for a better health outcome. Socioeconomic stratification results in those with lower socioeconomic status being less capable of adapting quickly to new health technology and new health threats (Miech et al. 2011). A public policy focus on individual behaviors and changes, like smoking cessation or cancer screening technologies, does little to remedy actual health disparities because the structural source of the health disparity has remained unchanged and intact.

The Politics and Policy of HIV/AIDS

Indicators of state- and society-centered politics, as well as public policy, influence HIV/AIDS incidence and mortality. Spending on healthcare services for those at risk of HIV infection and people living with HIV/AIDS (PLWHA) leads to improved health outcomes (Bhattacharya et al. 2003; Goldman et al. 2014; Sood et al. 2014). HIV/AIDS diagnoses and mortality are reduced with increased spending on services such as HIV testing, primary care, and antiretroviral treatment (Dieffenbach and Fauci 2011). States with higher spending on public health and social services per person in poverty have significantly lower HIV/AIDS cases and fewer AIDS-related deaths (Talbert-Slagle et al. 2015; Talbert-Slagle et al. 2016).

Increases in spending directly related to HIV/AIDS treatment also results in better HIV/AIDS outcomes. Increases in state-level AIDS Drug Assistance Programs (ADAP) from 1997 to 2002 were significantly associated with reduced AIDS mortality for men, and increased expenditures per capita on prescription drugs were associated with reduced AIDS mortality for both men and women (Gallet 2009). As would be expected, budget cuts to ADAPs have reverse effects. In the first year following California state ADAP budget cuts, 55 more HIV infections occurred than were projected had the ADAP budget remained in place, costing the state some $20 million over the lifetime of these new diagnoses (Lin et al. 2013). However, when targeted prevention and testing efforts occur following budget cuts, new diagnoses can be mitigated (Leibowitz et al. 2014).

Social factors influenced by public policy also can result in disparate HIV/AIDS outcomes. Poor housing conditions and food insecurity are associated with increased risk of HIV infection (Anema et al. 2009; Wolitski et al. 2007). HIV diagnosis rates increase on average among communities with higher proportions of residents with less than a high school education and among those who live below the federal poverty level (Centers for Disease Control and Prevention 2013). For people living with HIV/AIDS, lack of adequate social policy can lead to death from AIDS (Bangsberg et al. 2001; Barron et al. 2004). For example, limited access to resources such as income, transportation, food, housing, and education results in a diminished ability to access care and treatment, afford treatment costs, or adhere and comply with medical instructions (Conviser and Pounds 2002; Heckman et al. 1998; Kidder et al. 2007; Leaver et al. 2007; Martinez et al. 2000; Mills et al. 2006; Moneyham et al. 2010; Osborn et al. 2007; Sarnquist et al. 2011; Sharpe et al. 2010; Waite et al. 2008; Weiser et al. 2013; Wolitski et al. 2010). As a result of inadequate social policies, increased HIV/AIDS diagnoses and mortality are seen. Successful social policies lower the likelihood of HIV and AIDS case rates and AIDS deaths. Higher spending on education, income support, and public health is associated with lower case and death rates (Talbert-Slagle et al. 2016).

State-Centered vs. Society-Centered Perspectives on the Policy Adoption Process

The connection of politics to the policy adoption process is widely debated. The analysis of social and public policy results in a debate between state-centered perspectives and society-centered perspectives. State-centered theory holds that states

are autonomous from the external environment, are power holders in their own right, and that state elites exercise a degree of power over the policy adoption process (Block 1977; Evans et al. 1985; Orloff and Skocpol 1984; Skocpol 1985; Skocpol and Amenta 1986; Skocpol and Kinegold 1982; Weir et al. 1988). In contrast, society-centered theorists argue that groups, classes, and the public are important power holders whose power originates outside of the state influencing the policy adoption process (Ackard 1992; Dahl 1958; Dahl 1998; Lindbloom 1982; Lipset 1994; Manley 1983; Polsby 1960; Quadagno 1984; Quadagno 1992; Therborn 1970).

Research on the politics of LGBT rights has mostly found support for society-centered perspectives on the policy adoption process. For example, Haider-Markel and Meier (1996) find that in passing policy protections for LGBT populations, interest groups interact with sympathetic political elites to pass protections, supporting a society-centered perspective of the policy process. In contrast, support for state-centered perspectives would require that interest groups would not have a significant role in the policy process, and political elites would pass or reject protections on their own. Rodriguez et al. (2013) research on infant mortality and the President's party supports this state-centered perspective. Research on the politics of health disparities finds support for both state-centered perspectives and society-centered perspectives.

Fundamental Cause Theory, HIV/AIDS Outcomes, and Critical Race Theory

Disparities exist in terms of access to health care, resources needed in the context of HIV/AIDS, and access to new health technologies that aid in the prevention of

HIV/AIDS such as Pre-Exposure Prophylaxis (PrEP). Again, Fundamental Cause Theory identifies SES as a fundamental cause of health inequalities (Link and Phelan 1995, 1996) and suggests that those with the greatest resources have better access to and benefit from the use of new technology first leading to better health outcomes for these groups (Kim, Dolecek, and Davis 2010).

Fundamental Cause Theory can explain the relationship between protective factors and HIV/AIDS mortality. Access to healthcare and treatment affects mortality to a greater degree than it does incidence because access to healthcare and treatment matter most for those who already have HIV/AIDS. However, Fundamental Cause Theory can be expanded to explain the impact that protective factors will have on HIV/AIDS incidence as well. Where access to healthcare and treatment matters more in the context of mortality for other diseases and illnesses such as diabetes or high blood pressure, access to care and treatment options also affects the prevention of HIV/AIDS. For HIV incidence, new technologies, such as Pre-Exposure Prophylaxis (PrEP), are largely prescribed and used as preventative measures against contracting HIV. PrEP's compound includes tenofovir and emtricitabine, which in combination treat HIV and work to keep the virus from establishing a permanent infection when a person is exposed to the disease. In addition, access to healthcare and treatment options impact the prevention of HIV through providing those at risk with medical education and often times free condoms and other preventative measures. Fundamental Cause can be utilized in a new way to understand AIDS incidence as AIDS incidence indicates a progression

of HIV to Stage 3. Access to healthcare resources and treatment options can help slow the progression of HIV and prevent the onset of an AIDS diagnosis.

Critical Race Theory and Fundamental Cause

While SES inequalities in health do persist over time despite changes to diseases, risks, and interventions, Fundamental Cause Theory seems to ignore, or undervalue, racism as a fundamental cause of health, as is often the case where race and racism are concerned (see Essed 1991; McIntosh 1992; Tidwell 1990). In recent years, Fundamental Cause Theory has been expanded to consider racism as a fundamental cause of health disparities. This work suggests that racial inequalities in health endure because, first, racism is a fundamental cause of racial differences in SES and second, SES is a fundamental cause of health inequalities (Phelan and Link 2015). Additionally, Phelan and Link suggest that there may be some evidence that racism has a fundamental association with health independent of SES as a result of inequalities in "power, prestige, freedom, neighborhood context, and health care" (Phelan and Link 2015).

Though this appears to consider racism as *a* fundamental cause of health, a Critical Race Theory (see Crenshaw, Gotanda, Peller, and Thomas 1995; Delgado and Stefancic 2000, 2012) argument would approach fundamental cause differently with the understanding that racial stratification/racism is *the* fundamental cause of health disparities.

Critical Race Theory (CRT) is a paradigm that examines contemporary racial inequality by acknowledging the relationships among race, racism and power (Delgado and Stefancic 2000, 2012). In the late 1980s, Critical Race Theory was born out of an

activist union between critical legal studies and radical feminism. Where much of the historical work utilizing a CRT approach has focused on the law and legal studies, Critical Race Theory is more frequently being used by social scientists to understand how race and racism impact social life.

Six key tenets outline a critical race theory approach (Delgado and Stefancic 2012): 1) racism is a normal, non-aberrational part of society, yet is difficult to address because it is not often acknowledged; 2) this system of white-over-color ascendancy provides psychic and material rewards for the dominant white group; 3) race and races are socially constructed and products of social thought and relations; 4) differential racialization occurs through the dominant White society racializing different minority groups at different times, in different ways; 5) structures of domination combine to produce intersectional proximity to power and privilege; and 6) because people of color face racialized oppression, they are competently able to communicate and explain the meaning and consequences of racial stratification and their voices should be privileged in this understanding (Delgado and Stefancic 2000).

Racial Disparities in HIV/AIDS, Critical Race Theory, and Fundamental Cause

As Critical Race Theory suggests, racism is a normal and embedded part of society and this system of white-over-color ascendancy serves important psychic and material purposes which results in many of the racial health disparities we observe (see Crenshaw, Gotanda, Peller, and Thomas 1995; Delgado and Stefancic 2000; Delgado and Stefancic 2012). With that in mind, we can expect those with the greatest resources, at baseline, will have the best HIV/AIDS outcomes. In this context then, because Whites

hold advantages in access to health care, resources needed to treat and prevent HIV/AIDS, and access to new health technologies, disparities in HIV/AIDS outcomes will be most stark between Whites and groups of color.

As a result of these advantages, the impact LGBT-protective policy and state- and society-centered political measures have on HIV/AIDS outcomes will differ by racial group. Again, because Whites hold advantages in the context of HIV/AIDS, LGBT-protective policy and state- and society-centered measures that improve HIV/AIDS outcomes will provide lower magnitudes of protection against HIV/AIDS for Whites compared to groups of color. Thus, a greater magnitude of protection for groups of color compared to Whites is expected for both HIV/AIDS incidence and mortality.

Taken collectively, Critical Race Theory approach to Fundamental Cause Theory predicts the differential impact LGBT-protective policy and protective state- and society-centered measures may have on HIV/AIDS mortality and incidence. Because of disadvantages in access to health care, medical treatment, and resources, LGBT-protective policy and protective state- and society-centered measures will have a greater impact on decreasing HIV/AIDS incidence and mortality for groups of color compared to Whites.

CHAPTER III

METHODS

Study Design

I conduct a retrospective, longitudinal study of the 50 U.S. states using data from 2004[3] through 2016 (N=650 state-year observations) exploring the connection between HIV/AIDS-related outcomes and public policy and political measures. A panel dataset including information on HIV/AIDS case rates and AIDS deaths per 100,000 people, LGBT policy protections, spending on social services and state health services, and state- and society-centered politics measures was developed. Additional control measures including social services spending and state health services spending, state specific socio-demographic and economic factors, and Ryan White Care Act (CARE) funding is included in the dataset. Table 4 lists and provides measurement descriptions of each variable. The protocol was submitted for review to the Institutional Review Board at Texas A&M University and was determined to be exempt research because only publicly available, de-identified data is used.

[3] For some variables, data was also available from 1987-2003. Models presented in Results/Analysis utilize years where all variables are available. Racial/Ethnic models utilize data from 2008-2016 (450 state-year observations).

Table 4. Panel Data Variables and Measurement Descriptions

Variable	Measurement
Dependent Variables	
AIDS Incidence Rate	Rate of new AIDS diagnoses per 100,000 population in current year
AIDS Mortality Rate	Rate of AIDS-related deaths per 100,000 population in current year
HIV Incidence Rate	Rate of new HIV diagnoses per 100,000 population in current year
HIV Mortality Rate	Rate of HIV-related deaths per 100,000 population in current year
AIDS Incidence, by race AIDS Mortality, by race HIV Incidence, by race HIV Mortality, by race	Measurement description noted above, disaggregated by race/ethnicity (White, Black, Hispanic/Latinx, Asian, Multiracial, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander)
Black-White Gaps Latinx-White Gaps	Gaps in HIV/AIDS rates described above (difference in Black AIDS Incidence rate and White AIDS incidence rate = Black-White AIDS Incidence Gap)
State-Centered Measures	
U.S. Congressional Votes in favor of LGBT Rights	% U.S. congressional votes in support of rights and policies related to LGBT issues
State LGBT-Related Bills in favor of LGBT Rights	% of bills in support of LGBT rights and policies introduced in state legislature
State Senate Partisanship	% Democrat
State House Partisanship	% Democrat
Governor Partisanship	Partisanship of state's governor
U.S. Senate Partisanship	% Democrat
U.S. House Partisanship	% Democrat
State Government Ideology	Level of government liberalism
Society-Centered Measures	
LGBT Interest Group Real Assets	$ per capita
LGBT Interest Group Real Income	$ per capita
LGBT Population	% LGBT
Citizen Ideology	Level of citizen liberalism

Table 4 (Continued). Panel Data Variables and Measurement Descriptions

Variable	Measurement
LGBT-Protective Policy (see Appendix A)	
LGBT-Protective Policy	% of policy protections in place (23 total policy items - sum of all policy items below)
Workplace Policy	% of policy protections in place (4 policy items)
HIV & Healthcare Policy	% of policy protections in place (6 policy items)
Parenting Policy	% of policy protections in place (2 policy items)
Public Accommodation Policy	% of policy protections in place (2 policy items)
Relationships Policy	% of policy protections in place (3 policy items)
School Policy	% of policy protections in place (6 policy items)
Control Variables	
Social Services and State Health Spending	State social service and health spending ($ per capita)
State GDP	State GDP
Ryan White Care Act (CARE) Funding	Ryan White funding allocated to state ($ per capita)
Primary Care Physicians	Rate of primary care physicians per 100,000 population
Community Hospital Beds	Rate of community hospital beds per 100,000 population
Unemployed	% population unemployed
Poverty	% population in poverty
White	% White population
Female	% Female population
High School Diploma or Higher	% population with high school diploma or higher
Urban	% state living in urban areas
Households Headed by Single Parents	% population headed by single parents
Uninsured	% population without health insurance

Data and Measures

Dependent Variables: HIV/AIDS Outcomes

The dependent variables tested are state-level HIV or AIDS incidence, reported as cases per 100,000 people, and HIV and AIDS mortality, reported as deaths per 100,000 people. New HIV case diagnoses are reported annually via the Centers for Disease Control and Prevention (CDC) HIV Surveillance reports (Centers for Disease Control and Prevention, HIV Surveillance Reports), on the CDC Atlas website for the years 2008-2016 (Centers for Disease Control and Prevention, NCHHSTP Atlas Plus), and on the CDC Wonder website for years prior (Centers for Disease Control and Prevention, CDC Wonder).

For years 2008-2016, additional dependent variables tested are state-level HIV or AIDS incidence and mortality by racial group. HIV/AIDS incidence and mortality case rates, reported as rate per 100,000 people are included for seven racial/ethnic groups: American Indian/Alaskan Native, Asian, Black or African American, Latino or Hispanic, Multiracial, Native Hawaiian or Other Pacific Islander, and White. Additionally, Black-White and Latinx-White gaps are computed to represent the disparity in HIV/AIDS outcomes between Blacks and Whites and Latinx and Whites.

Independent Variables: State-Centered Political Measures

State-Centered political measures include elite support for LGBT rights and policies, partisanship of state legislatures, gubernatorial administration partisanship, partisanship of state's U.S. Senators and Representatives, and state government ideology.

Elite support for LGBT rights and policies is measured in two ways. First, as the percent of U.S. Congressional votes in support of rights and policies related to LGBT issues. This measure is developed through Human Rights Campaign (HRC) Congressional Scorecards measuring support for equality in Congress. Second, as the percent of bills related to LGBT rights and policies that are in support of LGBT rights and policies introduced in the state legislature. This measure is developed through annual HRC State Equality Index Reports.

Partisanship of the state legislature and partisanship of the state's U.S. Senators and Representatives is measured as percentage of Democrats holding office. Gubernatorial administration partisanship is measured as the partisanship of the Governor.

State government ideology is developed by Berry et al. (1998) and scores ideology on a range of 0 to 100. Higher numbers represent higher levels of liberalism in the state (Fording 2018).

Independent Variables: Society-Centered Political Measures

Society-centered political measures include interest group measures, LGBT population, and citizen ideology. Because states are the unit of analysis, interest group measures are restricted to those that can be measured at the state level for all states. While membership is one resource an interest group can have, money is another. LGBT interest group resources is developed by Taylor et al. (2009). Replication data is utilized up to 2015, and I computed additional years under the tutorial instructions provided (Haider-Markel et al. 2019). Another potential political resource is population size.

While no explicit measure exists identifying LGBT individuals, I utilize Taylor et al. (2009) approach.[4] Replication data is utilized up to 2015, and I computed subsequent years of data under the tutorial instructions provided (Haider-Markel et al. 2019).

Citizenship ideology is developed by Berry et al. (1998) and scores ideology on a range of 0 to 100. Higher numbers represent higher levels of liberalism in the state (Fording 2018).

Independent/Mediator/Moderator Variables: LGBT Policy Protections

Using the 50 U.S. states as units of analysis, six policy areas are included as independent variables of interest. The policy areas included were identified by Lambda Legal's "In Your State" targeted legal protections for LGBT people and their families. They include policies relating to the workplace, HIV & Healthcare, Parenting, Public Accommodations, Relationships, and Schools and cover 22 policy questions (Appendix A).

Each indicator of the six policy areas is measured in the same way, so that the variables measure the strength of protection in each policy area. Each policy area ranges from one to six policy questions (see Appendix A). Each state-year score per policy area will be the percent of policy questions answered 'yes' in each category. For example, the

[4] See footnote 7 in Taylor et al. 2009: "To compute this LGBT population measure, the average of Gates and Newport (2013) and Gates (2007) percentage LGBT population in each state was determined. In addition, one-year ACS estimates for the percentage of same-sex partner households were averaged for the years 2012 through 2015. Subsequently, the average percentage LGBT identified people in each state was divided by the average percentage same-sex partner household (2012-2015) for each state. The resulting ratio describes the relationship between LGBT individuals and gay couples in each state. We made an assumption to hold these ratios constant between 1995 and 2015. We multiplied these figures by each year's estimate of same-sex households to determine the state's percentage identified as LGBT in a given year" (Taylor et al. 2009).

Workplace Policy Area identifies four policy questions. In 2016, Texas did not have protections for any of the identified policy questions, resulting in a strength of 0. Meanwhile, Nevada had protections for all four identified policy questions, resulting in a strength of 1, and Montana had protections for two of the four identified policy questions, resulting in a strength of 0.5.

These six measures cover separate policy categories; however, they are expected to be highly correlated. A factor analysis (not shown) of the six policy areas was completed to identify any single significant factors accounting for a large percentage of total variation. Results supported utilizing the policies as average scores of all six policy areas and 22 policy items.

Additional Control Variables

States with higher spending on social services and public health have lower HIV/AIDS case rates and mortality (Talbert-Slagle et al. 2016). Thus, social services and state health services spending are included as controls in each model. I conceptualize state social services and public health spending after Talbert-Slagle and colleagues (2016) so that spending on social services and public health is combined because both types of spending address determinants of health at the population level rather than individual medical expenditures (Talbert-Slagle et al. 2016). Social service expenditures[5] are obtained from the U.S. Census Bureau Annual Survey of State and Local Government Finances, the Social Security Administration, Administration for Children

[5] Social services expenditures includes categories of public welfare, transportation, public safety, environment and housing, and education.

and Families, and the U.S. Department of Agriculture. Public health spending[6] is obtained through the U.S. Census Bureau.

Additional covariates that may influence HIV/AIDS outcomes are controlled for including state GDP per capita, and state-specific socio-demographic and economic factors[7] obtained from the U.S. Census Bureau.

Finally, state-level funding provided through the Ryan White Care Act (CARE), a federal funding program initiated in 1990 that provides funds directly to U.S. states to support care for PLWHA who are un- or underinsured, is included and controlled for.

Data Analysis

Standard descriptive statistics are utilized to characterize state-variation in HIV/AIDS outcomes, public policy, and state- and society-centered political measures. To estimate the association between HIV/AIDS outcomes, public policy measures, and political measures, separate multivariable linear regression models and structural equation models (SEM) for each HIV/AIDS outcome are tested in line with the conceptual model shown in Figure 2.

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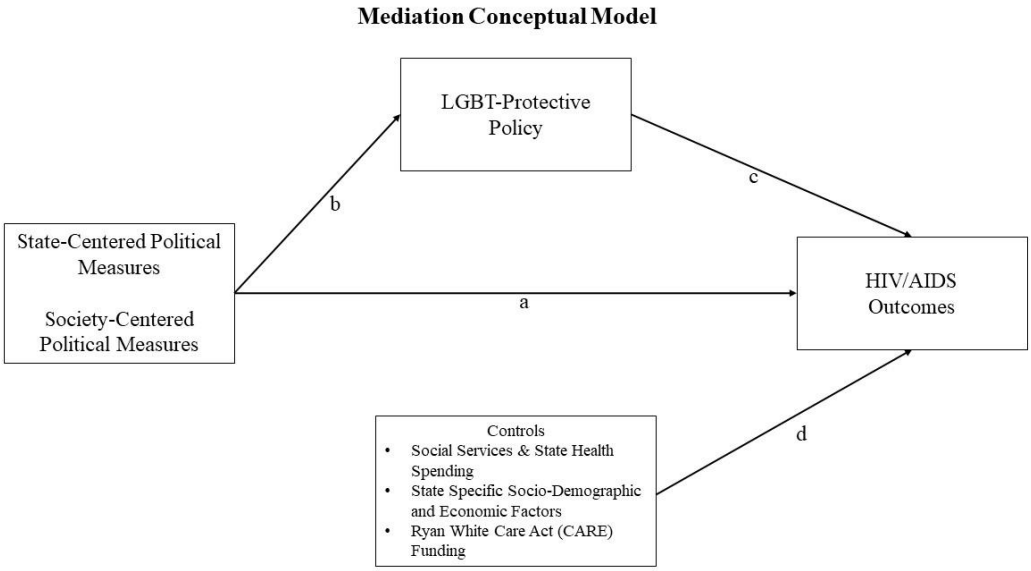
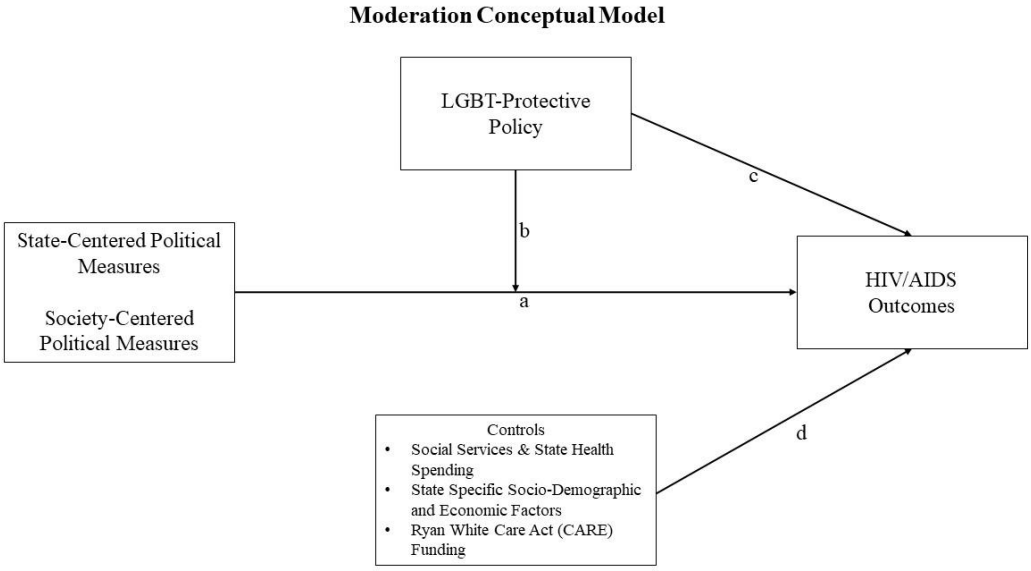
[6] Public health spending include services for conserving and improving public health, other than hospital care, and financial support of other health programs (such as Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), community health programs, health-related inspections, community health programs, and ambulance and emergency services not operated by local fire departments).

[7] State-specific socio-demographic and economic factors include percent White, percent female, percent of adults with a high school diploma, percent of population living in urban areas, percent of children living in a single-parent household, primary care provider rate per 100,000 population, hospital bed rate per 100,000 population, and percentage of adults who are unemployed.

Figure 2. Conceptual Model





Each model uses annual data for 2004 through 2016 with a 1-year time lag in the independent and/or mediator/moderator variables. First, path a is tested: HIV/AIDS incidence and mortality as a function of state-centered political measures and society-centered political measures. Next, path c (as a direct effect rather than mediation or moderation) is tested: HIV/AIDS incidence and mortality as a function of LGBT-protective policies in place. Third, path b through c are tested for each conceptual model: the mediating effect LGBT-protective policies have on the relationship between state- and society-centered political measures and HIV/AIDS incidence and mortality and the moderating effect policies have on these relationships.

Each model is adjusted to control for state social services and state health services spending, state-specific socio-demographic and economic factors, and Ryan White state funding, as seen in path d.

An additional set of models exploring differential impact by race/ethnicity are used for years 2008-2016. These racial/ethnic models repeat the above models and replace the aggregate state dependent variables with aggregate state-level racial/ethnic group-specific HIV/AIDS outcomes.

Secondary analysis repeats the above models using a 5-year time lag in place of 1-year time lags in order to address simultaneous causation concerns and to capture a longer period in which the independent variables of interest may potentially influence these HIV/AIDS outcomes. All statistical analysis is performed with STATA, version 16 (StataCorp LP).

Model Specifications

Unobserved heterogeneity and nonspherical errors will likely bias estimation and lead to invalid inferences in a population average model (Rosenbaum 2005, Zhu 2012). Panel model specifications will address this. State fixed effects and random coefficients modeling were considered to address unobserved heterogeneity. Additionally, I tested for nonspherical errors to identify heteroscedasticity across states and serial autocorrelation.

State fixed effects modeling conceptualizes each state as having its own baseline and deals with unobserved heterogeneity by using unit-specific intercepts (Greene 2011; Zhu 2012). This modeling accounts for cross-state heterogeneity that is not captured by variables in the data set. Although conceptually the random effects model does not fit the data, a Hausman model specification test was utilized to evaluate the efficiency and consistency of the fixed effects specification (Hausman 1978). Results of the Hausman test (not shown) indicate fixed effects modeling fits the data better than random effects modeling.

However, state fixed-effects is not adequate because of the nature of the data. Public policy, state- and society-centered political measures may capture some cross-state heterogeneity. By estimating a panel with a full set of state dummy variables, cross-state variation captured by policy and political measures is thrown out leading to artificial null findings on these variables. Additionally, although there is substantial variation in the dependent variables across 50 states, public policy and state- and society-centered political measures are relatively stable over time within each state.

Therefore, within variation is important, and a state fixed effects models loses this variation because of rarely changing measures. The nature of the data demonstrates that a fitted panel model needs to capture the cross-state data variation.

Random coefficients modeling (RCM) is a better specification for the data. RCM allows for evaluating unobserved heterogeneity as a factor of specific states and not from the full regressors in the model (Zhu 2012). I determine outlier states by analyzing residuals after fitting a baseline model to identify outlier states in public policy, state- and society-centered political measures. This identifies "average states" explained by the model and then specifies which outlier states require additional considerations. Random coefficients modeling better captures the nature of heterogeneity across state-year observations and performs better based on the stability of coefficients at the population-averaged level. Additionally, RCM explicitly models heterogeneity and is more flexible than fixed or random effects in capturing varying parameters across time (Zhu 2012).

Hypotheses

These models test 1) the impact state- and society-centered political measures have on HIV/AIDS incidence and mortality, 2) the impact LGBT-protective policies have on HIV/AIDS incidence and mortality, and 3) the impact policy plays in mediating or moderating the relationship between politics and HIV/AIDS incidence and mortality. To test these research questions, the following hypotheses are formed:

1. If states are autonomous in affecting HIV/AIDS outcomes, a relationship will exist between state-centered political measures[8] and HIV/AIDS incidence and mortality.
2. If states are influenced by the external environment in affecting HIV/AIDS outcomes, a relationship will exist between society-centered political measures[9] and HIV/AIDS incidence and mortality.
3. States with greater LGBT-protective policies will have lower HIV and AIDS incidence and mortality.
4. If states are influenced by both their internal and external environments, a relationship will exist between state-centered political measures and society-centered political measures, although the magnitude of one may be stronger than the other.

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[8] Elite support for LGBT rights and policies; higher percentage of Democrats in the state legislature; Democratic governor; higher percentage of Democrats in the national legislature, and higher scores of state government ideology will result in lower HIV/AIDS incidence and mortality rates

[9] Greater LGBT interest group resources; More LGBT population; and higher scores of citizenship ideology will result in lower HIV/AIDS incidence and mortality rates

5. If states are autonomous in the policy adoption process, a relationship will exist between state-centered political measures[10] and LGBT-protective policies.
6. If states are influenced by the external environment in the policy adoption process, a relationship will exist between society-centered political measures[11] and LGBT-protective policies.
7. LGBT-protective policies will mediate the relationship between state-centered and society-centered measures and HIV/AIDS incidence and mortality.
8. LGBT-protective policies will moderate the relationship between state-centered and society-centered measures and HIV/AIDS incidence and mortality.
9. LGBT-protective policies and protective state- and society-centered political measures will have differential impact on HIV/AIDS incidence and mortality by racial/ethnic group: protective factors will provide a lower magnitude of protection for Whites when compared to groups of color.

[10] Elite support for LGBT rights and policies; higher percentage of Democrats in the state legislature; Democratic governor; higher percentage of Democrats in the national legislature, and higher scores of state government ideology will result in lower HIV/AIDS incidence and mortality rates
[11] Greater LGBT interest group resources; More LGBT population; and higher scores of citizenship ideology will result in lower HIV/AIDS incidence and mortality rates

CHAPTER IV

RESULTS/ANALYSIS

This research analyzes the connection between state- and society centered-political measures and HIV/AIDS-related outcomes, analyzes the connection between LGBT-protective policies and HIV/AIDS-related outcomes, evaluates the utility of state- and society-centered perspectives in influencing LGBT-protective policy's effects on HIV/AIDS incidence and mortality, and considers the differential impact LGBT-protective policies and state- and society-centered political measures have by race. Specifically, the conceptual model presented in Chapter 3 is evaluated empirically. First, the direct effects of state-centered political measures, society-centered political measures, and LGBT-protective policy on HIV/AIDS incidence and mortality is examined. Particular attention is paid to which group of measures is a significant predictor of HIV/AIDS outcomes. Second, LGBT-protective policy is conceptualized as a mediator. I examine whether LGBT-protective policy mediates the significant relationships established in the first step. Third, LGBT-protective policy is conceptualized as a moderator, and I examine whether protective policy moderates the significant relationships established in the first step. Finally, I repeat the above steps examining differential impact LGBT-protective policies and state- and society-centered political measures have by race/ethnicity. Here I analyze whether the relationship between each group of measures and HIV/AIDS outcomes varies by racial/ethnic group.

Descriptive Statistics

The summary statistics in Tables 5 and 6 present the means and standard deviations of the study variables. States on average have an AIDS Incidence rate of 10.41, an AIDS Mortality rate of 4.56, a HIV Incidence rate of 10.83, and a HIV Mortality rate of 4.78 per 100,000 population.

Racial patterns in HIV/AIDS outcomes were as expected, with vast disparities. Black Americans have the highest AIDS Incidence, AIDS Mortality, and HIV Incidence rates (34.76; 17.24; 47.17) followed by Multiracials (33.83; 15.45; 35.70) and Latinx (15.15; 5.74; 19.54). The HIV Mortality rate is highest for Multiracials (18.06) followed by Black Americans (16.83) and Latinx (5.46). On average, the Asian, White, and American Indian/Alaska Native rates are the lowest, with Native Hawaiian/Other Pacific Islander falling in the middle. On average, states had a Black-White AIDS Incidence Gap of 31.06 indicating that the on average the Black AIDS incidence rate was 31.06 higher than the White AIDS incidence rate (per 100,000 population). Additionally, states had a Black-White AIDS Mortality Gap of 14.93, a HIV Incidence Gap of 41.70, and a HIV Mortality Gap of 14.26. These disparities are also evident in the Latinx-White Gaps (11.43; 3.43; 14.07; 2.89).

Table 5. Descriptive Statistics of Study Dependent Variables ***(rates per 100,000 population)***

Variable	Range	Mean/%	Std. Dev.
AIDS Incidence Rate	0.1 – 95.8	10.41	10.18
AIDS Mortality Rate	0.2 – 19.5	4.56	3.70
HIV Incidence Rate	0.0 – 91.7	10.83	8.89
HIV Mortality Rate	0.4 – 15.9	4.78	3.40
AIDS Incidence Rate - White	0.0 – 21.7	3.72	2.48
AIDS Incidence Rate – Black	0.0 – 166.7	34.76	23.15
AIDS Incidence Rate – Hispanic/Latinx	0.0 – 107.1	15.15	12.86
AIDS Incidence Rate – Asian	0.0 – 26.2	2.53	2.80
AIDS Incidence Rate – Multiracial	0.0 – 350.5	33.83	44.68
AIDS Incidence Rate – American Indian/Alaska Native	0.0 – 55.3	3.84	5.99
AIDS Incidence Rate – Native Hawaiian/Other Pacific Islander	0.0 – 869.6	7.70	38.33
AIDS Mortality Rate – White	0.0 – 6.5	2.31	1.38
AIDS Mortality Rate – Black	0.0 – 73.7	17.24	13.71
AIDS Mortality Rate – Hispanic/ Latinx	0.0 – 42.9	5.74	6.53
AIDS Mortality Rate – Asian	0.0 – 20.7	0.54	1.27
AIDS Mortality Rate – Multiracial	0.0 – 212.3	15.45	20.00
AIDS Mortality Rate – American Indian/Alaska Native	0.0 – 50.1	2.48	5.17
AIDS Mortality Rate – Native Hawaiian/Other Pacific Islander	0.0- 61.0	1.13	5.87
HIV Incidence Rate - White	0.8 – 72.8	5.47	3.95
HIV Incidence Rate – Black	0.0 – 287.9	47.17	24.28
HIV Incidence Rate – Hispanic/Latinx	0.0 – 183.4	19.54	12.81
HIV Incidence Rate – Asian	0.0 – 31.5	5.29	4.14
HIV Incidence Rate – Multiracial	0.0 – 995.0	35.70	56.98
HIV Incidence Rate – American Indian/Alaska Native	0.0 – 74.4	6.54	8.31
HIV Incidence Rate – Native Hawaiian/Other Pacific Islander	0.0 – 277.8	12.32	30.34
HIV Mortality Rate – White	0.2 – 9.2	2.57	1.37
HIV Mortality Rate – Black	0.0 – 60.2	16.83	11.22
HIV Mortality Rate – Hispanic/Latinx	0.0 – 33.5	5.46	5.34
HIV Mortality Rate – Asian	0.0 – 34.9	0.67	2.10
HIV Mortality Rate – Multiracial	0.0 – 144.9	18.06	21.29
HIV Mortality Rate – American Indian/Alaska Native	0.0 – 39.2	2.25	4.12
HIV Mortality Rate – Native Hawaiian/Other Pacific Islander	0.0 – 81.8	1.31	7.19
Black-White AIDS Incidence Rate Gap	-9.1 – 164.7	31.06	22.16
Latinx-White AIDS Incidence Rate Gap	-6.2 – 97.4	11.43	12.00
Black-White AIDS Mortality Rate Gap	-5.8 – 69.5	14.93	13.07
Latinx-White AIDS Mortality Rate Gap	-4.8 – 37.8	3.43	6.26
Black-White HIV Incidence Rate Gap	-4.8 – 215.1	41.70	22.53
Latinx-White HIV Incidence Rate Gap	-8.2 – 110.6	14.07	10.72
Black-White HIV Mortality Rate Gap	-6.4 – 53.7	14.26	10.68
Latinx-White HIV Mortality Rate Gap	-6.4 – 30.0	2.89	5.27

As seen in Table 6, partisanship of state houses leaned Democrat (71%), followed by the U.S. Senate (50%), U.S. House (46%), state governors (45%) and state senates (44%). On average 45 percent of U.S. congressional voters were in favor of LGBT Rights and Policies and 69 percent of LGBT-Related bills introduced in state legislatures were pro-LGBT. State government ideology on average was moderate at 47.50.

LGBT interest group strength was relatively weak at $3.48 per capita in real assets and $3.57 in real income. On average states had a LGBT population of 2.50 percent, and citizen ideology leaned more liberal than government ideology at 50.35.

States on average had a LGBT-Protective Policy score of 0.28, indicating 28% of policy protections were in place. Individual policy protection areas rage from 0.15 for policies relating to Relationships to 0.48 for policies relating to HIV and Healthcare.

Table 6. Descriptive Statistics of Study Independent, Moderator, and Control Variables

Variable	Range	Mean/%	Std. Dev.
State-Centered Measures			
State Senate Partisanship (percent Democrat)	0 – 1	0.44	0.26
State House Partisanship (percent Democrat)	0 – 1	0.71	0.25
Governor Partisanship (percent Democrat)	0, 1	0.45	0.50
U.S. Senate Partisanship (percent Democrat)	0 – 1	0.50	0.41
U.S. House Partisanship (percent Democrat)	0 – 1	0.46	0.30
U.S. Congressional Votes in favor of LGBT Rights (%)	0 – 1	0.45	0.30
State LGBT-Related Bills in favor of LGBT Rights (%)	0 – 1	0.69	0.29
State Government Ideology	17.51 – 73.62	47.50	14.54
Society-Centered Measures			
LGBT Interest Group Real Assets ($ per capita)	0.00 – 518.64	3.48	20.35
LGBT Interest Group Real Income ($ per capita)	0.00 – 176.48	3.57	7.23
LGBT Population (%)	0.68 – 6.44	2.50	1.00
Citizen Ideology	8.44 – 97.00	50.35	15.21
LGBT-Protective Policy			
LGBT-Protective Policy (23 policy items)	0 - 1	0.28	0.21
Workplace Policy (4 policy items)	0 - 1	0.23	0.35
HIV & Healthcare Policy (6 policy items)	0 - 1	0.48	0.19
Parenting Policy (2 policy items)	0 - 1	0.29	0.38
Public Accommodation Policy (2 policy items)	0 - 1	0.21	0.35
Relationships Policy (3 policy items)	0 - 1	0.15	0.28
School Policy (6 policy items)	0 - 1	0.24	0.28
Control Variables			
Social Services and State Health Spending ($ per capita)	2196-13476	5172	1746.17
State GDP	9157– 280228	224451	305027.80
Ryan White Care Act (CARE) Funding ($ per capita)	81 – 19448	3805	3172.11
Primary Care Physicians per 100,000 population	57 – 152	95	19.37
Community Hospital Beds per 100,000 population	163 - 693	301	93.89
Percent Unemployed	2.3 – 13.7	5.58	1.83
Percent in Poverty	2.9 – 27.2	12.74	3.62
Percent White	21.8 – 96.6	72.07	15.36
Percent Female	47.3 – 52.1	50.72	0.80
Percent with High School Diploma or Higher	68.5 – 93.5	85.88	4.42
Percent Urban	30.8 – 100.0	71.97	15.16
Percent of Households Headed by Single Parents	6.1 – 22.3	9.80	1.91
Percent Uninsured	2.5 – 25.6	12.76	4.31

As a preliminary step (results not shown) correlations and variance inflation (VIF) tests were used to check for multicollinearity. Multicollinearity existed between state-centered partisanship measures and state government ideology. To avoid this issue, models utilize state government ideology instead of separate partisanship measures as the state government ideology measure considers partisanship.

Additionally, multicollinearity existed between three sets of control variables: social services and state health spending and state GDP per capita; primary care physicians per 100,000 population and community hospital beds per 100,000 population; and percent in poverty, percent with high school diploma or higher, percent of households headed by single parents, and percent uninsured. To avoid this issue, models utilize social services and state health spending from the first set, community hospital beds per 100,000 population from the second set, and percent in poverty from the third.

State- and Society-Centered Determinants of HIV/AIDS

The first research question guiding this study was: *What impact do state- and society-centered political measures have on HIV/AIDS incidence and mortality?* The analysis presented in Tables 7-10 evaluate the association between measures of state- and society-centered political measures and AIDS incidence and mortality and HIV incidence and mortality. In each table, model one presents the relationship between state-centered political measures and HIV/AIDS outcomes, and model two presents model one results with control variables added. Model three presents the relationship between society-centered political measures and HIV/AIDS outcomes, and model four

adds control variables. Finally, model five combines models one and three, and model six combines models two and four.

AIDS Incidence

Table 7 presents random coefficient models examining the association between state- and society-centered political measures and AIDS incidence (rate per 100,000 population). In the state baseline model, all three measures of state-centered politics are significantly associated with AIDS incidence. State government ideology is positively associated with AIDS incidence indicating that higher levels of state government liberalism are associated with higher AIDS incidence ($\beta = 0.06$, $p<.001$). State LGBT-related bills in favor of LGBT rights and U.S. Congressional votes in favor of LGBT rights are both negatively associated with AIDS incidence ($\beta = -0.01$, $p<.01$; $\beta = -0.10$, $p<.001$).

Table 7. Impact of State- and Society-Centered Measures on AIDS Incidence (rate per 100,000 population)

	State Baseline	State Full	Society Baseline	Society Full	Combined Baseline	Combined Full
State-Centered Measures						
State Government Ideology	0.06***	-0.01			0.005	-0.01
	(0.012)	(0.010)			(0.010)	(0.010)
State LGBT-Related Bills in favor of LGBT Rights (%)	-0.01**	0.003			-0.004	0.003
	(0.005)	(0.004)			(0.004)	(0.004)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.10***	-0.05***			-0.06***	-0.04***
	(0.011)	(0.010)			(0.010)	(0.010)
Society-Centered Measures						
LGBT Interest Group Real Assets ($ per capita)			-0.01	-0.01	-0.01	-0.004
			(0.007)	(0.006)	(0.006)	(0.006)
LGBT Interest Group Real Income ($ per capita)			0.03	0.03	0.03	0.03
			(0.022)	(0.020)	(0.022)	(0.020)
LGBT Population (%)			-2.24***	-0.91***	-2.04***	-0.83***
			(0.125)	(0.175)	(0.136)	(0.185)
Citizen Ideology			0.02*	-0.01	0.04**	0.001
			(0.014)	(0.015)	(0.016)	(0.016)
Control Variables						
Social Services and State Health Spending ($ per capita)		0.0004		-0.0001		0.0003
		(0.000)		(0.000)		(0.000)
Ryan White Care Act (CARE) Funding ($ per capita)		-0.001		-0.001		-0.001
		(0.000)		(0.000)		(0.000)
Community Hospital Beds per 100,000 population		-0.004		-0.02**		-0.01
		(0.007)		(0.007)		(0.008)
Percent in Poverty		-0.04		-0.11		-0.06
		(0.060)		(0.058)		(0.062)
Percent White		1.14***		0.83***		0.89***
		(0.095)		(0.104)		(0.111)
Percent Female		2.40***		1.85**		2.01**
		(0.745)		(0.696)		(0.741)
Percent Urban		-0.01		-0.01		-0.01
		(0.005)		(0.005)		(0.005)

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full state model, state government ideology and state LGBT-related bills in favor of LGBT rights no long hold significance. U.S. Congressional votes in favor of LGBT rights remains negatively associated with AIDS incidence, although to a lower magnitude ($\beta = -0.05$, $p<.001$).

In the society baseline model, LGBT population is negatively associated with AIDS incidence ($\beta = -2.24$, $p<.001$), and citizen ideology is positively associated with AIDS incidence ($\beta = 0.02$, $p<.05$). LGBT interest group support do not have significant impacts on AIDS incidence. After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full society model, LGBT population has a significant impact on AIDS incidence ($\beta =-0.05$, $p<.001$).

In combined state and society baseline models, U.S. Congressional votes in favor of LGBT rights and LGBT population are negatively associated with AIDS incidence ($\beta = -0.06$, $p<.001$; $\beta = -2.04$, $p<.001$), and citizen ideology is positively associated with AIDS Incidence ($\beta = 0.04$, $p<.01$) – indicating that when society-centered measures are included, state government ideology and state LGBT-related bills in favor of LGBT rights have less explanatory power.

In the final full model, U.S. Congressional votes in favor of LGBT rights and LGBT population are the only state- and society-centered measures significantly associated with AIDS incidence ($\beta = -0.04$, $p<.001$; $\beta = -0.83$, $p<.001$). Among the

control variables, percent White and percent female are positively associated with AIDS incidence ($\beta = 0.89$, $p<.001$; $\beta = 2.01$, $p<.001$). When comparing across models, both state- and society-centered factors have impacts on AIDS incidence, although to a lesser degree when considering social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE).

AIDS Mortality

Table 8 presents random coefficient models examining the association between state- and society-centered political measures and AIDS mortality (rate per 100,000 population). In the state baseline model, all three measures of state-centered politics are significantly associated with AIDS mortality. State government ideology is positively associated with AIDS mortality ($\beta = 0.01$, $p<.01$). State LGBT-related bills in favor of LGBT rights and U.S. Congressional votes in favor of LGBT rights are both negatively associated with AIDS mortality ($\beta = -0.01$, $p<.01$; $\beta = -0.04$, $p<.001$). After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full state model, state LGBT-related bills in favor of LGBT rights no long holds significance. U.S. Congressional votes in favor of LGBT rights remains negatively associated with AIDS mortality, although to a lower magnitude ($\beta = -0.02$, $p<.001$), and state government ideology becomes negatively associated with AIDS mortality ($\beta = -0.01$, $p<.01$).

Table 8. Impact of State- and Society-Centered Measures on AIDS Mortality (rate per 100,000 population)

	State Baseline	State Full	Society Baseline	Society Full	Combined Baseline	Combined Full
State-Centered Measures						
State Government Ideology	0.01**	-0.01**			-0.005	-0.01**
	(0.005)	(0.004)			(0.005)	(0.004)
State LGBT-Related Bills in favor of LGBT Rights (%)	-0.01**	0.001			-0.003*	0.001
	(0.002)	(0.002)			(0.002)	(0.002)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.04***	-0.02***			-0.03***	-0.02***
	(0.005)	(0.004)			(0.004)	(0.004)
Society-Centered Measures						
LGBT Interest Group Real Assets ($ per capita)			-0.003	-0.002	-0.003	-0.001
			(0.003)	(0.003)	(0.003)	(0.003)
LGBT Interest Group Real Income ($ per capita)			0.0001	-0.002	0.001	-0002
			(0.010)	(0.009)	(0.010)	(0.009)
LGBT Population (%)			-0.78***	-0.26***	-0.71***	-0.24***
			(0.056)	(0.079)	(0.061)	(0.084)
Citizen Ideology			0.01	-0.01	0.01	-0.01
			(0.006)	(0.007)	(0.007)	(0.007)
Control Variables						
Social Services and State Health Spending ($ per capita)		-0.0001		-0.0003***		-0.0001
		(0.000)		(0.000)		(0.000)
Ryan White Care Act (CARE) Funding ($ per capita)		-0.0003**		-0.0004**		-0.0004***
		(0.000)		(0.000)		(0.000)
Community Hospital Beds per 100,000 population		0.003		-0.004		0.002
		(0.004)		(0.003)		(0.003)
Percent in Poverty		-0.06**		-0.08***		-0.08***
		(0.027)		(0.026)		(0.028)
Percent White		0.30***		0.20***		0.23***
		(0.043)		(0.047)		(0.050)
Percent Female		0.24		0.04		0.18
		(0.335)		(0.314)		(0.336)
Percent Urban		0.0001		-0.0002		-0.001
		(0.002)		(0.002)		(0.002)

Notes N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

In the society baseline model, LGBT population is negatively associated with AIDS mortality ($\beta = -0.78$, $p<.001$). Citizen ideology and LGBT interest group support do not have significant impacts on AIDS mortality. After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full society model, LGBT population maintains a negative association with AIDS mortality ($\beta =-0.26$, $p<.001$).

In combined state and society baseline models, State LGBT-related bills in favor of LGBT rights, U.S. Congressional votes in favor of LGBT rights, and LGBT population are negatively associated with AIDS mortality ($\beta = -0.003$, $p<.05$; $\beta = -0.03$, $p<.001$; $\beta = -0.71$, $p<.001$). In the combined model, state government ideology has less explanatory power.

In the final full model, state government ideology, U.S. Congressional votes in favor of LGBT rights, and LGBT population are the only state- and society-centered measures significantly associated with AIDS mortality ($\beta = -0.01$, $p<.01$; $\beta = -0.02$, $p<.001$; $\beta = -0.24$, $p<.001$). Among the control variables, Ryan White Care Act (CARE) Funding and percent in poverty are negatively associated with AIDS mortality ($\beta = -0.0004$, $p<.001$; $\beta = -0.08$, $p<.001$), and percent White is positively associated with AIDS mortality ($\beta = 0.23$, $p<.001$). When comparing across models, both state- and society-centered factors have impacts on AIDS mortality, although to a lesser degree when including social services and state health spending, state-specific socio-

demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE).

HIV Incidence

Table 9 presents random coefficient models examining the association between state- and society-centered political measures and HIV Incidence (rate per 100,000 population). In the state baseline model, none of the measures of state-centered politics are significantly associated with HIV incidence. After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full state model, percent White is the only measure significantly associated with HIV Incidence ($\beta = 0.56$, $p<.05$).

Similarly, in the society models, none of the measures of society-centered politics are significantly associated with HIV Incidence and percent White is positively associated with HIV Incidence ($\beta = 0.68$, $p<.05$). The same associations hold in the combined state- and society- models with percent White being positively associated with HIV Incidence ($\beta = 0.68$, $p<.05$).

Table 9. Impact of State- and Society-Centered Measures on HIV Incidence (rate per 100,000 population)

	State Baseline	State Full	Society Baseline	Society Full	Combined Baseline	Combined Full
State-Centered Measures						
State Government Ideology	0.01	0.003			0.01	0.01
	(0.027)	(0.029)			(0.028)	(0.029)
State LGBT-Related Bills in favor of LGBT Rights (%)	0.01	0.01			0.01	0.01
	(0.011)	(0.011)			(0.011)	(0.011)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.04	-0.04			-0.04	-0.04
	(0.025)	(0.029)			(0.027)	(0.029)
Society-Centered Measures						
LGBT Interest Group Real Assets ($ per capita)			0.003	0.01	0.003	0.01
			(0.017)	(0.017)	(0.017)	(0.017)
LGBT Interest Group Real Income ($ per capita)			-0.01	-0.02	-0.01	-0.02
			(0.057)	(0.058)	(0.059)	(0.060)
LGBT Population (%)			-0.24	0.13	-0.14	0.18
			(0.328)	(0.499)	(0.372)	(0.549)
Citizen Ideology			-0.04	-0.04	-0.06	-0.08
			(0.037)	(0.042)	(0.044)	(0.049)
Control Variables						
Social Services and State Health Spending ($ per capita)		0.001		0.001		0.002
		(0.001)		(0.001)		(0.001)
Ryan White Care Act (CARE) Funding ($ per capita)		-0.001		-0.001		-0.001
		(0.001)		(0.001)		(0.001)
Community Hospital Beds per 100,000 population		-0.02		-0.03		-0.02
		(0.024)		(0.019)		(0.023)
Percent in Poverty		0.22		0.17		0.15
		(0.179)		(0.169)		(0.188)
Percent White		0.56*		0.68*		0.68*
		(0.292)		(0.315)		(0.347)
Percent Female		-0.13		0.27		0.21
		(2.258)		(2.037)		(2.279)
Percent Urban		-0.005		-0.01		-0.01
		(0.016)		(0.015)		(0.016)

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

HIV Mortality

Table 10 presents random coefficient models examining the association between state- and society-centered political measures and HIV mortality (rate per 100,000 population). In the state baseline model, only state government ideology is significantly associated with HIV mortality ($\beta = 0.02$, $p<.001$). After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full state model, state government ideology no longer holds significance.

In the society baseline model, LGBT population is negatively associated with HIV mortality ($\beta = -0.36$, $p<.001$), and citizen ideology is positively associated ($\beta = 0.03$ $p<.001$). LGBT interest group support do not have significant impacts on HIV mortality. After adding social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) in the full society model, all measures of society-centered politics no longer rend significant effects.

In combined state and society baseline models, only measures of society-centered measures hold significant associations. LGBT population is negatively associated and citizen ideology is positively associated with HIV mortality ($\beta = -0.39$, $p<.001$; $\beta = 0.02$, $p<.001$). In the final full model, all measures of society-centered political measures no longer hold significance. Social services and state health spending, Ryan White funding, and percent White are all significantly associated with HIV mortality ($\beta = -0.0003$, $p<.05$; $\beta = -0.001$, $p<.001$; $\beta = 0.27$, $p<.001$).

Table 10. Impact of State- and Society-Centered Measures on HIV Mortality (rate per 100,000 population)

	State Baseline	State Full	Society Baseline	Society Full	Combined Baseline	Combined Full
State-Centered Measures						
State Government Ideology	0.02***	-0.004			0.002	-0.004
	(0.005)	(0.004)			(0.005)	(0.004)
State LGBT-Related Bills in favor of LGBT Rights (%)	0.002	0.001			0.0002	0.001
	(0.002)	(0.002)			(0.002)	(0.002)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.01	-0.01			-0.003	-0.004
	(0.005)	(0.004)			(0.004)	(0.004)
Society-Centered Measures						
LGBT Interest Group Real Assets ($ per capita)			-0.003	-0.002	-0.003	-0.001
			(0.002)	(0.002)	(0.002)	(0.002)
LGBT Interest Group Real Income ($ per capita)			-0.01	-0.01	-0.01	-0.01
			(0.008)	(0.008)	(0.008)	(0.008)
LGBT Population (%)			-0.36***	-0.07	-0.39***	-0.07
			(0.052)	(0.072)	(0.056)	(0.076)
Citizen Ideology			0.03***	0.01	0.02***	0.0002
			(0.006)	(0.006)	(0.479)	(0.007)
Control Variables						
Social Services and State Health Spending ($ per capita)		-0.0003**		-0.0003*		-0.0003*
		(0.000)		(0.000)		(0.000)
Ryan White Care Act (CARE) Funding ($ per capita)		-0.001***		-0.001***		-0.001***
		(0.000)		(0.000)		(0.000)
Community Hospital Beds per 100,000 population		0.002		-0.001		0.0001
		(0.004)		(0.004)		(0.004)
Percent in Poverty		-0.02		-0.02		-0.03
		(0.026)		(0.026)		(0.028)
Percent White		0.31***		0.24***		0.27***
		(0.050)		(0.245)		(0.060)
Percent Female		-0.10		-0.12		-0.08
		(0.349)		(0.323)		(0.348)
Percent Urban		-0.0001		-0.001		-0.001
		(0.002)		(0.002)		(0.002)

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

Summary of Results

In full combined state and society baseline models, after controlling for social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE), both state- and society-centered political measures are significantly associated with AIDS incidence and mortality. LGBT population has a negative association with both AIDS incidence and mortality, indicating that in states with higher LGBT populations, AIDS incidence and mortality rates are lower. Similarly, states with a higher percentage of U.S. congressional votes in favor of LGBT rights have lower AIDS incidence and mortality rates. For AIDS mortality, states with more liberal government ideology also have lower mortality rates.

However, in the context of HIV incidence and mortality, state-centered measures only have explanatory power in their separate baseline models and society-centered measures do not render significant associations in the final combined models. In these models, social services and state health spending and state-level funding provided through the Ryan White Care Act have greater explanatory power, suggesting that states with greater expenditures per capita and greater Ryan White funding per capita have lower HIV incidence and mortality rates. Additionally, as the percent of a state's White population increases, HIV incidence and mortality rates increase.

Secondary analysis (see Appendix B) considers a state's HIV/AIDS prevalence profile as a separate control factor. In these models, first, HIV or AIDS incidence is included as a control variable in HIV and AIDS mortality models; and second, HIV or

AIDS prevalence is included as a control variable in HIV and AIDS mortality models. Incidence is positively associated with HIV/AIDS mortality ($\beta = 0.33$, $p<.001$ for AIDS mortality; $\beta = 0.19$ $p<.001$ for HIV mortality). This suggests that as a state's incidence increases, their mortality rate does as well. Including incidence as a control variable washes some of the impact of state- and society-centered measures (U.S. Congressional votes and LGBT population, for example). Additionally, prevalence is negatively associated with HIV/AIDS mortality ($\beta = -0.03$, $p<.001$ for AIDS mortality; $\beta = -0.01$ $p<.001$ for HIV mortality) indicating that as prevalence increases, mortality rates decline. Together this suggests that state- and society-centered factors matter more in preventing initial incidence, and once a state's incidence rate increases, its mortality rates follow suit.

Collectively, this suggests that both state- and society-centered measures can significantly predict HIV/AIDS outcomes, and that state spending and population demographics similarly play a significant role in these outcomes.

Direct and Mediating vs. Moderating Impacts of LGBT-Protective Policy in HIV/AIDS

The second and third research questions guiding this study were: *What impact do LGBT-protective polices have on HIV/AIDS incidence and mortality?* and *How do LGBT-protective polices impact the relationship between state- and society-centered political measures and HIV/AIDS incidence and mortality?* The analysis presented in Table 11 and 12 evaluate the direct association between LGBT-protective policy and

AIDS incidence and mortality and HIV incidence and mortality. In each table, model one presents the relationship between LGBT-protective policy and HIV/AIDS outcomes. Model two adds state- and society-centered measures and control variables.

Next, in Table 13-15, I evaluate whether LGBT-protective policy mediates (Table 13) or moderates (Tables 14 and 15) the significant relationships identified between state- and society-centered political measures and AIDS incidence and mortality.

Direct Impact of LGBT-Protective Policy on AIDS Outcomes

Table 11 presents random coefficient models examining the direct association between LGBT-protective policy and AIDS incidence and mortality (rates per 100,000 population). In baseline models, LGBT-protective policy is negatively associated with AIDS outcomes ($\beta = -13.31$, $p<.001$ for AIDS incidence; $\beta = -4.87$, $p<.001$ for AIDS mortality). After adding state- and society-centered political measures, social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) protective policy remains negatively associated with AIDS outcomes, although to a lower magnitude for both incidence and mortality and to a less robust effect for AIDS mortality ($\beta = -4.02$, $p<.001$ for AIDS incidence; $\beta = -1.38$, $p<.01$ for AIDS mortality). This suggests that even when considering state- and society-centered measures as well as numerous control variables, states with greater levels of LGBT-protective policy have lower rates of AIDS incidence and mortality.

Table 11. Impact of LGBT-Protective Policy on AIDS Incidence and Mortality (rates per 100,000 population)

	AIDS Incidence		AIDS Mortality	
	Baseline	Full	Baseline	Full
LGBT-Protective Policy	-13.31***	-4.02***	-4.87***	-1.38**
	(0.715)	(0.973)	(0.313)	(0.445)
State-Centered Measures				
State Government Ideology		-0.003		-0.01*
		(0.009)		(0.004)
State LGBT-Related Bills in favor of LGBT Rights (%)		0.001		0.0004
		(0.004)		(0.002)
U.S. Congressional Votes in favor of LGBT Rights (%)		-0.04***		-0.02***
		(0.009)		(0.004)
Society-Centered Measures				
LGBT Interest Group Real Assets ($ per capita)		-0.01		-0.001
		(0.006)		(0.003)
LGBT Interest Group Real Income ($ per capita)		0.03		-0.001
		(0.020)		(0.009)
LGBT Population (%)		-0.63***		-0.17*
		(0.189)		(0.086)
Citizen Ideology		-0.004		-0.01
		(0.016)		(0.007)
Control Variables				
Social Services and State Health Spending ($ per capita)		0.001		-0.0001
		(0.000)		(0.000)
Ryan White Care Act (CARE) Funding ($ per capita)		-0.0004		-0.0004**
		(0.000)		(0.000)
Community Hospital Beds per 100,000 population		-0.01		0.001
		(0.007)		(0.003)
Percent in Poverty		-0.09		-0.09**
		(0.061)		(0.028)
Percent White		0.78***		0.20***
		(0.112)		(0.051)
Percent Female		2.16**		0.23
		(0.731)		(0.334)
Percent Urban		-0.01		-0.001
		(0.005)		(0.002)

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

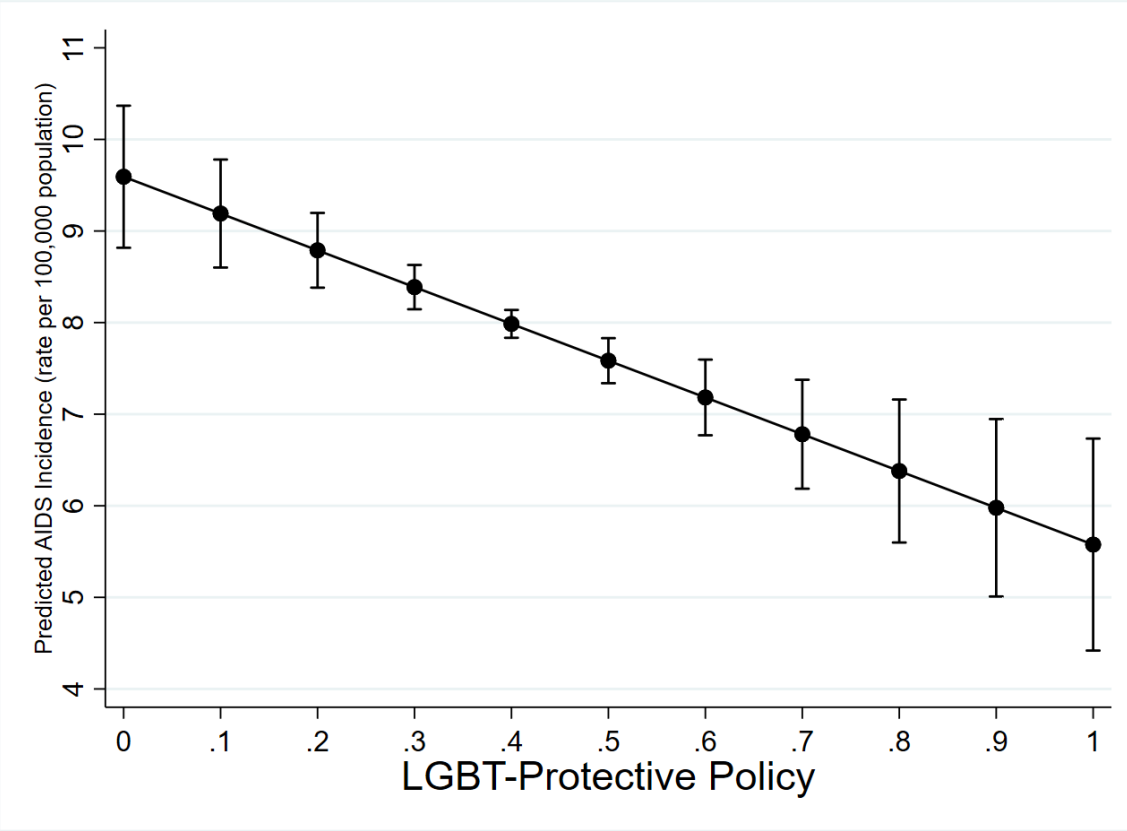
In full combined state- and society-centered models for AIDS outcomes (see Tables 7 and 8), U.S. congressional votes in favor of LGBT rights and LGBT population were both negatively associated with AIDS incidence, and state government ideology, U.S. congressional votes in favor of LGBT rights and LGBT population were negatively associated with AIDS mortality. These effects hold when protective policy is included, although LGBT population becomes less robust for AIDS mortality.

Among the control variables, percent White and percent female are positively associated with AIDS incidence ($\beta = 0.78$, $p<.001$; $\beta = -2.16$, $p<.01$) indicating that states with higher proportions of Whites and women have higher AIDS incidence rates. Ryan White funding and percent in poverty are negatively associated with AIDS mortality ($\beta = -0.0004$, $p<.01$; $\beta = -0.09$, $p<.01$) and percent White is positively associated ($\beta = 0.20$, $p<.001$).

Figures 3 and 4 show predicted AIDS incidence and mortality rates by LGBT-protective policy. For every ten percent increase in LGBT-protective policy, the predicted AIDS incidence rate decreases by 0.40 (per 100,000 population) and the predicted AIDS mortality rate decreases by 0.14 (per 100,000 population). This translates to a 4.02 decrease in the rate of AIDS incidence and a 1.38 decrease in the rate of AIDS mortality per 100,000 population between states with no LGBT-protective policies in place and states with all protective policies in place. While this decrease in rate seems minimal, converting the rates to the count of new diagnoses and deaths suggests otherwise. For example, in 2016, had Texas and Mississippi had full LGBT-protective policies in place (rather than around 49% and 23% of protections in place),

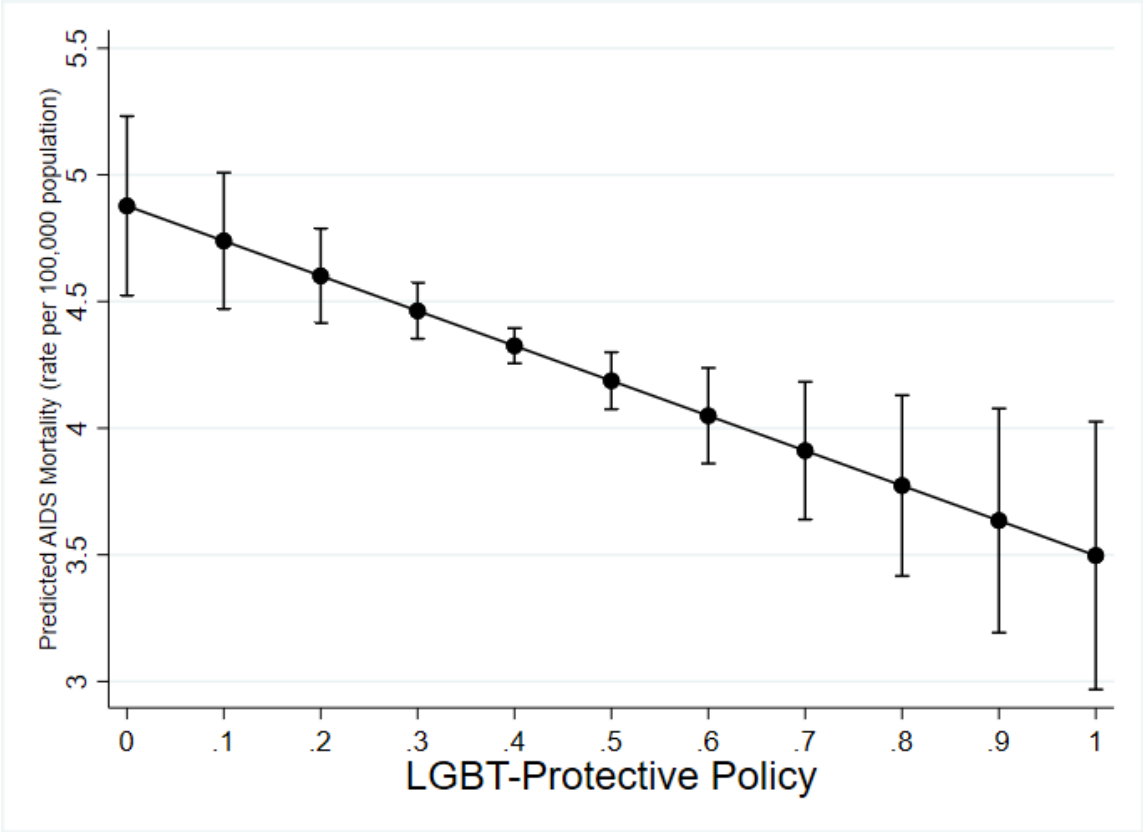
this would translate to 682 fewer AIDS diagnoses and 234 fewer AIDS deaths in Texas and a 93 fewer AIDS diagnoses and 32 fewer AIDS deaths in Mississippi.

Figure 3. Predicted AIDS Incidence by level of LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

Figure 4. Predicted AIDS Mortality by level of LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

Direct Impact of LGBT-Protective Policy on HIV Outcomes

Table 12 presents random coefficient models examining the direct association between LGBT-protective policy and HIV incidence and mortality (rates per 100,000 population). In baseline models, LGBT-protective policy is negatively associated with HIV outcomes ($\beta = -3.50$, $p<.05$ for HIV incidence; $\beta = -4.03$, $p<.001$ for HIV mortality). After adding state- and society-centered political measures, social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE) protective policy remains negatively associated with HIV outcomes, although to a lower magnitude ($\beta = -5.38$, $p<.05$ for HIV incidence; $\beta = -1.93$, $p<.01$ for HIV mortality). This suggests that even when considering state- and society-centered measures as well as numerous control variables, states with greater levels of LGBT-protective policy have lower rates of HIV incidence and mortality.

In full combined state- and society-centered models for HIV outcomes (see Tables 9 and 10), neither state- nor society-centered political measures have significant effects on HIV outcomes. These effects hold when protective policy is included.

Among the control variables, social services and state health spending per capita is negatively associated with HIV incidence ($\beta = -0.001$, $p<.05$) indicating that states with higher greater social service and state health spending per capita have lower HIV incidence rates. Ryan White funding is negatively associated with HIV mortality ($\beta = -0.001$, $p<.01$; $\beta = -0.09$, $p<.01$) and percent White is positively associated ($\beta = 0.20$, $p<.01$).

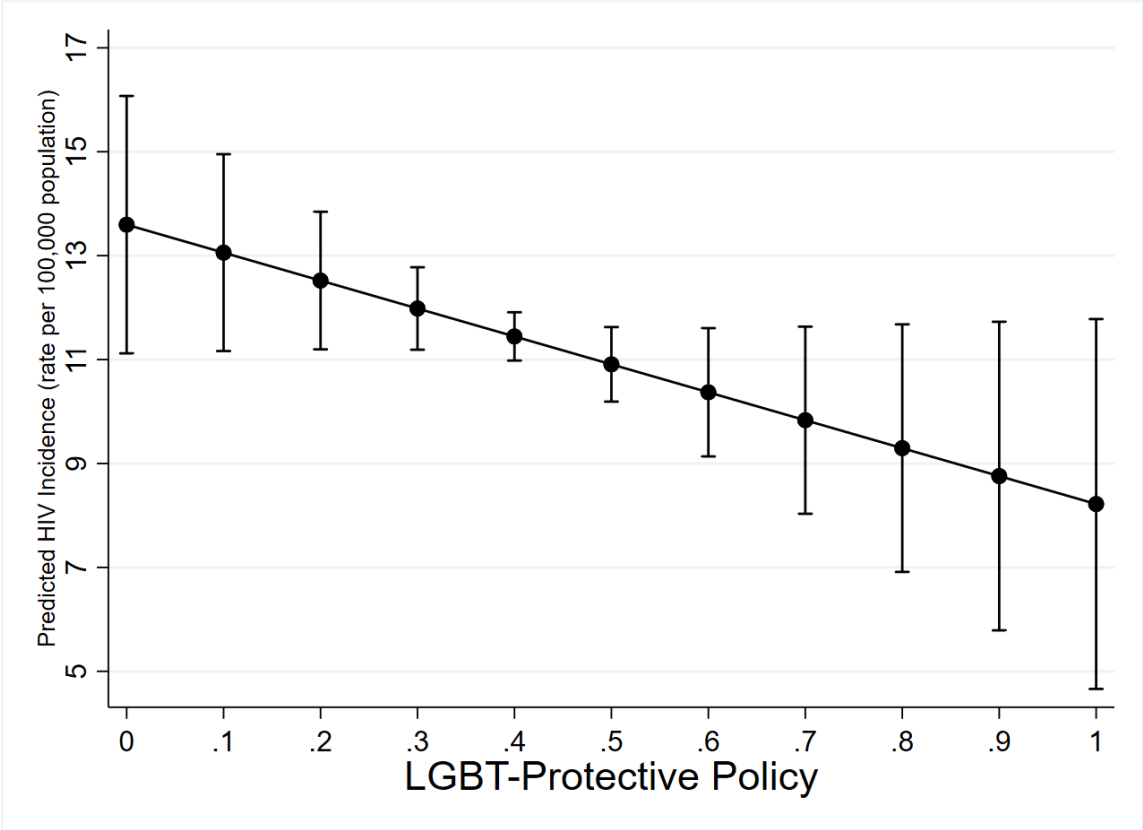
Table 12. Impact of LGBT-Protective Policy on HIV Incidence and Mortality (rates per 100,000 population)

	HIV Incidence		HIV Mortality	
	Baseline	Full	Baseline	Full
LGBT-Protective Policy	-3.50*	-5.38*	-4.03***	-1.93***
	(1.872)	(3.042)	(0.358)	(0.809)
State-Centered Measures				
State Government Ideology		.01		-0.002
		(0.029)		(0.004)
State LGBT-Related Bills in favor of LGBT Rights (%)		0.01		0.001
		(0.012)		(0.002)
U.S. Congressional Votes in favor of LGBT Rights (%)		-0.04		-0.004
		(0.029)		(0.004)
Society-Centered Measures				
LGBT Interest Group Real Assets ($ per capita)		0.01		-0.002
		(0.017)		(0.002)
LGBT Interest Group Real Income ($ per capita)		-0.01		-0.01
		(0.060)		(0.007)
LGBT Population (%)		0.43		-0.01
		(0.565)		(0.077)
Citizen Ideology		-0.09*		-0.002
		(0.049)		(0.001)
Control Variables				
Social Services and State Health Spending ($ per capita)		-0.001*		-0.0003
		(0.001)		(0.000)
Ryan White Care Act (CARE) Funding ($ per capita)		-0.002		-0.001***
		(0.001)		(0.000)
Community Hospital Beds per 100,000 population		-0.02		-0.002
		(0.023)		(0.004)
Percent in Poverty		0.12		0.04
		(0.188)		(0.027)
Percent White		0.53		0.20**
		(0.357)		(0.062)
Percent Female		0.58		0.01
		(2.284)		(0.342)
Percent Urban		-0.01		-0.001
		(0.016)		(0.002)

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

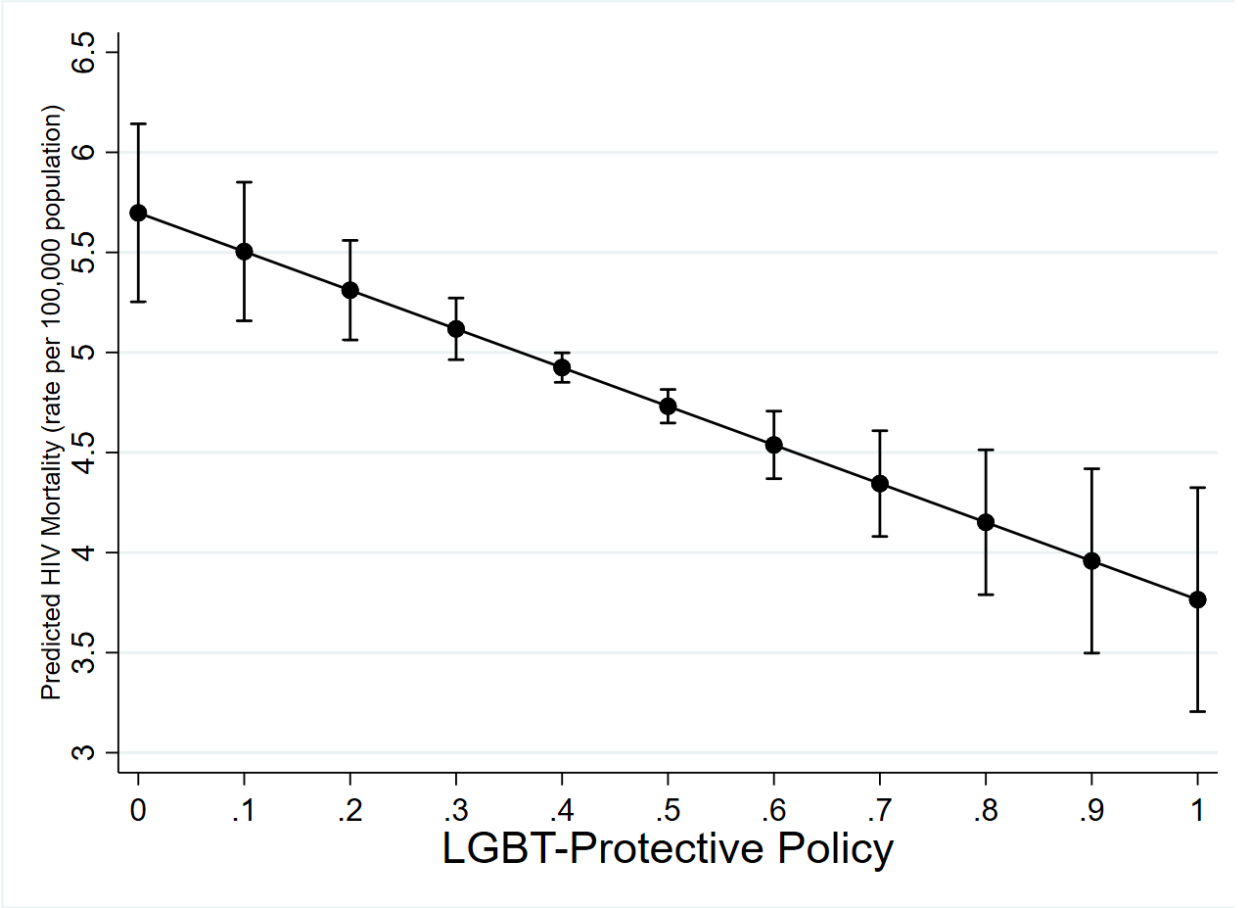
Figures 5 and 6 show predicted HIV incidence and mortality rates by LGBT-protective policy. For every ten percent increase in LGBT-protective policy, the predicted HIV incidence rate decreases by 0.54 (per 100,000 population) and the predicted HIV mortality rate decreases by 0.19 (per 100,000 population). This translates to a 5.38 decrease in the rate of HIV incidence and a 1.93 decrease in the rate of HIV mortality per 100,000 population between states with no LGBT-protective policies in place and states with all protective policies in place. Again, while this decrease in rate seems minimal, converting the rates to the count of new diagnoses and deaths suggests otherwise. For example, in 2016, had Texas and Mississippi had full LGBT-protective policies in place (rather than around 49% and 23% of protections in place), this would translate 913 fewer HIV diagnoses and 327 fewer HIV deaths in Texas and 124 fewer HIV diagnoses and 45 fewer HIV deaths in Mississippi.

Figure 5. Predicted HIV Incidence by level of LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

Figure 6. Predicted HIV Mortality by level of LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

Mediating Impact of LGBT-Protective Policy on AIDS Outcomes

Table 13 presents SEM models evaluating the mediating effect of LGBT-Protective policy on the association between significant state- and society-centered measures and AIDS incidence and mortality. Fit statistics (RMSEA = 0.035 CFI = 0.894 for incidence; RMSEA = 0.034 CFI = 0.900 for mortality) indicate relatively good model fit. However, the portion of total state- and society-centered political effects mediated by LGBT-protective policy is low, indicating that treating protective policy as a direct effect is more representative of the data.

State- and society-centered measures with significant effects in earlier models are included in mediation models. For AIDS incidence, U.S. congressional votes in favor of LGBT rights and LGBT population are positively associated with LGBT-policy protections ($\beta = 0.005$, $p<.001$; $\beta = 0.100$, $p<.001$). The total effect of U.S. congressional votes in favor of LGBT rights is positively associated with AIDS incidence ($\beta = 0.051$, $z=5.05$, $p<.001$). The direct impact is also positively associated but to a lower magnitude (($\beta = 0.052$, $z=4.53$), $p<.001$). The proportion of U.S. congressional votes in favor of LGBT rights mediated by LGBT-protective policy is extremely low, at four percent. The total effect of LGBT Population is negatively associated with AIDS incidence ($\beta = -1.723$, $p<.001$). The direct impact is also negatively associated to a lower magnitude ($\beta = -1.691$, $p<.001$). Similarly, the proportion of LGBT population mediated by LGBT-protective policy is low at two percent.

Table 13. SEM Estimates of the Mediating Effect of LGBT-Protective Policy on the Association between State- and Society-Centered Measures and AIDS Incidence and Mortality (rates per 100,000 population)

	AIDS Incidence *Causal Effects*			AIDS Mortality *Causal Effects*		
Dependent Variable/Independent Variables	Direct (A)	Indirect (B)	Total (A +B)	Direct (A)	Indirect (B)	Total (A +B)
LGBT-Protective Policy						
U.S. Congressional Votes in favor of LGBT Rights (%)	0.005***	.000	0.005***	0.004	.000	0.004***
	(0.000)		(0.000)	(0.000)		(0.000)
LGBT Population (%)	0.100***	.000	0.100***	0.104***	.000	0.104***
	(0.008)		(0.008)	(0.000)		(0.000)
State Government Ideology				0.003***		0.003***
				(0.001)		(0.001)
AIDS Outcome						
LGBT-Protective Policy	-0.338***	.000	-0.338***	0.609***	.000	0.609***
	(1.500)		(1.500)	(0.870)		(0.870)
U.S. Congressional Votes in favor of LGBT Rights (%)	0.052***	-0.002	0.051***	0.026***	0.002	0.029***
	(0.012)	(0.008)	(0.010)	(0.007)	(0.003)	(0.007)
LGBT Population (%)	-1.691***	-0.032	-1.723***	-0.694***	0.063	-0.630***
	(0.324)	(0.143)	(0.306)	(0.188)	(0.091)	(0.175)
State Government Ideology				0.005	0.002	0.007
				(0.870)	(0.003)	(0.011)

Notes: N=650 state/year pairings; ***p<0.001, **p<0.01, *p<0.05.
Control Variables not shown; Standard Errors in parenthesis

For AIDS mortality, a similar trend appears. U.S. congressional votes in favor of LGBT rights, LGBT population, and state government ideology are positively associated with LGBT-policy protections ($\beta = 0.004$, $p<.001$; $\beta = 0.104$, $p<.001$; $\beta = 0.003$, $p<.001$). The total effect of U.S. congressional votes in favor of LGBT rights is positively associated with AIDS mortality ($\beta = 0.029$, $z=4.20$, $p<.001$). The direct impact is also positively associated but to a lower magnitude (($\beta = 0.026$, $z=3.64$), $p<.001$). As was seen with AIDS incidence, the proportion of U.S. congressional votes in favor of LGBT rights mediated by LGBT-protective policy is extremely low, at six percent. The total effect of LGBT Population is negatively associated with AIDS incidence ($\beta = -0.630$, $p<.001$). The direct impact is also negatively associated ($\beta = -0.694$, $p<.001$). Again, the proportion of LGBT population mediated by LGBT-protective policy is low at ten percent.

Moderating Impact of LGBT-Protective Policy on AIDS Outcomes

Table 14 presents moderation models evaluating the moderating effect of LGBT-protective policy on the association between significant state- and society-centered measures and AIDS incidence. State- and society-centered measures with significant effects in earlier models are included in moderation models. When interacted with LGBT-protective policy, LGBT population has a direct negative association with AIDS incidence ($\beta = -1.03$, $p<.001$); however, U.S. congressional votes in favor of LGBT rights does not hold a significant direct effect. Both interaction terms (U.S. congressional votes interacted with LGBT-protective policy and LGBT population interacted with LGBT-protective policy) are significantly associated with AIDS incidence ($\beta = -0.13$, $p<.001$; $\beta = 1.02$, $p<.05$).

Table 14. Moderating Effects of LGBT-Protective Policy on the Association between State- and Society-Centered Measures and AIDS Incidence (rates per 100,000 population)

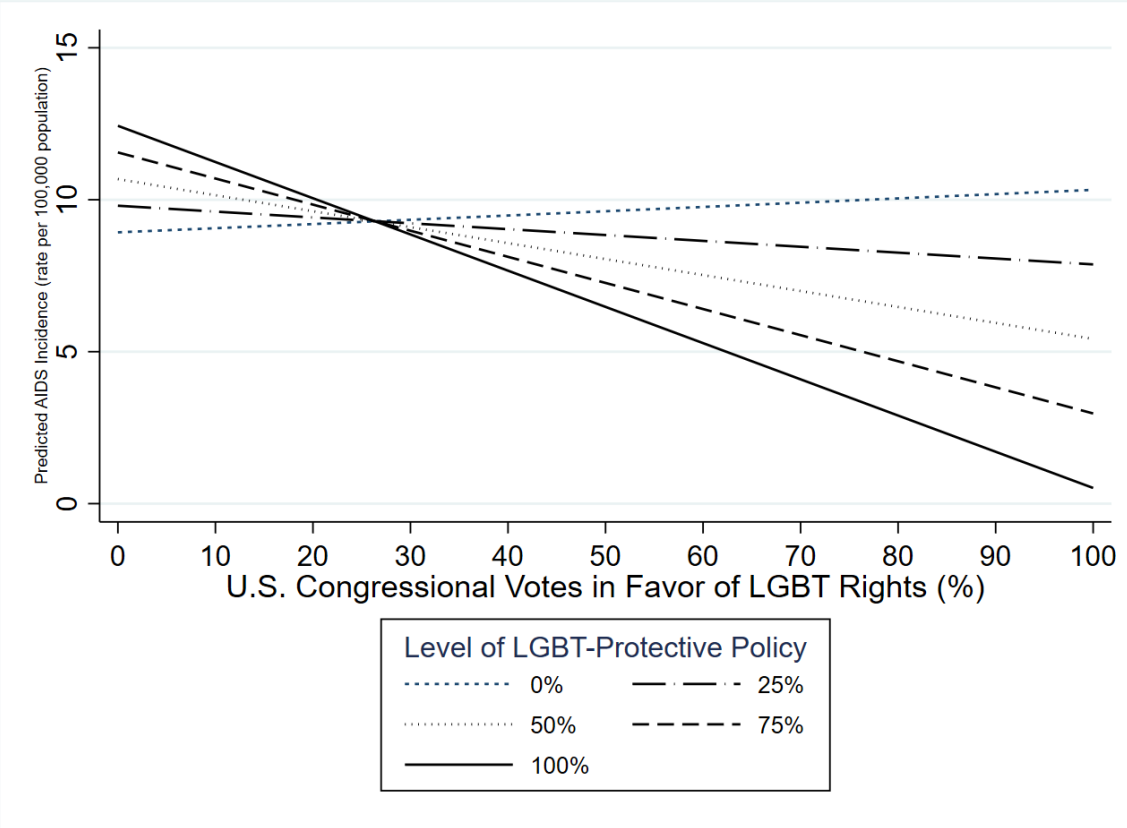
		By Level of LGBT-Protective Policy				
	Overall	0%	25%	50%	75%	100%
Direct Effects						
LGBT-Protective Policy	0.39					
	(1.745)					
U.S. Congressional Votes in favor of LGBT Rights (%)	0.01					
	(0.012)					
LGBT Population (%)	-1.03***					
	(0.278)					
Moderating Effects						
U.S. Congressional Votes * LGBT-Protective Policy	-0.13***	0.014	-0.019*	-0.053***	-0.086***	-0.119***
	(0.023)	(0.012)	(0.009)	(0.008)	(0.011)	(0.019)
LGBT Population (%) * LGBT-Protective Policy	1.02***	-1.028***	-0.772***	-0.517**	-0.261	-0.005
	(0.473)	(0.278)	(0.198)	(0.198)	(0.217)	(0.304)
Control Variables						
Social Services and State Health Spending ($ per capita)	0.0003					
	(0.000)					
Ryan White Care Act (CARE) Funding ($ per capita)	-0.0003					
	(0.000)					
Community Hospital Beds per 100,000 population	-0.01*					
	(0.006)					
Percent in Poverty	-0.08					
	(0.053)					
Percent White	0.70***					
	(0.101)					
Percent Female	2.12***					
	(0.664)					
Percent Urban	-0.01					
	(0.005)					

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

LGBT-protective policy moderates these effects to a different magnitude and direction by level of protective policy. For clarity, I consider moderating effects in quartiles. U.S. congressional votes in favor of LGBT rights is significantly moderated when protective policy is at twenty five percent or higher. As seen in Figure 7, the negative association with AIDS incidence strengthens as protective policy increases (β = -0.019, $p<.05$ at 25% protections; β = -0.053, $p<.001$ at 50%; β = -0.086, $p<.001$ at 75%; β = -0.119, $p<.001$ at 100%).

When protective policy is at 100% and U.S. Congressional votes in favor of LGBT rights are at 100%, predicted AIDS incidence is the lowest. When policy is at 75% or higher, as percent of Congressional votes in favor of LGBT rights increases, predicted AIDS incidence decreases more steeply than if protective policy is between 25% and 75%. In contrast, when protective policy is at 0%, increasing U.S. Congressional votes in favor of LGBT rights results in higher predicted AIDS incidence, although this interaction level is not significant.

Figure 7. Moderating Impact of LGBT-Protective Policy on the Relationship between U.S. Congressional Votes in Favor of LGBT Rights and AIDS Incidence (rate per 100,000 population)

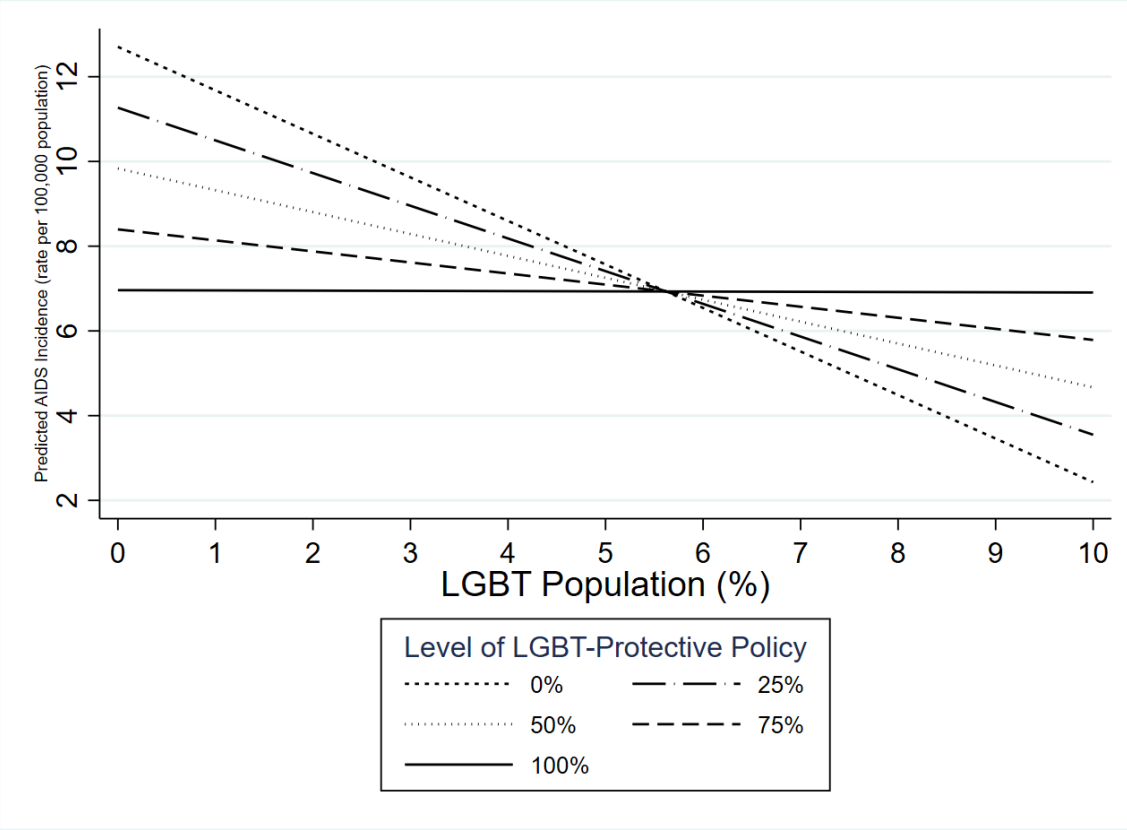


Note: All other variables in model are set to their means.

In contrast, LGBT population is significantly moderated when protective policy is at fifty percent or lower. As seen is Figure 8, the negative association with AIDS incidence is present at all levels of protective policy but weakens as protective policy increases ($\beta = -1.028$, $p<.001$ at 0% protections; $\beta = -0.772$, $p<.001$ at 25%; $\beta = -0.517$, $p<.01$ at 50%; not significant at higher percentages).

LGBT population is significantly moderated when protective policy is at 50% or lower. When policy is at 100%, predicted AIDS incidence remains relatively stable as LGBT population increases. However, when protective policy is at 50% or lower, as LGBT population increases, predicted AIDS incidence decreases. This suggests that when there are little-to-no policy protections in place in a state, the greater the LGBT population, the lower predicted AIDS incidence.

Figure 8. Moderating Impact of LGBT-Protective Policy on the Relationship between LGBT Population and AIDS Incidence (rate per 100,000 population)



Note: All other variables in model are set to their means.

Table 15 presents moderation models evaluating the moderating effect of LGBT-protective policy on the association between significant state- and society-centered measures and AIDS mortality. State- and society-centered measures with significant effects in earlier models are included in moderation models. When interacted with LGBT-protective policy, state government ideology and LGBT population have direct negative associations with AIDS mortality ($\beta = -0.03$, $p<.001$; $\beta = -0.34$, $p<.01$); however, U.S. congressional votes in favor of LGBT rights does not hold a significant direct effect. All three interaction terms (state government ideology interacted with LGBT-protective policy, U.S. congressional votes interacted with LGBT-protective policy, and LGBT population interacted with LGBT-protective policy) are significantly associated with AIDS incidence ($\beta = 0.07$, $p<.001$; $\beta = -0.07$, $p<.001$; $\beta = 0.47$, $p<.01$).

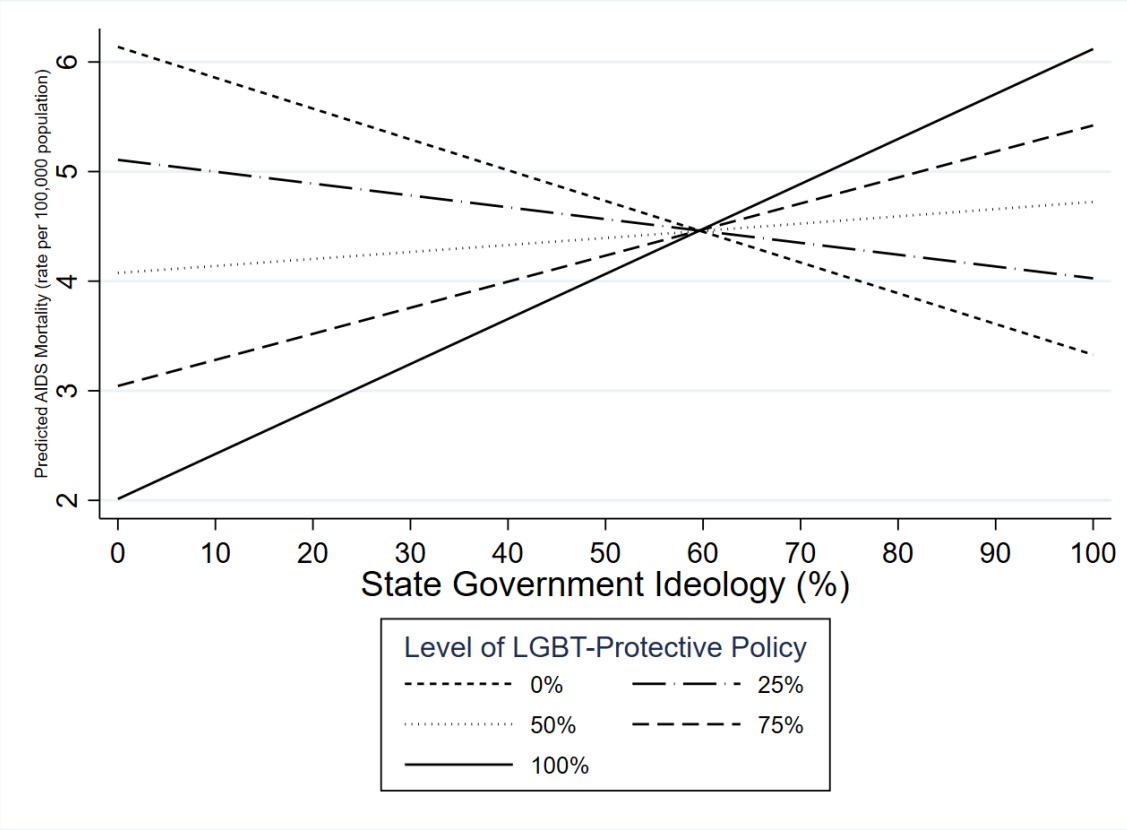
Table 15. Moderating Effects of LGBT-Protective Policy on the Association between State- and Society-Centered Measures and AIDS Mortality (rates per 100,000 population)

		By Level of LGBT-Protective Policy				
	Overall	0%	25%	50%	75%	100%
Direct Effects						
LGBT-Protective Policy	-2.18*					
	(0.100)					
State Government Ideology	-0.03***					
	(0.008)					
U.S. Congressional Votes in favor of LGBT Rights (%)	0.01					
	(0.006)					
LGBT Population (%)	-0.34**					
	(0.127)					
Moderating Effects						
State Government Ideology * LGBT-Protective Policy	0.069***	-0.028***	-0.011*	0.006	0.024***	0.041***
	(0.016)	(0.008)	(0.005)	(0.004)	(0.007)	(0.011)
U.S. Congressional Votes * LGBT-Protective Policy	-0.073***	0.011	-0.007	-0.028***	-0.044***	-0.062***
	(0.012)	(0.006)	(0.004)	(0.004)	(0.006)	(0.008)
LGBT Population (%) * LGBT-Protective Policy	0.469*	-0.339**	-0.222*	-0.104	0.013	0.130
	(0.215)	(0.127)	(0.090)	(0.078)	(0.099)	(0.138)
Control Variables						
Social Services and State Health Spending ($ per capita)	-0.0003					
	(0.000)					
Ryan White Care Act (CARE) Funding ($ per capita)	-0.0004**					
	(0.000)					
Community Hospital Beds per 100,000 population	-0.0005					
	(0.003)					
Percent in Poverty	-0.06**					
	(0.024)					
Percent White	0.14**					
	(0.046)					
Percent Female	-0.14					
	(0.306)					
Percent Urban	-0.0001					
	(0.002)					

Notes: N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

LGBT-protective policy moderates these effects to a different magnitude and direction by level of protective policy. For clarity, I consider moderating effects in quartiles. State government ideology is significantly moderated at all levels excluding 50% protective policy. As seen in Figure 9, state government ideology is negatively associated with AIDS mortality at lower levels of protective policy and is positively associated at higher levels ($\beta = -0.028$, $p<.001$ at 0% protections; $\beta = -0.011$, $p<.01$ at 25%; $\beta = 0.02$, $p<.001$ at 75%; $\beta = 0.04$, $p<.001$ at 100%). When policy protections are high and state government ideology is high, AIDS mortality will be highest. In contrast, when protective policy is at lower levels, increasing liberalism of state government ideology results in lower predicted AIDS mortality rates.

Figure 9. Moderating Impact of LGBT-Protective Policy on the Relationship between Government Ideology and AIDS Mortality (rate per 100,000 population)

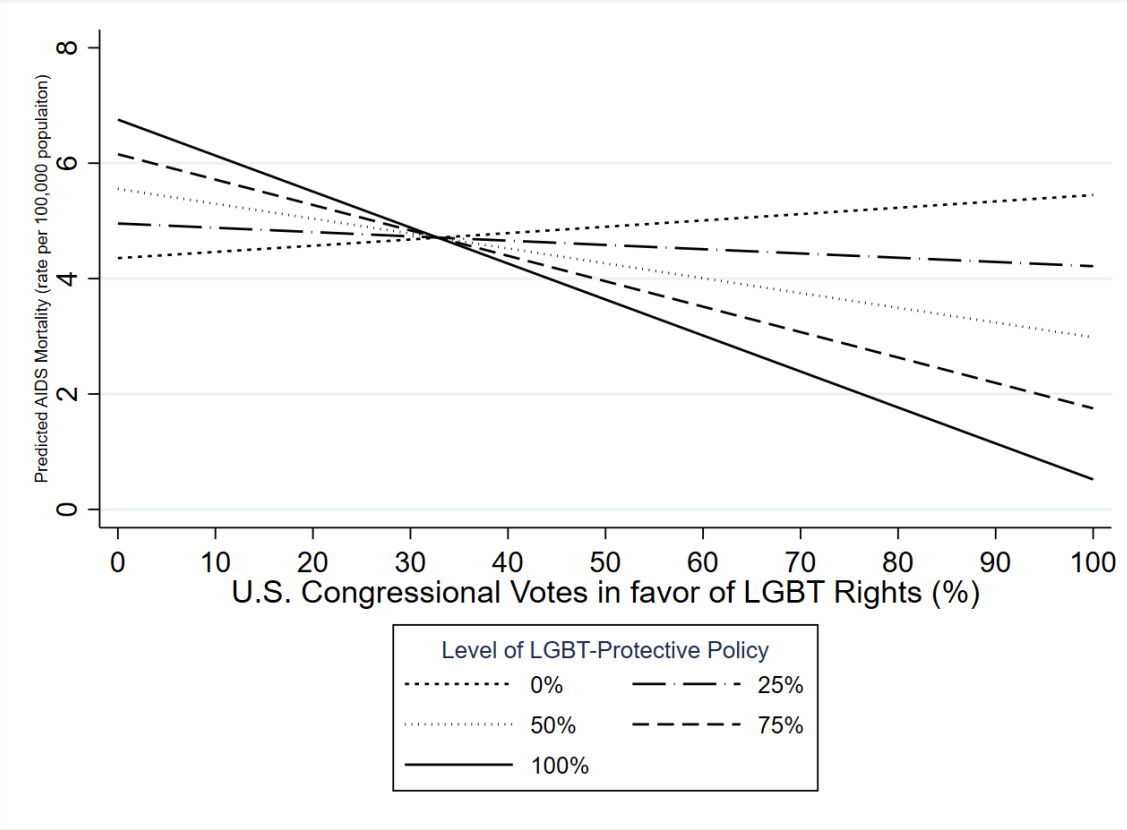


Note: All other variables in model are set to their means.

Similar to AIDS incidence, U.S. congressional votes in favor of LGBT rights is significantly moderated when protective policy is at fifty percent or higher. As seen in Figure 10, the negative association with AIDS mortality strengthens as protective policy increases (β = -0.026, $p<.001$ at 50% protectionsβ = -0.044, $p<.001$ at 75%; β = -0.062, $p<.001$ at 100%). U.S. Congressional votes in favor of LGBT rights is significantly moderated when protective policy is at higher levels.

When protective policy is at 100% and U.S. Congressional votes in favor of LGBT rights are at 100%, predicted AIDS mortality is the lowest. When policy is at 50% or higher, as percent of Congressional votes in favor of LGBT rights increases, predicted AIDS mortality decreases more steeply than if protective policy is between 25% and 50%. In contrast, when protective policy is at 0%, increasing U.S. Congressional votes in favor of LGBT rights results in higher predicted AIDS mortality, although this interaction level is not significant.

Figure 10. Moderating Impact of LGBT-Protective Policy on the Relationship between U.S. Congressional Votes in Favor of LGBT Rights and AIDS Mortality (rate per 100,000 population)

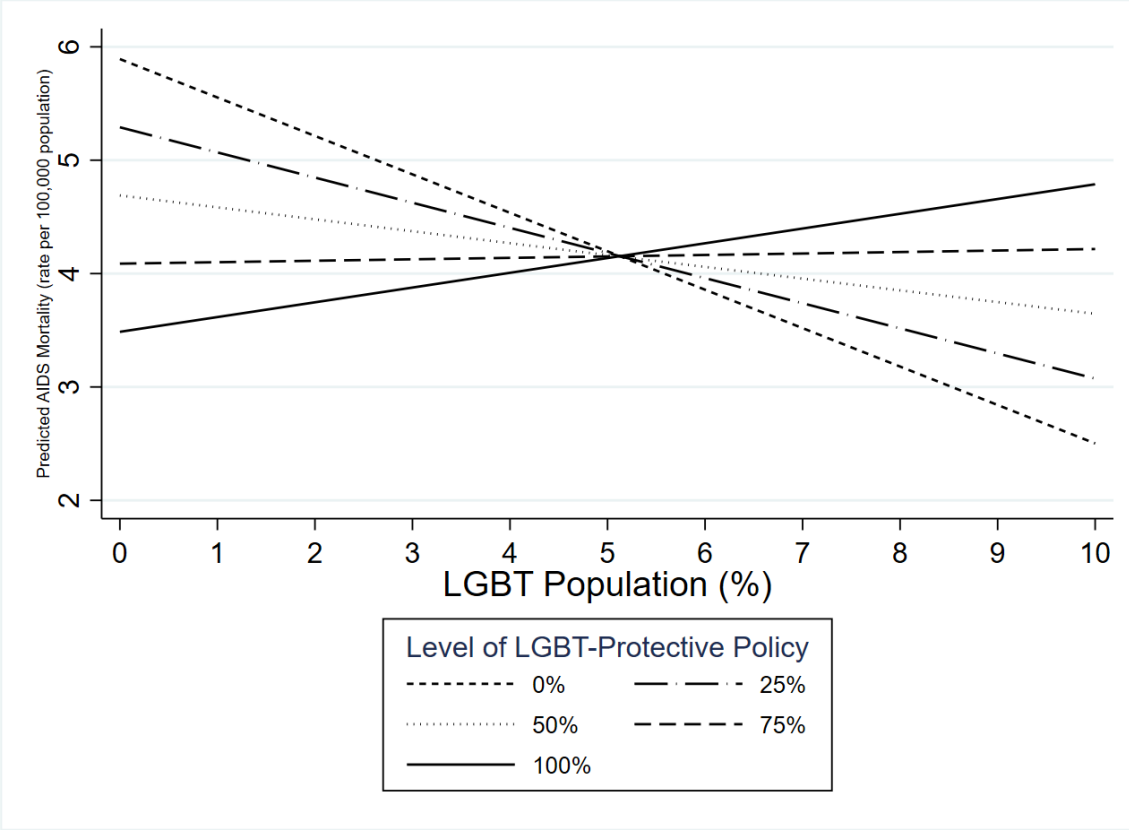


Note: All other variables in model are set to their means.

LGBT population is significantly moderated when protective policy is at twenty five percent or lower. As seen is Figure 11, the negative association with AIDS mortality is present at mid- to lower levels of protective policy but weakens as protective policy increases ($\beta = -0.339$, $p<.01$ at 0% protections; $\beta = -0.222$, $p<.001$ at 25%; not significant at higher percentages).

LGBT population is significantly moderated when protective policy is at lower levels. When protective policy is at 100%, predicted AIDS mortality increases as LGBT population increases. However, when protective policy is at 50% or lower, as a state's LGBT population increases, predicted AIDS mortality declines. Similar to the case with AIDS incidence, when there is little-to-no protective policy in place, the greater a state's LGBT population, the lower predicted AIDS mortality will be.

Figure 11. Moderating Impact of LGBT-Protective Policy on the Relationship between LGBT Population and AIDS Mortality (rate per 100,000 population)



Note: All other variables in model are set to their means.

Summary of Results

In full direct effect LGBT-protective policy models, after controlling for state- and society-centered measures, social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE), LGBT-protective policy is significantly associated with HIV and AIDS incidence and mortality. State- and society-centered measures significantly associated with HIV/AIDS outcomes in earlier models remain associated with the inclusion of policy.

As seen with combined state- and society-centered models, social services and state health spending is negatively associated with HIV incidence, state-level funding provided through the Ryan White Care Act is negatively associated with both HIV and AIDS mortality, percent White is positively associated with AIDS outcomes and HIV incidence, percent female with AIDS incidence, and percent in poverty is negatively associated with AIDS mortality.

Across both AIDS incidence and mortality mediation models, the proportion of total state- and society-centered effects mediated by LGBT-protective policy does not surpass ten percent. Again, this indicates that protective policy is better conceptualized as a direct effect on AIDS outcomes rather than a mediating one as previously theorized.

Moderation models for AIDS incidence and mortality demonstrate that LGBT-protective policies significantly moderate state- and society-centered political measures in their association with AIDS outcomes. U.S. congressional votes in favor of LGBT rights is significantly moderated by LGBT-protective policy when policy protections are

at or above twenty five percent for AIDS incidence and fifty percent for AIDS mortality, and their associations strengthen as policy protections increase. In contrast, LGBT population is significantly moderated when policy protections are at or below fifty percent for AIDS incidence and twenty five percent for AIDS mortality, and their associations weaken as policy protections increase. This suggests that policy may be more impactful in states with less U.S. congressional support for LGBT rights and *less* impactful in states with greater LGBT population.

Collectively, even when policy is included, both state- and society-centered measures can significantly predict HIV/AIDS outcomes, and state spending and population demographics similarly play a significant role in these outcomes. However, the direct effect of LGBT-protective policy is stronger than state- and society-centered measures and does not fully mediate the relationship between these factors and HIV/AIDS outcomes, but does significantly moderate these effects, suggesting that protective policy acts as both a direct and moderating effect as visualized in the Moderating Conceptual Model (Figure 2).

Political & Policy Determinants of Racial Disparities in HIV/AIDS

The final research questions guiding this study was: *What impact do LGBT-protective policies and state- and society-centered political measures have on HIV/AIDS incidence and mortality, by racial group?* The analysis presented in Tables 16-19 evaluate the association between LGBT-protective policy and state- and society-centered measures and HIV/AIDS outcomes, by racial group. In each table, seven racial groups

are compared: White, Black, Latinx, Asian, Multiracial, American Indian/Alaska Native (denoted as AIAN), and Native Hawaiian/Other Pacific Islander (denoted as Haw/OPI). Additionally, Tables 20 and 21 model Black-White and Latinx-White mortality and incidence gaps and test the effect of LGBT-protective policy and state- and society-centered measures on those gaps. In each of these models, LGBT-protective policy is presented as a direct effect rather than a mediating or moderating variable for consistency.

AIDS Incidence, by Race/Ethnicity

Table 16 presents random coefficient models examining the direct association between LGBT-protective policy and state- and society-centered political measures and AIDS incidence (rate per 100,000 population). LGBT-protective policy has a negative association with Black and Multiracial AIDS incidence rates ($\beta = -26.63$, $p<.001$; $\beta = -34.14$, $p<.05$) and a positive association with American Indian/Alaska Native AIDS incidence ($\beta = 10.01$, $p<.01$). Policy does not have a significant effect on White, Latinx, Asian, or Native Hawaiian/Other Pacific Islander AIDS incidence. This indicates that protective policy provides greater protections for Black Americans and Multiracials, but not for Whites. Interestingly, greater levels of policy protections appear to adversely impact American Indian/Alaskan Natives. This may partially be explained by the geographic location of these populations and that LGBT-protective policy is on average relatively low in states with greater American Indian/Alaskan Native populations.

Table 16. Impact of State- and Society-Centered Measures and LGBT-Protective Policy on AIDS Incidence (rate per 100,000 population), by Race/Ethnicity

	White	Black	Latinx	Asian	Multiracial	AI / AN	Haw/OPI
LGBT-Protective Policy	0.03	-28.63***	-4.97	1.56	-34.14*	10.01**	-19.84
	(0.523)	(7.352)	(3.745)	(2.001)	(14.568)	(3.96)	(17.57)
State-Centered Measures							
State Government Ideology	-0.01**	-0.02	0.05	-0.02	0.03	-0.07*	-0.07
	(0.004)	(0.063)	(0.032)	(0.017)	(0.125)	(0.034)	(0.150)
State LGBT-Related Bills in favor of LGBT Rights (%)	0.000	0.02	-0.02	0.002	-0.06	0.01	0.07
	(0.002)	(0.024)	(0.012)	(0.007)	(0.048)	(0.013)	(0.057)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.003	-0.04	-0.02	-0.02	-0.16	-0.04	-0.11
	(0.004)	(0.058)	(0.029)	(0.016)	(0.114)	(0.031)	(0.138)
Society-Centered Measures							
LGBT Interest Group Real Assets ($ per capita)	-0.004	-0.02	0.01	0.01	-0.05	0.002	-0.09
	(0.002)	(0.031)	(0.016)	(0.008)	(0.061)	(0.017)	(0.073)
LGBT Interest Group Real Income ($ per capita)	0.01	0.08	-0.09	0.005	-0.28	-0.01	0.36
	(0.008)	(0.107)	(0.055)	(0.029)	(0.212)	(0.058)	(0.256)
LGBT Population (%)	-0.19**	-0.14	-0.62	-0.11	-0.39	-0.30	2.98
	(0.079)	(1.108)	(0.565)	(0.303)	(2.196)	(0.570)	(2.649)
Citizen Ideology	0.01	0.13	0.12**	-0.02	0.53**	0.08	0.17
	(0.007)	(0.099)	(0.050)	(0.027)	(0.196)	(0.053)	(0.237)
Control Variables							
Social Services and State Health Spending ($ per capita)	0.002	0.002	0.002	0.003	0.001	0.001	0.01*
	(0.000)	(0.002)	(0.001)	(0.001)	(0.005)	(0.001)	(0.005)
Ryan White Care Act (CARE) Funding ($ per capita)	-0.000	0.000	-0.002	-0.001	0.002	-0.000	-0.001
	(0.000)	(0.002)	(0.001)	(0.001)	(0.005)	(0.001)	(0.006)
Community Hospital Beds per 100,000 population	-0.000	-0.04	-0.01	0.01	0.03	-0.004	-0.32*
	(0.004)	(0.057)	(0.029)	(0.016)	(0.113)	(0.031)	(0.137)
Percent in Poverty	-0.01	-0.72	-0.11	0.03	-0.52	0.04	0.17
	(0.028)	(0.388)	(0.198)	(0.106)	(0.769)	(0.209)	(0.927)
Percent White	0.50***	3.66***	2.16***	0.19	7.59***	0.77	4.17
	(0.064)	(0.897)	(0.457)	(0.245)	(1.777)	(0.483)	(2.144)
Percent Female	0.12	1.50	7.55**	1.09	-1.65	2.61	49.34***
	(0.352)	(4.495)	(2.520)	(1.351)	(9.800)	(2.601)	(11.818)
Percent Urban	-0.004	-0.03	-0.02	0.003	0.03	-0.004	-0.04
	(0.002)	(0.031)	(0.016)	(0.008)	(0.061)	(0.017)	(0.073)

Notes: N=450 state/year pairings (2008-2016); ***p<0.001, **p<0.01, *p<0.05 Coefficients are random coefficient model coefficients. SE in parentheses. AI/AN = American Indian/Alaska Native; Haw/OPI = Native Hawaiian/Other Pacific Islander

State-centered political measures have little explanatory effect among racial groups. In overall AIDS incidence models (not disaggregated by race/ethnicity), only U.S. congressional votes in favor of LGBT rights had a negative association with AIDS incidence. When comparing across racial/ethnic groups, state government ideology has significant effects for Whites and American Indian/Alaska Natives ($\beta = -0.01$, $p<.01$; $\beta = -0.07$, $p<.05$); however, U.S. congressional votes in favor of LGBT rights and state LGBT-related bills in favor of LGBT rights do not render significant associations.

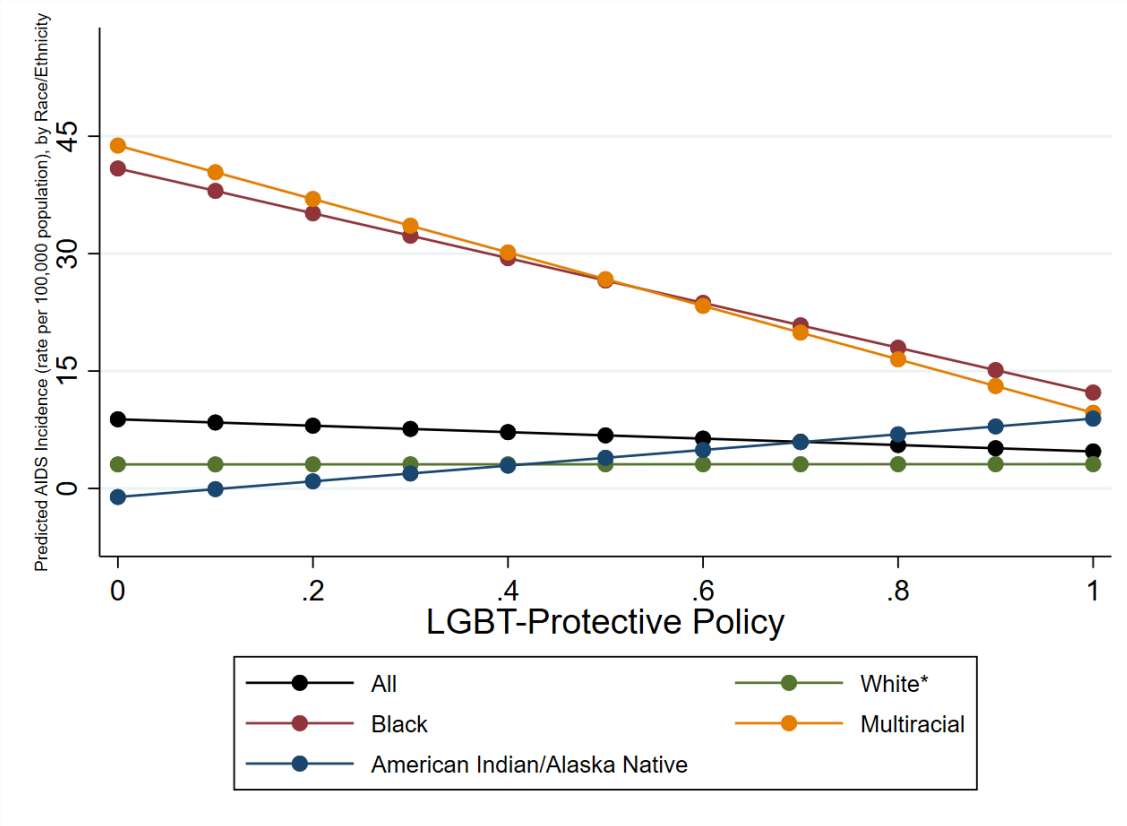
Similarly, society-centered political measures have relatively little associations with AIDS incidence. In overall models, LGBT population was negatively associated with AIDS incidence. This remains the case only for Whites ($\beta = -0.19$, $p<.01$), although all other racial groups show a non-significant negative association. Additionally, citizen ideology has a positive association with Latinx and Multiracial AIDS incidence rates ($\beta = 0.12$, $p<.01$; $\beta = 0.53$, $p<.01$).

Among the control variables, percent White is positively associated with White, Black, Latinx, and Multiracial AIDS incidence ($\beta = 0.50, 3.66, 2.16, 7.59$; all $p<.001$) and in a positive direction with all other groups. As a state's White population increases, AIDS incidence rates increase among all racial groups, but to a greater magnitude among most racial minorities. This suggests that as numerical minority status decreases for racial/ethnic minorities, health status declines.

Figure 12 shows predicted HIV incidence by LGBT-protective policy for racial/ethnic groups where policy has significant effects. The "*All*" black line represents predicted HIV incidence for overall models (where race/ethnicity are not disaggregated).

White HIV incidence rate is included for reference although not a significant association. As can be seen, LGBT-protective policy has a much steeper impact on AIDS Incidence rates among Black and Multiracial Americans. The impact of LGBT-protective policy on White AIDS Incidence is similar to the overall impact.

Figure 12. Predicted AIDS Incidence (rate per 100,000 population) by LGBT-Protective Policy, by Race/Ethnicity



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means.
White is not a significant association but shown for reference*

AIDS Mortality, by Race/Ethnicity

Table 17 presents random coefficient models examining the direct association between LGBT-protective policy and state- and society-centered political measures and AIDS mortality (rate per 100,000 population). LGBT-protective policy has a negative association with Black AIDS mortality rate ($\beta = -8.02$, $p<.05$). Policy does not have a significant effect on any other racial group. This indicates that protective policy provides greater protections for Black Americans.

State-centered political measures have little explanatory effect among racial groups. In overall AIDS mortality models (not disaggregated by race/ethnicity), state government ideology and U.S. congressional votes in favor of LGBT rights had a negative association with AIDS mortality. When comparing across racial/ethnic groups, state government ideology and state LGBT-related bills in favor of LGBT rights have significant effects for Native Hawaiian/Other Pacific Islander AIDS mortality ($\beta = -0.07$, $p<.05$; $\beta = -0.03$, $p<.05$); however, U.S. congressional votes in favor of LGBT rights and do not render significant associations for any group.

Similarly, society-centered political measures have relatively little association with AIDS mortality. In overall models, LGBT population was negatively associated with AIDS mortality. This remains the case only for Native Hawaiian/Other Pacific Islanders ($\beta = -1.20$, $p<.01$). Together with significant state-centered associations, this suggests that in the context of AIDS mortality, Native Hawaiian/Other Pacific Islanders have greater protections from state- and society-centered factors rather than policy.

Table 17. Impact of State- and Society-Centered Measures and LGBT-Protective Policy on AIDS Mortality (rate per 100,000 Population), by Race/Ethnicity

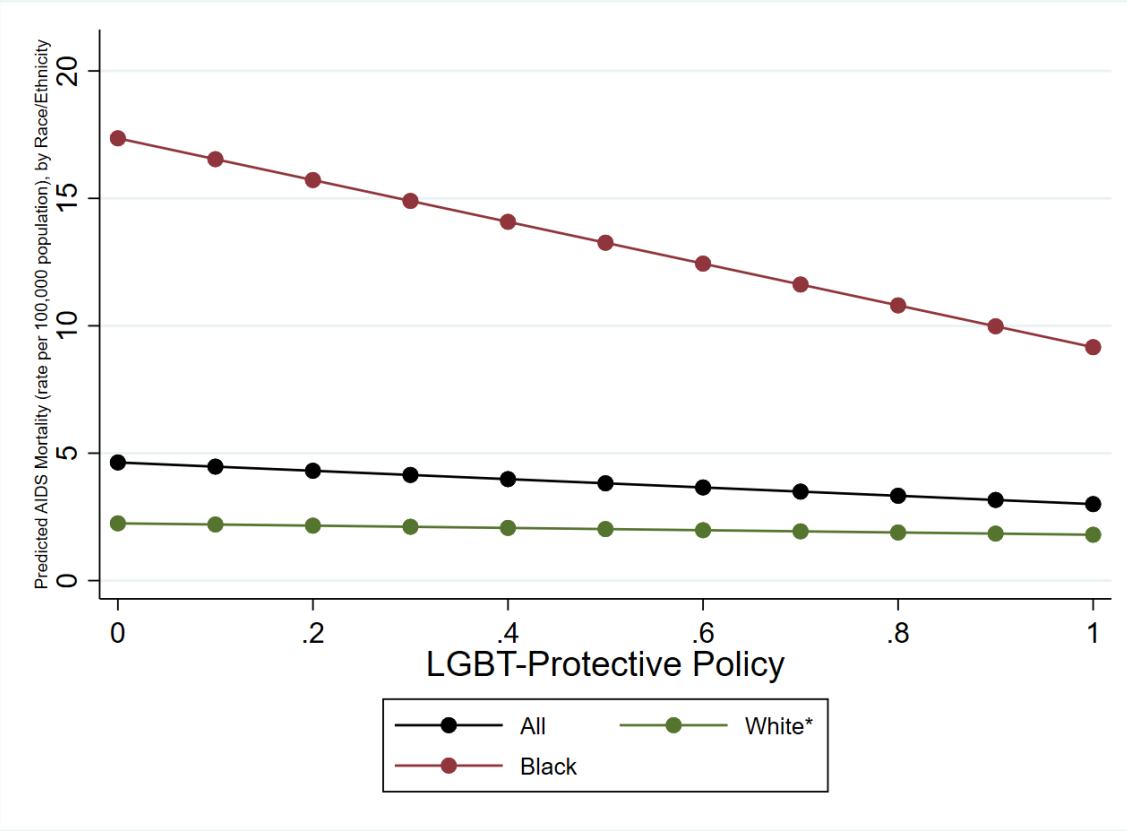
	White	Black	Latinx	Asian	Multiracial	AI / AN	Haw/OPI
LGBT-Protective Policy	-0.45	-8.20*	-3.09	0.57	-8.01	3.88	4.66
	(0.315)	(4.059)	(2.241)	(0.605)	(6.265)	(2.935)	(4.030)
State-Centered Measures							
State Government Ideology	0.002	-0.04	0.01	-0.001	0.04	-0.01	-0.07*
	(0.003)	(0.035)	(0.019)	(0.005)	(0.054)	(0.025)	(0.035)
State LGBT-Related Bills in favor of LGBT Rights (%)	-0.001	-0.001	0.01	0.002	0.03	-0.005	-0.03*
	(0.001)	(0.013)	(0.007)	(0.002)	(0.021)	(0.010)	(0.013)
U.S. Congressional Votes in favor of LGBT Rights (%)	0.001	-0.04	0.003	-0.005	0.08	0.000	0.01
	(0.002)	(0.032)	(0.018)	(0.005)	(0.049)	(0.023)	(0.032)
Society-Centered Measures							
LGBT Interest Group Real Assets ($ per capita)	0.000	0.01	0.01	-0.002	-0.000	0.01	-0.002
	(0.001)	(0.017)	(0.009)	(0.003)	(0.026)	(0.012)	(0.017)
LGBT Interest Group Real Income ($ per capita)	-0.006	-0.03	-0.05	0.02	-0.10	-0.06	-0.01
	(0.005)	(0.059)	(0.033)	(0.009)	(0.091)	(0.043)	(0.059)
LGBT Population (%)	-0.023	-0.29	0.03	0.07	0.48	0.14	-1.20*
	(0.047)	(0.612)	(0.338)	(0.091)	(0.945)	(0.443)	(0.608)
Citizen Ideology	0.005	-0.04	-0.002	0.01	-0.11	0.03	0.04
	(0.004)	(0.055)	(0.030)	(0.008)	(0.084)	(0.040)	(0.055)
Control Variables							
Social Services and State Health Spending ($ per capita)	-0.000**	0.004**	-0.001	0.000	-0.001	-0.000	0.001
	(0.000)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)
Ryan White Care Act (CARE) Funding ($ per capita)	-0.000	-0.004**	-0.000	-0.000	-0.004	0.001	-0.000
	(0.000)	(0.001)	(0.007)	(0.000)	(0.002)	(0.001)	(0.001)
Community Hospital Beds per 100,000 population	0.001	-0.03	-0.002	0.002	-0.06	0.03	-0.02
	(0.002)	(0.032)	(0.017)	(0.005)	(0.049)	(0.023)	(0.031)
Percent in Poverty	-0.03**	0.17	-0.14	0.08	-0.37	0.13	-0.23
	(0.017)	(0.214)	(0.119)	(0.032)	(0.331)	(0.155)	(0.213)
Percent White	-0.04	1.64***	0.41	0.14	0.88	0.54	0.22
	(0.038)	(0.495)	(0.273)	(0.074)	(0.764)	(0.358)	(0.492)
Percent Female	-0.07	10.10***	-0.47	0.06	-2.21	-0.86	-1.14
	(0.212)	(2.730)	(1.508)	(0.407)	(4.214)	(1.975)	(2.711)
Percent Urban	0.001	-0.03*	0.01	0.001	-0.02	-0.01	0.01
	(0.001)	(0.017)	(0.009)	(0.003)	(0.026)	(0.012)	(0.016)

Notes: N=450 state/year pairings (2008-2016); ***p<0.001, **p<0.01, *p<0.05; Coefficients are random coefficient model coefficients. SE in parentheses. AI/AN = American Indian/Alaska Native; Haw/OPI = Native Hawaiian/Other Pacific Islander

Among the control variables, increased levels of social services and state health spending decrease AIDS mortality rates among White and Black Americans ($\beta = -0.000$, $p<.01$; $\beta = -0.004$, $p<.01$), and increased Ryan White funding decreases Black AIDS mortality rates ($\beta = -0.004$, $p<.01$). Percent in poverty is negatively associated with White AIDS mortality ($\beta = -0.03$, $p<.01$). Finally, Black AIDS mortality rates are positively associated with percent White and percent female and negatively associated with percent urban ($\beta = 1.64$, $p<.001$; $\beta = 10.10$, $p<.001$; $\beta = -0.03$, $p<.05$).

Figure 13 shows predicted AIDS mortality by LGBT-protective policy for racial/ethnic groups where policy has significant effects. The "*All*" black line represents predicted AIDS mortality for overall models (where race/ethnicity are not disaggregated). White AIDS mortality rate is included for reference although not a significant association. As can be seen, LGBT-protective policy has a much steeper impact on decreasing Black AIDS mortality than White or the overall rate.

Figure 13. Predicted AIDS Mortality (rate per 100,000 population) by LGBT-Protective Policy, by Race/Ethnicity



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means.
White is not a significant association but shown for reference*

HIV Incidence, by Race/Ethnicity

Table 18 presents random coefficient models examining the direct association between LGBT-protective policy and state- and society-centered political measures and HIV incidence (rate per 100,000 population). LGBT-protective policy has a negative association with White, Black, and Latinx HIV incidence rates ($\beta = -10.87$, $p<.001$; $\beta = -13.62$, $p<.05$; $\beta = -16.72$, $p<.05$). Policy does not have a significant effect on Asian, Multiracial, American Indian/Alaska Native, or Native Hawaiian/Other Pacific Islander HIV incidence although the direction for all is negative. When comparing the magnitude of effect between White, Black, and Latinx incidence, protective policy provides greater levels of protection for Black and Latinx Americans compared to Whites.

In overall HIV incidence models (not disaggregated by race/ethnicity), state- and society-centered measures had no significant associations with HIV incidence. This holds true for racial/ethnic models apart from state government ideology's impact on White HIV incidence ($\beta = -0.05$, $p<.05$).

Among the control variables, funding provided through the Ryan White Care Act (CARE) is negatively associated with Black, Latinx, and Multiracial HIV Incidence ($\beta = -0.01$, $p<.01$; $\beta = -0.01$, $p<.01$; $\beta = -0.04$, $p<.001$) demonstrating the greater impact funding has for minority groups compared to Whites. Percent White is again positively associated with Black HIV Incidence ($\beta = 4.57$, $p<.01$).

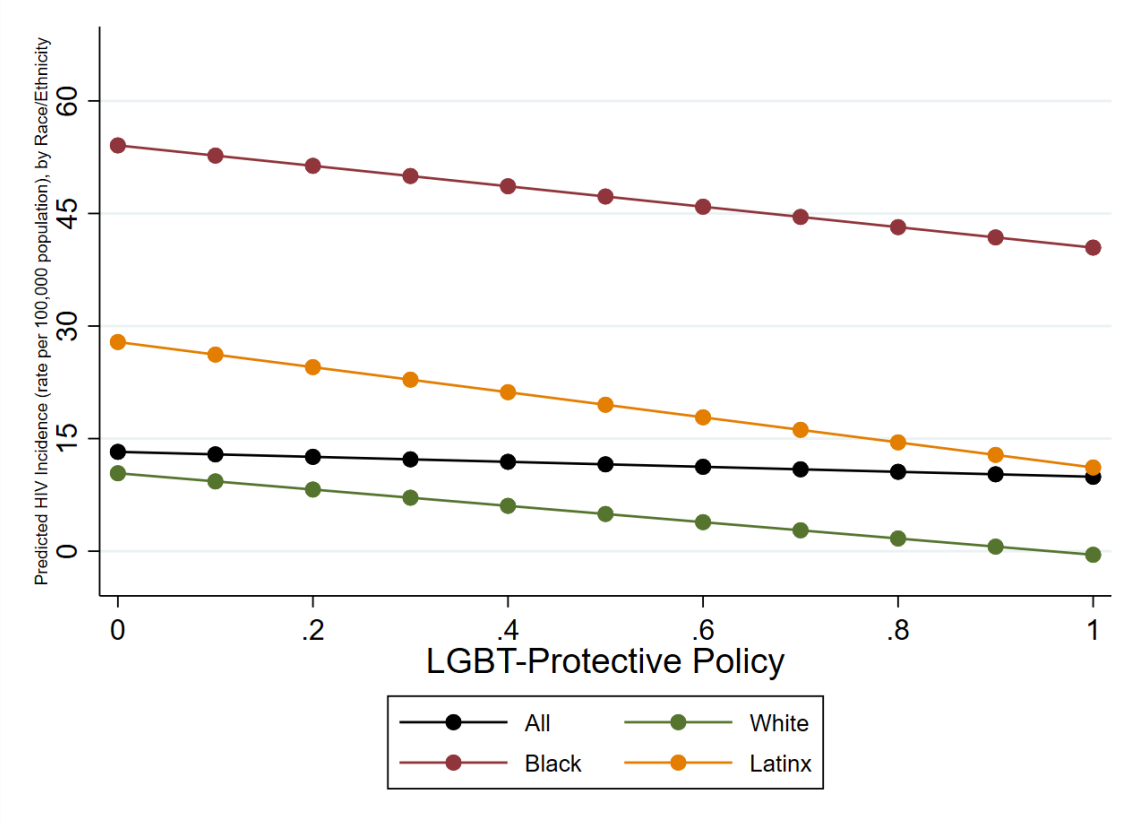
Table 18. Impact of State- and Society-Centered Measures and LGBT-Protective Policy on HIV Incidence (rate per 100,000 Population), by Race/Ethnicity

	White	Black	Latinx	Asian	Multiracial	AI / AN	Haw/OPI
LGBT-Protective Policy	-10.87***	-13.62*	-16.72*	-3.92	-69.24	-11.15	9.57
	(2.764)	(15.322)	(8.804)	(3.019)	(46.153)	(6.597)	(21.36)
State-Centered Measures							
State Government Ideology	-0.05*	-0.06	0.02	-0.01	-0.11	0.01	0.25
	(0.024)	(0.131)	(0.075)	(0.026)	(0.395)	(0.057)	(0.183)
State LGBT-Related Bills in favor of LGBT Rights (%)	-0.004	0.03	-0.05	-0.01	-0.17	-0.004	-0.07
	(0.009)	(0.050)	(0.029)	(0.010)	(0.151)	(0.022)	(0.070)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.02	-0.08	-0.02	-0.01	-0.28	-0.04	-0.14
	(0.022)	(0.120)	(0.069)	(0.024)	(0.363)	(0.052)	(0.168)
Society-Centered Measures							
LGBT Interest Group Real Assets ($ per capita)	-0.01	-0.03	0.01	0.01	-0.02	-0.03	0.10
	(0.012)	(0.064)	(0.037)	(0.013)	(0.193)	(0.028)	(0.089)
LGBT Interest Group Real Income ($ per capita)	0.03	0.19	-0.07	-0.04	-0.20	0.04	-0.48
	(0.040)	(0.223)	(0.128)	(0.044)	(0.672)	(0.096)	(0.311)
LGBT Population (%)	-0.09	2.16	-0.05	0.35	0.51	-0.61	-1.14
	(0.417)	(2.310)	(1.327)	(0.455)	(6.957)	(0.994)	(3.220)
Citizen Ideology	0.05	0.39	0.20	--0.06	0.64	0.06	-0.41
	(0.037)	(0.206)	(0.119)	(0.041)	(0.622)	(0.089)	(0.288)
Control Variables							
Social Services and State Health Spending ($ per capita)	0.001	-0.003	-0.000	-0.000	-0.003	0.004	0.03***
	(0.001)	(0.005)	(0.003)	(0.001)	(0.014)	(0.002)	(0.007)
Ryan White Care Act (CARE) Funding ($ per capita)	-0.001	-0.01**	-0.01***	-0.002	-0.04***	-0.001	-0.01
	(0.001)	(0.005)	(0.003)	(0.001)	(0.015)	(0.002)	(0.007)
Community Hospital Beds per 100,000 population	-0.02	-0.08	-0.05	-0.01	0.21	-0.06	0.10
	(0.021)	(0.119)	(0.069)	(0.024)	(0.359)	(0.051)	(0.166)
Percent in Poverty	-0.30*	0.64	-0.77	-0.18	-2.12	-0.84**	-0.92
	(0.146)	(0.809)	(0.465)	(0.159)	(2.436)	(0.348)	(1.127)
Percent White	0.33	4.57**	2.08	0.10	10.03	-1.35	1.87
	(0.337)	(1.869)	(1.074)	(0.368)	(5.631)	(0.805)	(2.606)
Percent Female	-1.77	-28.75**	-4.97	-5.02***	-41.49	4.37	21.69
	(1.859)	(10.307)	(5.922)	(2.031)	(31.045)	(4.438)	(14.368)
Percent Urban	-0.01	-0.05	-0.003	-0.02	-0.10	-0.04	-0.08
	(0.012)	(0.064)	(0.037)	(0.013)	(0.193)	(0.028)	(0.089)

Notes: N=450 state/year pairings (2008-2016); ***p<0.001, **p<0.01, *p<0.05; Coefficients are random coefficient model coefficients. SE in parentheses. AI/AN = American Indian/Alaska Native; Haw/OPI = Native Hawaiian/Other Pacific Islander

Figure 14 shows predicted HIV incidence by LGBT-protective policy for racial/ethnic groups where policy has significant effects. The "*All*" black line represents predicted HIV incidence for overall models (where race/ethnicity are not disaggregated). White, Black, and Latinx HIV incidence decrease to a greater magnitude than the overall incidence rate as LGBT-protective policy increases, although that decrease is smaller for Whites than groups of color shown.

Figure 14. Predicted Values of HIV Incidence (rate per 100,000 population) by LGBT-Protective Policy, by Race/Ethnicity



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means.

HIV Mortality, by Race/Ethnicity

Table 19 presents random coefficient models examining the direct association between LGBT-protective policy and state- and society-centered political measures and HIV mortality (rate per 100,000 population). LGBT-protective policy has a negative association with Latinx HIV mortality ($\beta = -5.72$, $p<.01$). Policy does not have a significant effect on HIV mortality for other racial/ethnic groups.

Like overall HIV incidence models, in overall HIV mortality models (not disaggregated by race/ethnicity), state- and society-centered measures had no significant associations with HIV incidence. This holds true for racial/ethnic models.

Among the control variables, funding provided through the Ryan White Care Act (CARE) is negatively associated with Black, and Multiracial HIV mortality ($\beta = -0.003$, $p<.05$; $\beta = -0.01$, $p<.01$; $\beta = -0.004$, $p<.05$), and social services and state health spending is negatively associated with Latinx HIV mortality ($\beta = -0.002$, $p<.05$) demonstrating the greater impact funding has for minority groups compared to Whites. Percent White is again positively associated with Black HIV Incidence ($\beta = 2.06$, $p<.01$).

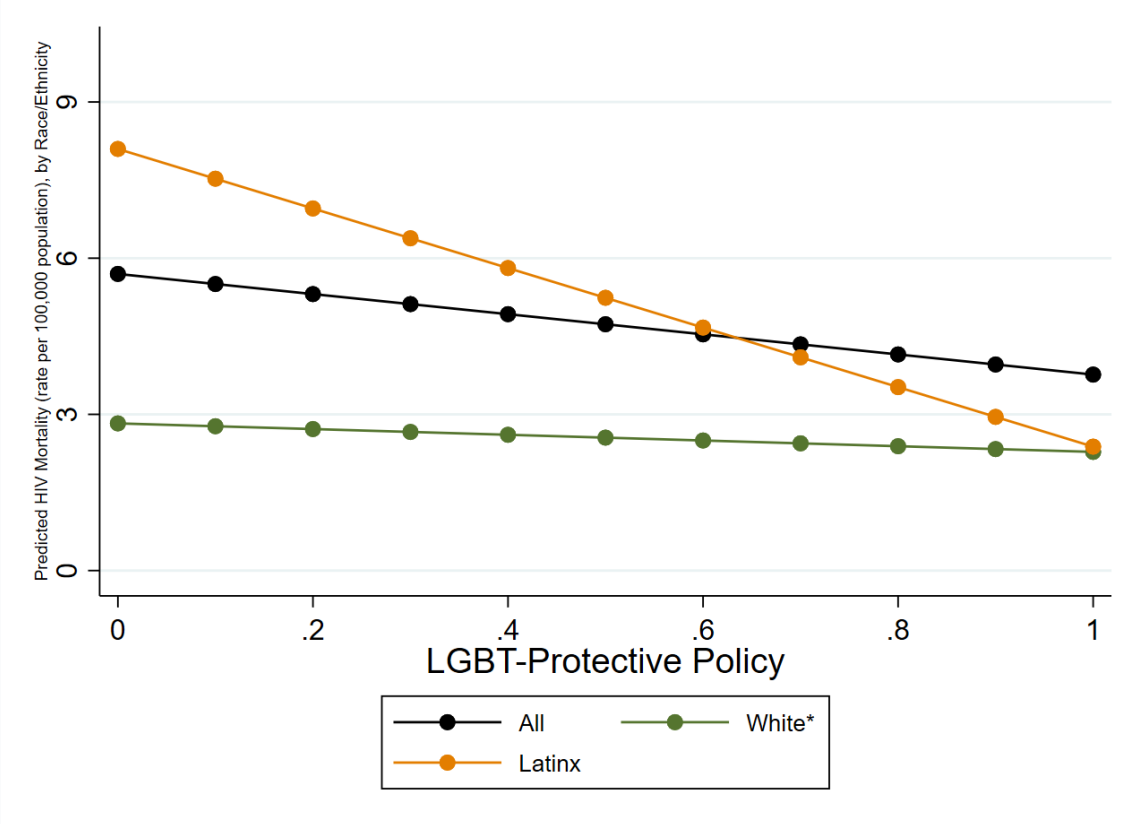
Table 19. Impact of State- and Society-Centered Measures and LGBT-Protective Policy on HIV Mortality (rate per 100,000 Population), by Race/Ethnicity

	White	Black	Latinx	Asian	Multiracial	AI / AN	Haw/OPI
LGBT-Protective Policy	-0.55	-6.77	-5.72**	-1.66	-10.12	4.83	10.04
	(0.373)	(5.144)	(2.286)	(1.700)	(6.737)	(3.218)	(6.043)
State-Centered Measures							
State Government Ideology	-0.001	-0.04	0.01	-0.001	0.05	-0.005	-0.03
	(0.003)	(0.044)	(0.020)	(0.015)	(0.058)	(0.028)	(0.052)
State LGBT-Related Bills in favor of LGBT Rights (%)	-0.001	-0.000	0.02*	0.002	0.03	-0.01	-0.03
	(0.01)	(0.017)	(0.007)	(0.006)	(0.022)	(0.011)	(0.020)
U.S. Congressional Votes in favor of LGBT Rights (%)	0.002	-0.02	0.004	-0.01	0.09	0.005	-0.01
	(0.003)	(0.040)	(0.018)	(0.013)	(0.053)	(0.025)	(0.047)
Society-Centered Measures							
LGBT Interest Group Real Assets ($ per capita)	-0.000	-0.005	0.01	-0.004	0.001	0.01	0.002
	(0.002)	(0.021)	(0.010)	(0.007)	(0.028)	(0.013)	(0.025)
LGBT Interest Group Real Income ($ per capita)	-0.01	-0.002	-0.03	0.03	-0.12	0.004	-0.02
	(0.005)	(0.075)	(0.033)	(0.025)	(0.098)	(0.047)	(0.088)
LGBT Population (%)	-0.01	0.04	0.20	0.19	0.62	0.14	-1.47
	(0.056)	(0.775)	(0.345)	(0.256)	(1.016)	(0.485)	(0.911)
Citizen Ideology	0.002	-0.10	0.000	0.01	-0.08	0.07	-0.02
	(0.005)	(0.069)	(0.031)	(0.023)	(0.091)	(0.043)	(0.081)
Control Variables							
Social Services and State Health Spending ($ per capita)	-0.000	0.002	-0.002*	0.001	-0.002	-0.000	0.000
	(0.000)	(0.002)	(0.000)	(0.001)	(0.002)	(0.000)	(0.002)
Ryan White Care Act (CARE) Funding ($ per capita)	-0.000	-0.003*	0.000	-0.000	-0.004*	0.002*	-0.005
	(0.000)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Community Hospital Beds per 100,000 population	0.001	-0.04	-0.02	-0.01	-0.08	0.04	-0.05
	(0.003)	(0.040)	(0.018)	(0.013)	(0.052)	(0.025)	(0.047)
Percent in Poverty	-0.05**	-0.12	-0.19	0.08	-0.40	0.16	-0.13
	(0.020)	(0.271)	(0.121)	(0.090)	(0.356)	(0.170)	(0.319)
Percent White	-0.04	2.06***	0.53	0.34	0.90	0.61	0.42
	(0.045)	(0.628)	(0.279)	(0.207)	(0.822)	(0.393)	(0.737)
Percent Female	-0.01	7.40*	-1.33	1.56	-4.09	-2.82	-0.30
	(0.251)	(3.460)	(1.538)	(1.143)	(4.531)	(2.165)	(4.065)
Percent Urban	0.000	-0.02	0.01	0.000	-0.03	-0.01	-0.001
	(0.002)	(0.021)	(0.010)	(0.007)	(0.028)	(0.013)	(0.025)

Notes: N=450 state/year pairings (2008-2016); ***p<0.001, **p<0.01, *p<0.05; Coefficients are random coefficient model coefficients. SE in parentheses.
AI/AN = American Indian/Alaska Native; Haw/OPI = Native Hawaiian/Other Pacific Islander

Figure 15 shows predicted HIV mortality by LGBT-protective policy for racial/ethnic groups where policy has significant effects. The "*All*" black line represents predicted HIV mortality for overall models (where race/ethnicity are not disaggregated). White* HIV mortality is shown for reference although not a significant association. White and overall HIV mortality rates have a similar decline as LGBT-protective policy increases; however, the impact of protective policy on Latinx HIV mortality is much steeper.

Figure 15. Predicted HIV Mortality (rate per 100,000 population) by LGBT-Protective Policy, by Race/Ethnicity



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means.
White is not a significant association but shown for reference*

The Black-White Incidence and Mortality Gap

Table 20 presents random coefficient models examining the direct association between LGBT-protective policy and state- and society-centered political measures and Black-White gaps in HIV/AIDS incidence and mortality (rates per 100,000 population). States with greater levels of LGBT-protective policy have lower Black-White AIDS incidence, AIDS mortality, HIV incidence, and HIV mortality gaps ($\beta = -28.65$, $p<.001$; $\beta = -7.75$, $p<.05$; $\beta = -2.75$, $p<.05$; $\beta = -6.22$, $p<.05$). Across models, state- and society-centered political measures do not hold significant associations with the Black-White gaps. As has been seen in earlier analysis, this again suggests that protective policy provides greater explanatory power in observed HIV/AIDS disparities across states.

Among the control variables, social services and state health spending is negatively associated with the Black-White gap in AIDS mortality ($\beta = -0.004$, $p<.01$), and Ryan White funding is negatively associated with the Black-White gaps in AIDS mortality, HIV incidence, and HIV mortality ($\beta = -0.004$, $p<.01$; $\beta = -0.01$, $p<.01$; $\beta = -0.003$, $p<.05$). States with higher proportions of White populations have larger Black-White gaps in all outcomes ($\beta = 3.16$, $p<.001$ for AIDS incidence; $\beta = 1.68$, $p<.001$ for AIDS mortality; $\beta = 4.24$, $p<.05$ for HIV incidence; $\beta = 2.10$, $p<.001$ for HIV mortality). Percent female is positively associated with gaps in AIDS mortality and gaps in HIV mortality ($\beta = 10.17$, $p<.001$; $\beta = 7.41$, $p<.05$) and negatively associated with gaps in HIV incidence ($\beta = -26.99$, $p<.01$). Finally, percent urban is negatively associated with gaps in AIDS mortality ($\beta = -0.03$, $p<.05$).

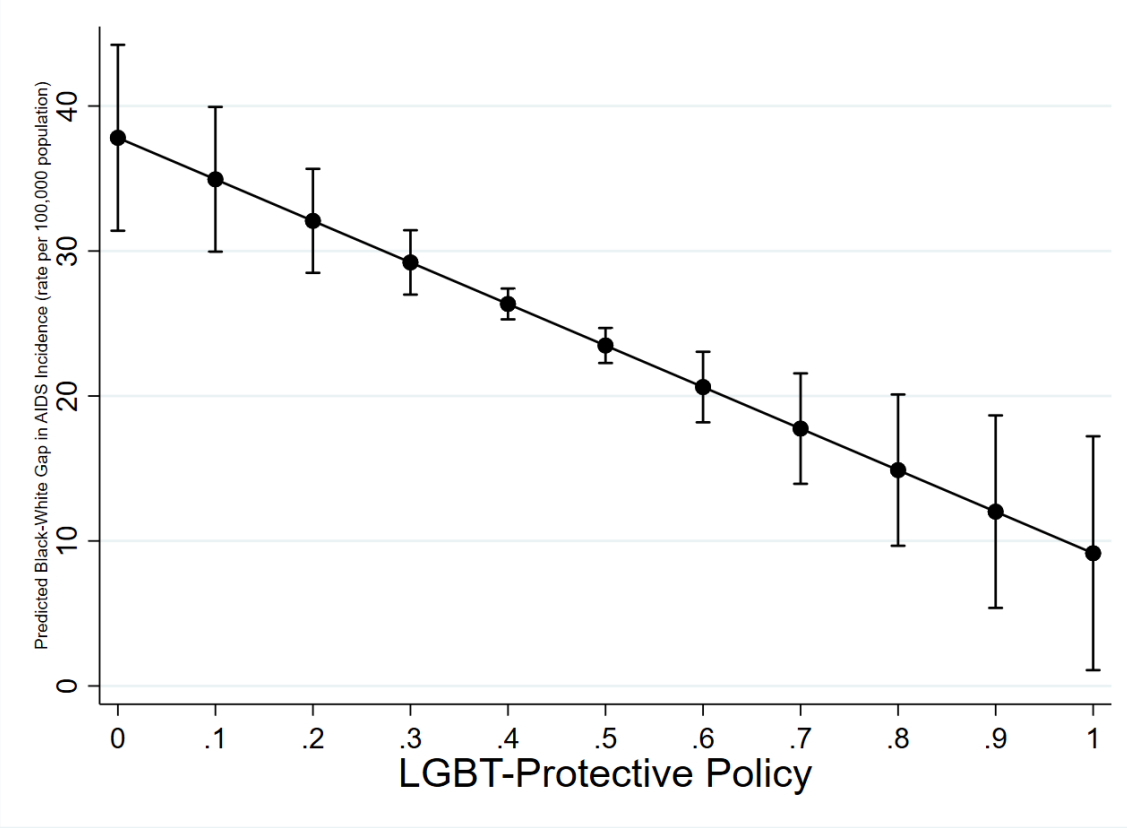
Table 20. Impact of State- and Society-Centered Measures and LGBT-Protective Policy on the Black-White HIV/AIDS Incidence and Mortality Gap

	AIDS Incidence	AIDS Mortality	HIV Incidence	HIV Mortality
LGBT-Protective Policy	-28.65***	-7.75*	-2.75*	-6.22*
	(7.332)	(4.021)	(14.092)	(5.108)
State-Centered Measures				
State Government Ideology	-0.01	-0.04	-0.01	-0.04
	(0.063)	(0.034)	(0.121)	(0.044)
State LGBT-Related Bills in favor of LGBT Rights (%)	0.02	-0.001	0.03	0.000
	(0.024)	(0.013)	(0.046)	(0.017)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.03	-0.04	-0.06	-0.03
	(0.058)	(0.032)	(0.111)	(0.040)
Society-Centered Measures				
LGBT Interest Group Real Assets ($ per capita)	-0.02	0.01	-0.02	-0.004
	(0.031)	(0.017)	(0.059)	(0.021)
LGBT Interest Group Real Income ($ per capita)	0.07	-0.02	0.15	0.01
	(0.107)	(0.059)	(0.205)	(0.074)
LGBT Population (%)	0.05	-0.27	2.25	0.05
	(1.105)	(0.606)	(2.124)	(0.770)
Citizen Ideology	0.12	-0.05	0.33	-1.10
	(0.099)	(0.054)	(0.190)	(0.069)
Control Variables				
Social Services and State Health Spending ($ per capita)	0.001	0.004**	-0.004	0.003
	(0.002)	(0.001)	(0.004)	(0.002)
Ryan White Care Act (CARE) Funding ($ per capita)	0.000	-0.004**	-0.01**	-0.003*
	(0.002)	(0.001)	(0.005)	(0.002)
Community Hospital Beds per 100,000 population	-0.04	-0.04	-0.06	-0.04
	(0.057)	(0.031)	(0.110)	(0.040)
Percent in Poverty	-0.71	0.21	0.95	-0.07
	(0.387)	(0.212)	(0.744)	(0.270)
Percent White	3.16***	1.68***	4.24*	2.10***
	(0.895)	(0.491)	(1.719)	(0.623)
Percent Female	1.38	10.17***	-26.99**	7.41*
	(4.932)	(2.705)	(9.479)	(3.436)
Percent Urban	-0.02	-0.03*	-0.04	-0.03
	(0.031)	(0.017)	(0.059)	(0.021)

Notes: N=450 state/year pairings (2008-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

Figures 16-19 shows predicted Black-White Gaps in AIDS incidence, AIDS mortality, HIV incidence, and HIV morality by LGBT-protective policy. As shown in Figure 16, for every ten percent increase in LGBT-protective policy, the predicted Black-White Gap in AIDS incidence rate decreases by 2.87 (per 100,000 population). This translates to a Black-White Gap in AIDS incidence of 37.81 per 100,000 population when no LGBT-protective policies are in place and 9.16 per 100,000 population when all protections are in place.

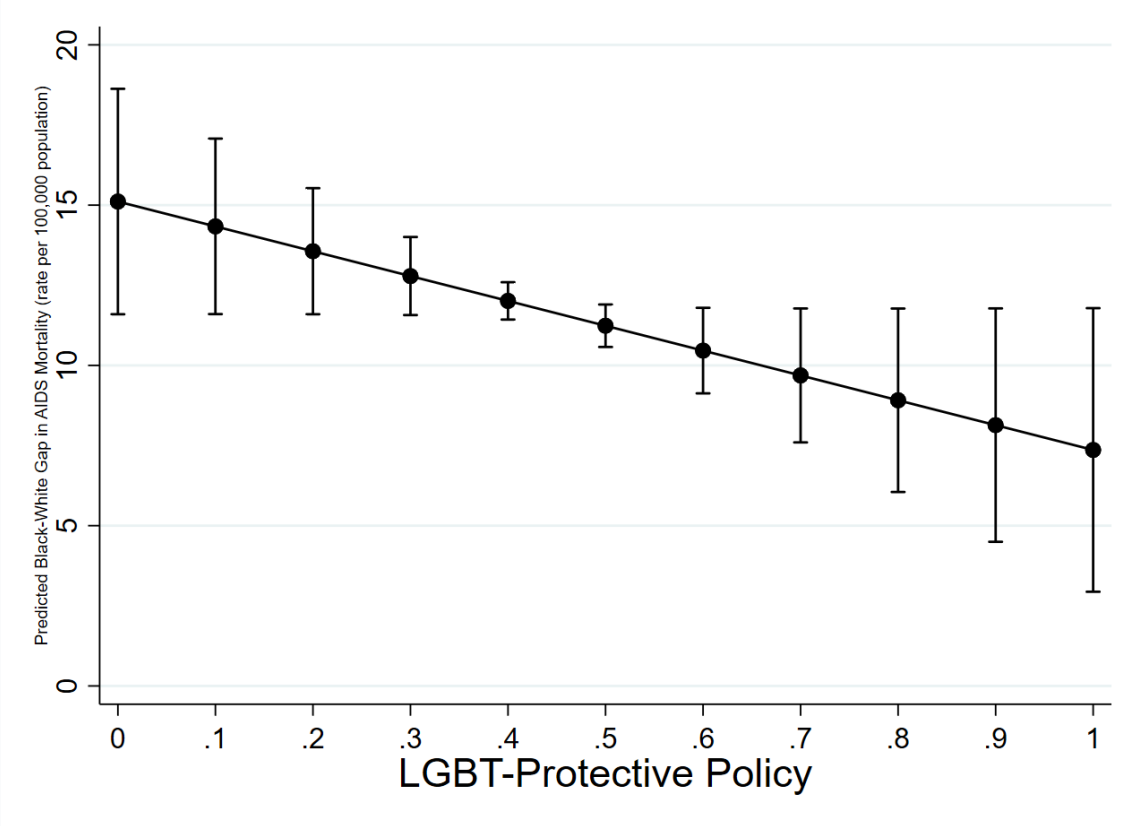
Figure 16. Predicted Black-White Gap in AIDS Incidence (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

As shown in Figure 17, for every ten percent increase in LGBT-protective policy, the predicted Black-White Gap in AIDS mortality rate decreases by 0.78 (per 100,000 population). This translates to a Black-White Gap in AIDS mortality of 15.11 per 100,000 population when no LGBT-protective policies are in place and 7.36 per 100,000 population when all protections are in place.

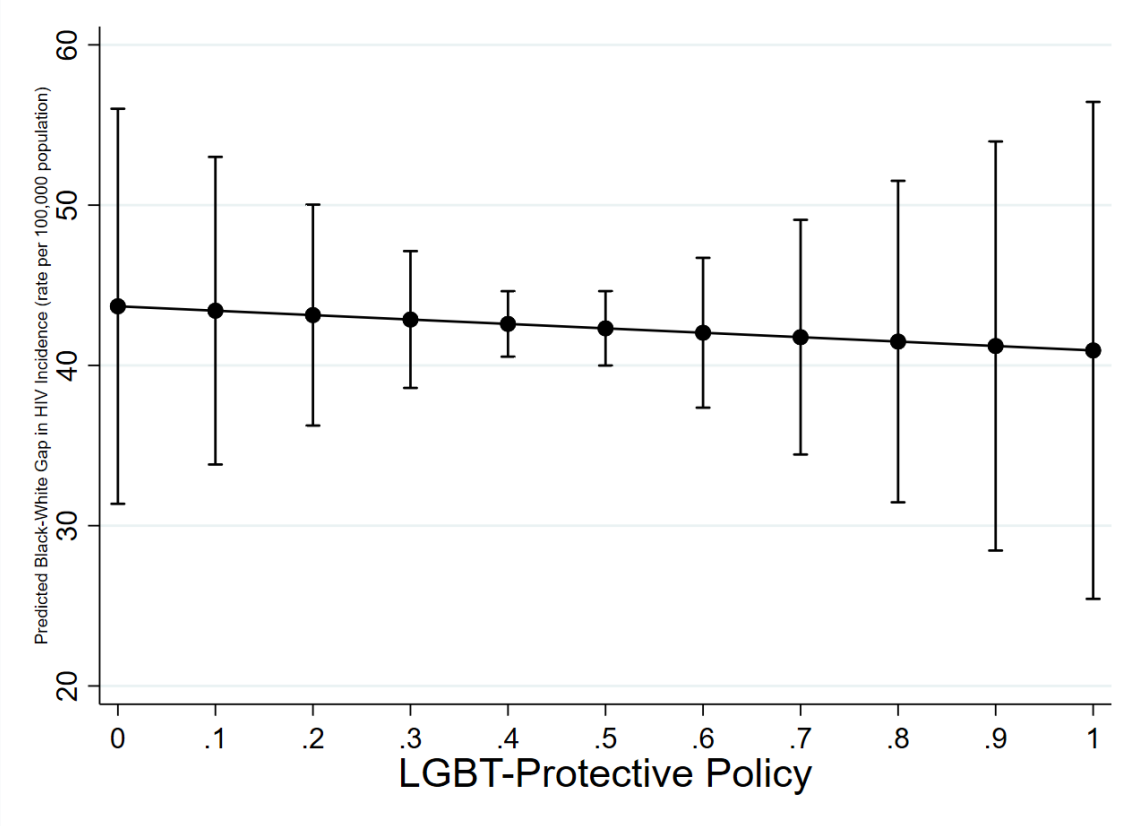
Figure 17. Predicted Black-White Gap in AIDS Mortality (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

The Black-White gap in HIV incidence is shown in Figure 18, where for every ten percent increase in LGBT-protective policy, the predicted gap decreases by 0.28 (per 100,000 population). This translates to a Black-White Gap in HIV incidence of 43.69 per 100,000 population when no LGBT-protective policies are in place and 40.95 per 100,000 population when all protections are in place.

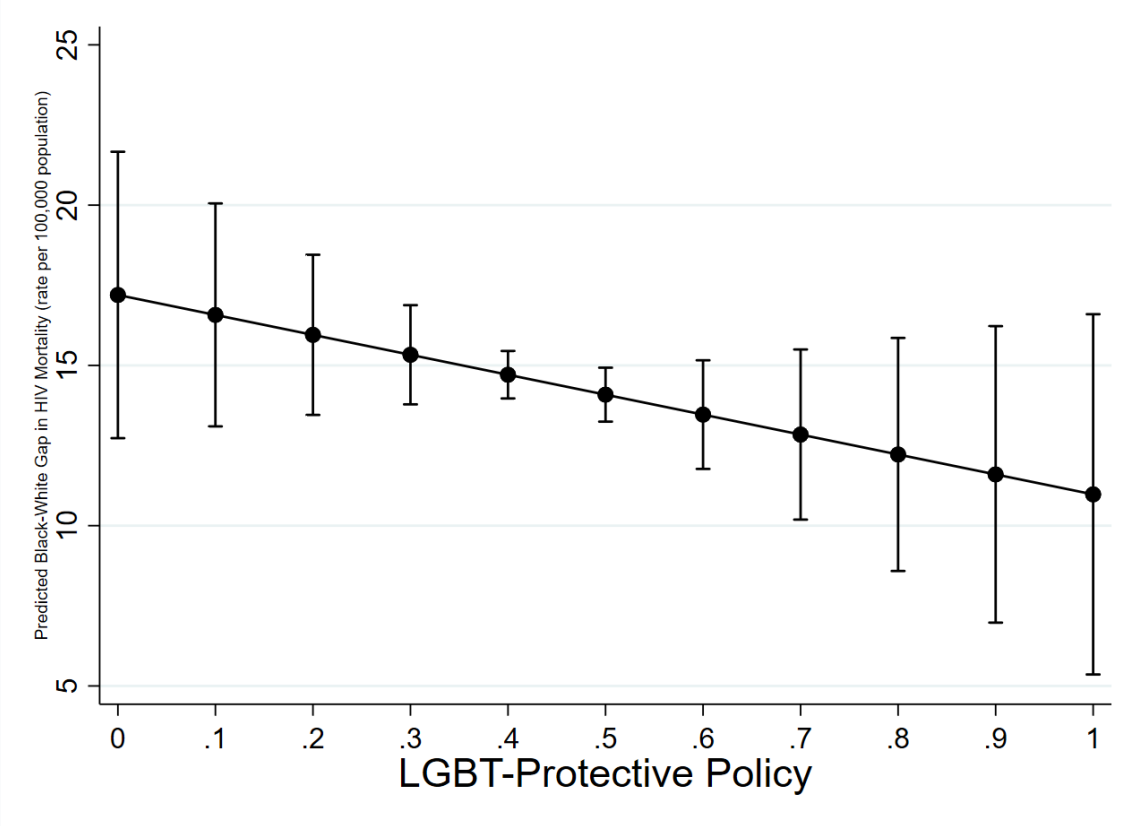
Figure 18. Predicted Black-White Gap in HIV Incidence (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

As shown in Figure 19, for every ten percent increase in LGBT-protective policy, the predicted Black-White Gap in HIV mortality rate decreases by 0.62 (per 100,000 population). This translates to a Black-White Gap in AIDS mortality of 17.20 per 100,000 population when no LGBT-protective policies are in place and 10.98 per 100,000 population when all protections are in place.

Figure 19. Predicted Black-White Gap in HIV Mortality (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

The Latinx-White Incidence and Mortality Gap

Table 20 presents random coefficient models examining the direct association between LGBT-protective policy and state- and society-centered political measures and Latinx-White gaps in HIV/AIDS incidence and mortality (rates per 100,000 population). States with greater levels of LGBT-protective policy have lower Latinx-White AIDS incidence, AIDS mortality, HIV incidence, and HIV mortality gaps ($\beta = -5.00$, $p<.05$; $\beta = -2.64$, $p<.05$; $\beta = -5.85$, $p<.05$; $\beta = -5.17$, $p<.01$). Across models, state- and society-centered political measures do not hold significant associations with the Latinx-White gaps. As has been seen in earlier analysis, this again suggests that protective policy provides greater explanatory power in observed HIV/AIDS disparities across states.

Among the control variables, Ryan White funding is negatively associated with the Latinx-White gap in HIV incidence ($\beta = -0.01$, $p<.001$). States with higher proportions of White populations have larger Latinx-White gaps in AIDS incidence, HIV incidence, and HIV mortality ($\beta = 1.66$, $p<.001$; $\beta = 1.75$, $p<.05$; $\beta = 0.57$, $p<.05$). Percent female is positively associated with AIDS incidence ($\beta = 7.43$, $p<.01$).

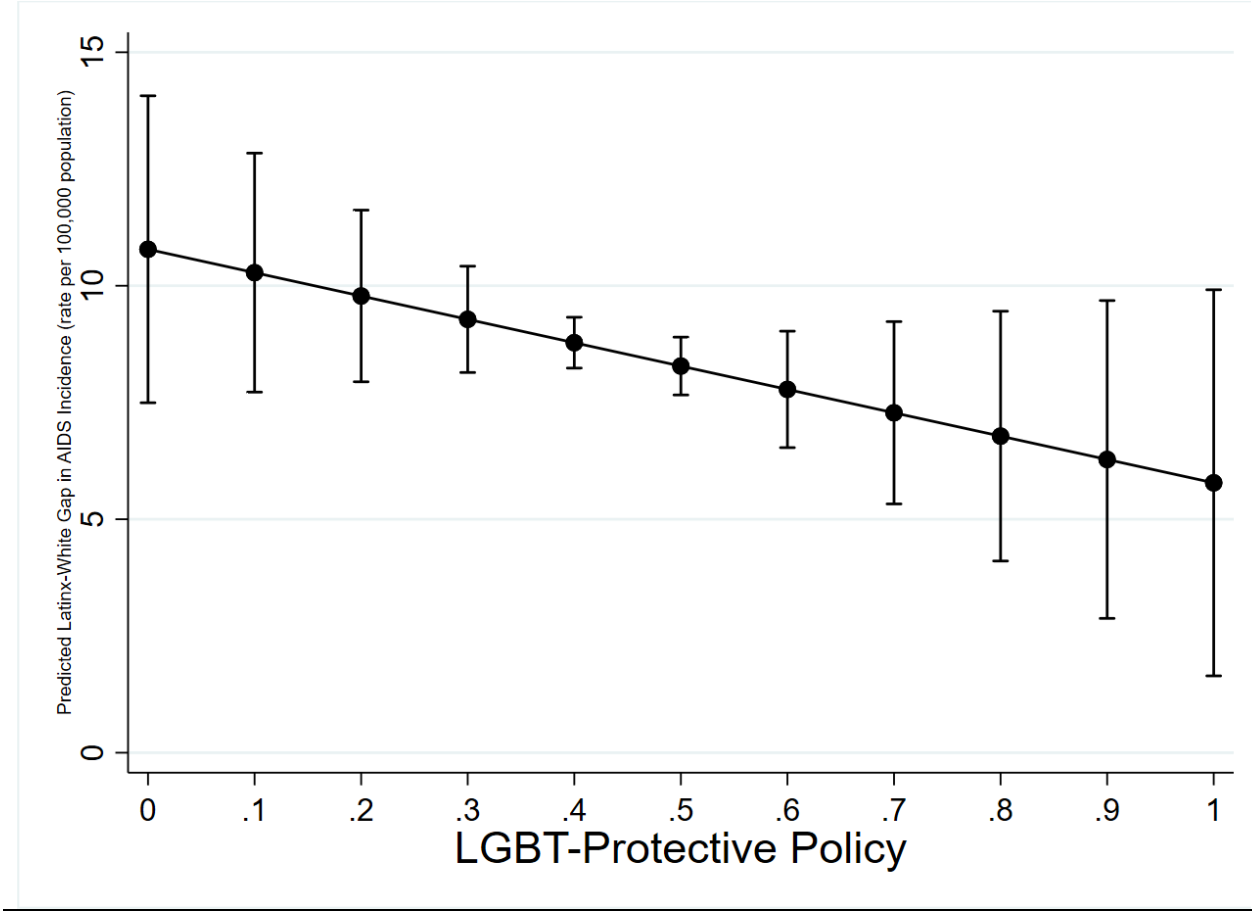
Table 21. Impact of State- and Society-Centered Measures and LGBT-Protective Policy on the Latinx-White HIV/AIDS Incidence and Mortality Gap

	AIDS Incidence	AIDS Mortality	HIV Incidence	HIV Mortality
LGBT-Protective Policy	-5.00*	-2.64*	-5.85*	-5.17**
	(3.758)	(2.266)	(7.187)	(2.329)
State-Centered Measures				
State Government Ideology	0.06*	0.01	0.07	0.02
	(0.032)	(0.019)	(0.062)	(0.020)
State LGBT-Related Bills in favor of LGBT Rights (%)	-0.02	0.01	-0.04	0.02*
	(0.012)	(0.007)	(0.024)	(0.008)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.02	0.002	-0.003	0.001
	(0.030)	(0.018)	(0.056)	(0.018)
Society-Centered Measures				
LGBT Interest Group Real Assets ($ per capita)	0.01	0.01	0.02	0.01
	(0.016)	(0.009)	(0.030)	(0.010)
LGBT Interest Group Real Income ($ per capita)	-0.09	-0.04	-0.10	-0.03
	(0.055)	(0.033)	(0.105)	(0.034)
LGBT Population (%)	-0.43	0.05	0.03	0.20
	(0.566)	(0.342)	(1.083)	(0.351)
Citizen Ideology	0.11*	-0.01	0.15	-0.002
	(0.051)	(0.031)	(0.097)	(0.031)
Control Variables				
Social Services and State Health Spending ($ per capita)	0.002	-0.001	-0.002	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)
Ryan White Care Act (CARE) Funding ($ per capita)	-0.002	-0.000	-0.01***	0.000
	(0.001)	(0.001)	(0.002)	(0.001)
Community Hospital Beds per 100,000 population	-0.01	-0.003	-0.03	-0.02
	(0.029)	(0.018)	(0.056)	(0.018)
Percent in Poverty	-0.10	-0.11	-0.47	-0.14
	(0.198)	(0.120)	(0.379)	(0.123)
Percent White	1.66***	0.45	1.75*	0.57*
	(0.459)	(0.277)	(0.877)	(0.284)
Percent Female	7.43**	-0.40	-3.20	-1.32
	(2.528)	(1.524)	(4.83)	(1.567)
Percent Urban	-0.01	0.01	0.01	0.01
	(0.016)	(0.009)	(0.030)	(0.010)

Notes: N=450 state/year pairings (2008-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

Figures 20-23 shows predicted Latinx-White Gaps in AIDS incidence, AIDS mortality, HIV incidence, and HIV morality by LGBT-protective policy. As shown in Figure 20, for every ten percent increase in LGBT-protective policy, the predicted Latinx-White Gap in AIDS incidence rate decreases by 0.50 (per 100,000 population). This translates to a Latinx-White Gap in AIDS incidence of 10.78 per 100,000 population when no LGBT-protective policies are in place and 5.78 per 100,000 population when all protections are in place.

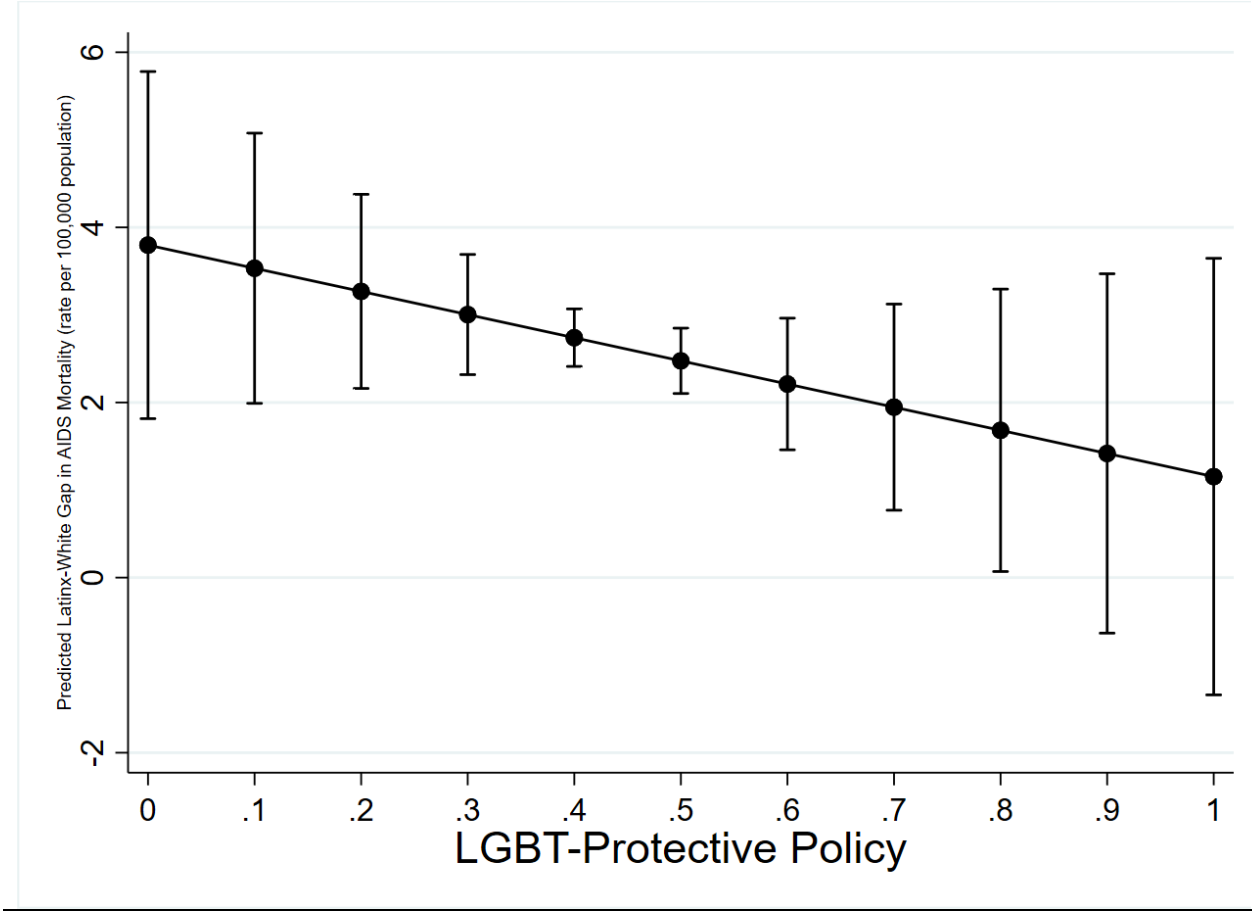
Figure 20. Predicted Latinx-White Gap in AIDS Incidence (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

The Latinx-White gap in AIDS mortality is shown in Figure 21, where for every ten percent increase in LGBT-protective policy, the predicted Latinx-White Gap in AIDS incidence rate decreases by 0.26 (per 100,000 population). This translates to a Latinx-White Gap in AIDS mortality of 3.80 per 100,000 population when no LGBT-protective policies are in place and 1.15 per 100,000 population when all protections are in place.

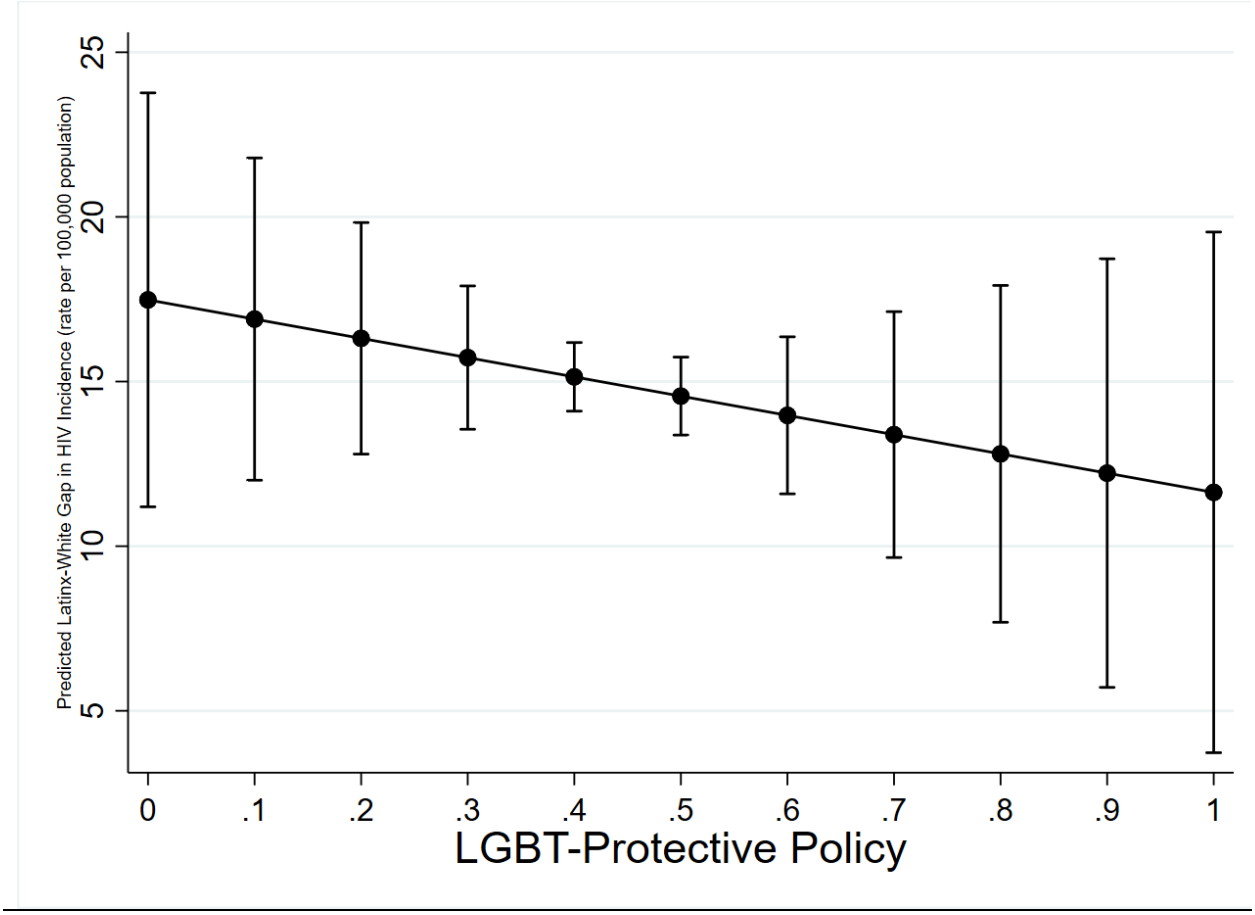
Figure 21. Predicted Latinx-White Gap in AIDS Mortality (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

As shown in Figure 22, for every ten percent increase in LGBT-protective policy, the predicted Latinx-White Gap in HIV incidence rate decreases by 0.59 (per 100,000 population). This translates to a Latinx-White Gap in HIV incidence of 17.48 per 100,000 population when no LGBT-protective policies are in place and 11.63 per 100,000 population when all protections are in place.

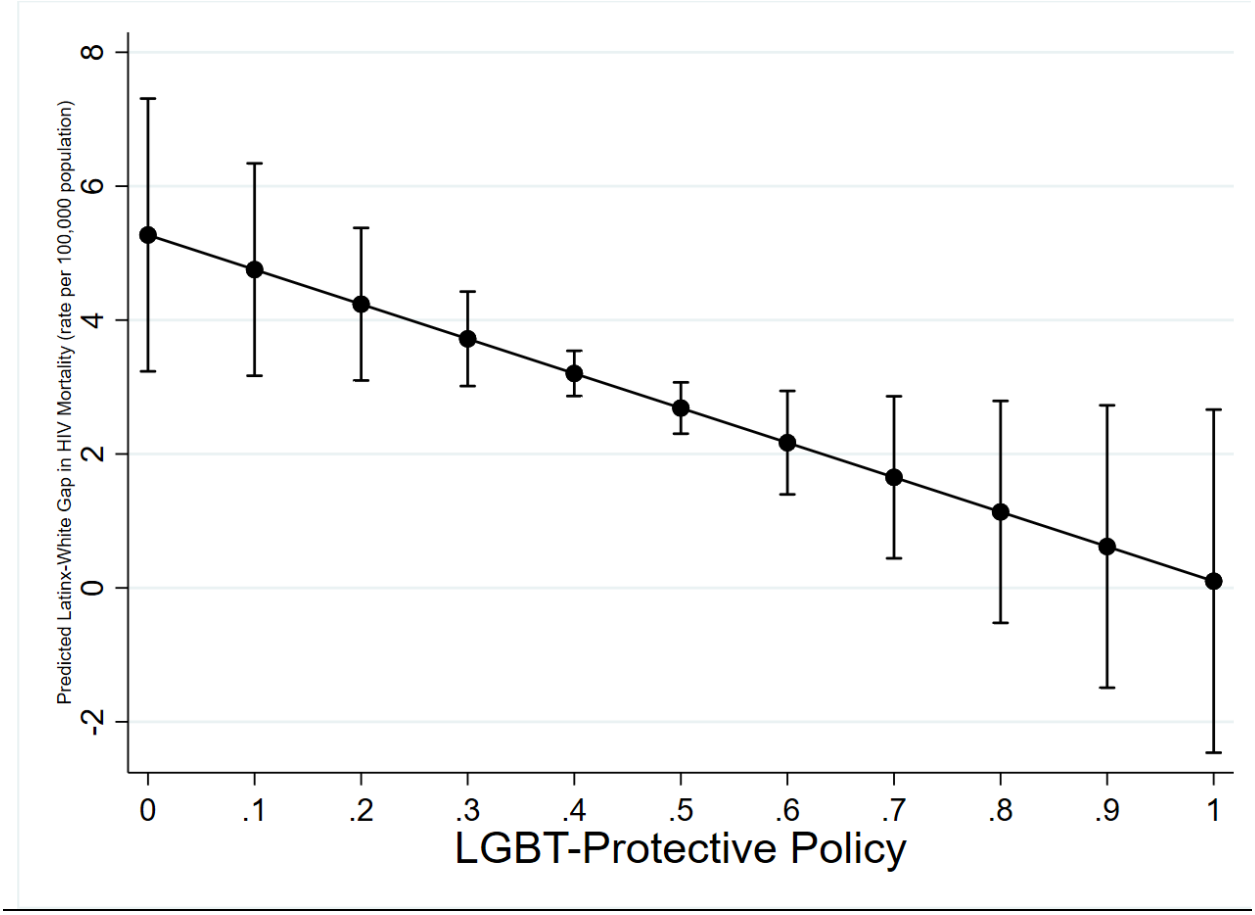
Figure 22. Predicted Latinx-White Gap in HIV Incidence (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

The Latinx-White gap in HIV mortality is shown in Figure 23, where for every ten percent increase in LGBT-protective policy, the predicted Latinx-White Gap in HIV mortality rate decreases by 0.52 (per 100,000 population). This translates to a Latinx-White Gap in AIDS mortality of 5.27 per 100,000 population when no LGBT-protective policies are in place and 0.10 per 100,000 population when all protections are in place.

Figure 23. Predicted Latinx-White Gap in HIV Mortality (rate per 100,000 population) by LGBT-Protective Policy



Note: LGBT-Protective Policy values represent percentage of protection in place (0=0%; 1=100%). All other variables in model are set to their means. Bars represent 95% Confidence intervals

Summary of Results

Racial/Ethnic models of HIV/AIDS outcomes indicate that protective-policies and state- and society-centered political measures have differing impact by racial group. After controlling for social services and state health spending, state-specific socio-demographic and economic factors, and state-level funding provided through the Ryan White Care Act (CARE), LGBT-Protective Policy is significantly associated with AIDS incidence among Black, Multiracial, and American Indian/Alaska Native Americans; with AIDS mortality among Black Americans; with HIV incidence among White, Black, and Latinx Americans; and with HIV mortality among Latinx Americans. Across these models, LGBT-protective policy provides greater magnitudes of protection for groups of color compared to Whites. State- and society-centered political measures have little explanatory power suggesting that policy is a more important factor in HIV/AIDS outcomes.

Ryan White funding and state social service and health spending is negatively associated with various outcomes across racial/ethnic groups. Increased Ryan White funding is associated with lower AIDS mortality rates among Black Americans, lower HIV incidence rates among Black, Latinx, and Multiracial Americans, and lower HIV mortality rates among Black and Multiracial Americans. State health and social service spending is similarly negatively associated with AIDS mortality for White and Black Americans and HIV mortality for Latinx Americans. This is expected given that this funding goes to support policy programs that theoretically have an impact in decreasing HIV/AIDS outcomes.

The impact that a state's White population has on HIV/AIDS outcomes, especially on Black HIV/AIDS rates, is also significant. Increasing proportions of White populations results in higher AIDS incidence rates for White, Black, Latinx, and Multiracial Americans, and in higher AIDS mortality, HIV incidence, and HIV mortality rates for Black Americans.

In the context of Black-White and Latinx-White gaps in HIV/AIDS outcomes, LGBT-protective policies significantly close the gaps in all models. As protective policy increases, the gaps in Black-White and Latinx-White rates close, to lessen the disparity. Similar to racial/ethnic models, state- and society-centered political measures have little explanatory power suggesting that policy is a more important factor in closing the Black-White and Latinx-White gap in HIV/AIDS.

CHAPTER V

SUMMARY

Utilizing panel data of the fifty U.S. states from 2004-2016, I examined the relationships between state- and society-centered political measures, LGBT-protective policies, and HIV/AIDS outcomes. Additionally, I conceptually tested whether LGBT-protective policies mediate or moderate the relationships between state- and society-centered measures and HIV/AIDS outcomes.

Summary of Results

This research sought to answer four primary research questions, and four key findings were demonstrated in the analysis. 1) Both state- and society-centered political measures are significantly associated with AIDS incidence and mortality yet provide little explanatory power in HIV incidence and mortality. 2) LGBT-protective policy is a stronger predictor of HIV/AIDS outcomes than state- and society-centered measures. 3) Policy does not fully mediate the relationship between state- and society-centered factors and HIV/AIDS outcomes, but it does significantly moderate these relationships. 4) LGBT-protective policies provide greater protection for groups of color compared to Whites and state- and society-centered political measures have little explanatory power in HIV/AIDS outcomes when disaggregated by race.

The first question guiding this research was: *What impact do state- and society-centered political measures have on HIV/AIDS incidence and mortality?* Results indicate

that both state- and society-centered political measures are significantly associated with AIDS incidence and mortality. LGBT population has a negative association with both AIDS incidence and mortality, indicating that in states with higher LGBT populations, AIDS incidence and mortality rates are lower. Similarly, states with a higher percentage of U.S. congressional votes in favor of LGBT rights have lower AIDS incidence and mortality rates. For AIDS mortality, states with more liberal government ideology also have lower mortality rates.

However, in the context of HIV incidence and mortality, state-centered measures only have explanatory power in their separate baseline models and society-centered measures do not have significant associations with HIV incidence and mortality in the final combined models. Collectively, this suggests that both state- and society-centered measures can significantly predict HIV/AIDS outcomes, and that state spending and population demographics similarly play a significant role in these outcomes.

The second and third questions guiding this research were: *What impact do LGBT-protective policies have on HIV/AIDS incidence and mortality? and How do LGBT-protective policies impact the relationship between state- and society-centered political measures and HIV/AIDS incidence and mortality?* Results overall suggest that LGBT-protective policy is a stronger predictor of HIV/AIDS outcomes than state- and society-centered measures, that policy does not fully mediate the relationship between these factors and HIV/AIDS outcomes (at best ten percent), and that policy does significantly moderate these relationships.

In direct effect LGBT-protective policy models, LGBT-protective policy was significantly associated with HIV and AIDS incidence and mortality; however, in mediation models, the proportion of total state- and society-centered effects mediated by LGBT-protective policy does not surpass ten percent. Again, this indicates that protective policy is better conceptualized as a direct effect on AIDS outcomes rather than a mediating one as previously theorized in the conceptual model.

Moderation models for AIDS incidence and mortality demonstrate that LGBT-protective policies significantly moderate state- and society-centered political measures in their association with AIDS outcomes to varying effects: policy is more impactful in states with less U.S. congressional support for LGBT rights and *less* impactful in states with greater LGBT population.

The final question guiding this research was: *What impact do LGBT-protective policies and state- and society-centered political measures have on HIV/AIDS incidence and mortality, by racial/ethnic group?* Results indicate that LGBT-protective policies have differing impact by racial group and that state- and society-centered political measures have little explanatory power. As was expected when incorporating a Critical Race Theory approach to Fundamental Cause Theory, protective policies provide greater magnitudes of protection for groups of color compared to Whites. This was especially present in Black-White and Latinx-White gap models where LGBT-protective policy significantly closes the gaps between Blacks and Whites and Latinx and Whites in AIDS incidence, AIDS mortality, HIV incidence, and HIV mortality.

Discussion

In addition to the key findings noted above, several important trends appeared in this analysis which warrant further discussion.

State- versus Society-Centered Perspectives

State- versus society-centered debates are well established in political sociology and political science alike. Where state-centered theory holds that states are autonomous from the external environment, are power holders in their own right, and that state elites exercise a degree of power over the policy adoption process (Block 1977; Evans et al. 1985; Orloff and Skocpol 1984; Skocpol 1985; Skocpol and Amenta 1986; Skocpol and Kinegold 1982; Weir et al. 1988), society-centered theorists argue that groups, classes, and the public are important power holders whose power originates outside of the state influencing the policy adoption process (Ackard 1992; Dahl 1958; Dahl 1998; Lindbloom 1982; Lipset 1994; Manley 1983; Polsby 1960; Quadagno 1984; Quadagno 1992; Therborn 1970).

This research demonstrates that *both* state- *and* society-centered political measures have impacts on HIV/AIDS outcomes. Thus, research conducted in the silo of either a state- or society-centered perspective is incomplete and will likely result in error. In state- and society-centered baseline models, numerous predictors held significant associations with HIV/AIDS outcomes; however, after combining these models, some of these effects washed away. To ignore either perspective in predicting health outcomes will certainly result in inadequate models.

Differences in HIV and AIDS Outcomes

Important differences exist between AIDS outcomes and HIV outcomes across models as well as in incidence and mortality rates. State- and society-centered political measures have no significant impact on HIV outcomes but do impact AIDS outcomes. Social services and state health spending and Ryan White funding impact AIDS outcomes to a greater degree than HIV outcomes and are more meaningful for mortality rates than incidence rates. As fundamental cause theory suggests, access to healthcare and treatment affects mortality to a greater degree than in does incidence. In the context of HIV/AIDS, access to healthcare and treatment matter most for those who already have HIV/AIDS. This supports findings shown above and suggests that some indicators are more meaningful for health care *access* which results in either decreased mortality (both HIV and AIDS) or decreased AIDS incidence as an AIDS diagnosis results from the progression of HIV to Stage 3.

White Population as a Predictor of Increased HIV/AIDS Rates

In nearly every model, the proportion of a state's White population was positively associated with HIV/AIDS outcomes, especially in analysis disaggregated by race/ethnicity. This suggests that as the proportion of White populations increase, HIV/AIDS incidence and mortality also increase. Representative bureaucracy theory as well as Critical Race Theory provide explanation and support for this trend. Again, descriptive representation, which occurs when physical and social identities of clients and bureaucrats who serve them match, results in successful health outcomes (Atkins

and Wilkins 2013; Thielemann and Steward 1996; Zhu and Walker 201). While this data does not capture representative bureaucracy in this sense, we can postulate that states with greater proportions of White populations will have lower levels of representative bureaucracy in politics, policy making, healthcare, education, etc. which have a direct impact on HIV/AIDS outcomes, especially for groups of color. The impact of White population proportions was especially apparent among Black HIV/AIDS outcomes suggesting remedying lack of representation is especially important in decreasing the Black-White gap in HIV/AIDS.

Critical Race Theory similarly would explain this trend by understanding racism as a normal and embedded part of society where Whites reap economic and material rewards (Crenshaw, Gotanda, Peller, and Thomas 1995; Delgado and Stefancic 2000; Delgado and Stefancic 2012). CRT would not necessarily suggest this embedded racist structure would be less prevalent in states with larger populations of color; however, increased proportions of Whites would certainly bolster the impact of economic and material rewards at the expense of groups of color resulting in greater health disparities.

Contributions

A key overarching question guiding this research was: *what is causing the observed differences and racial disparities in HIV/AIDS incidence and mortality?* In answering this question, I make three key contributions: 1) I bridged sociology, political science, and public health literature and methodology; 2) I developed a unique data set

built from 20+ publicly available data sources, and 3) I provided insight on the impact non-health and non-HIV-focused policy can have on HIV/AIDS outcomes.

By bridging sociology, political science, and public health literature and methodology, a more robust theoretical foundation and analytical approach was possible. The exclusion of any of these literatures or methodological approaches would have resulted in the omission of numerous significant factors in predicting HIV/AIDS outcomes and racial disparities in HIV/AIDS.

In order to answer these complex questions, a unique data set was needed. All of the data sources utilized to create this panel data set are publicly available; however, their access had varying degrees of ease. Over 20 data sources were utilized and drawn from. This approach demonstrates the ability to answer other complex questions and explore the impact political and policy factors have on health outcomes.

Finally, across models, increasing levels of LGBT-protective policy significantly decreases HIV/AIDS incidence and mortality rates. Given that this measure of protective policy encompasses policy protections outside of the realm of health and/or HIV/AIDS, the impact of non-health policy on health outcomes is evident. On the surface many of these policies appear to have little to do with HIV/AIDS. For example, anti-discrimination policies on the basis of sexual orientation and gender identity in the workplace, policies protecting same-sex couple adoptions, or policies prohibiting bullying in public schools have no explicit connection to HIV/AIDS, or health for that matter. Yet they result in lower HIV/AIDS rates, suggesting that all policy is health policy.

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APPENDIX A

LGBT POLICY PROTECTIONS

LGBT Policy Protections
each question coded 1=yes; 0=no

Workplace

1. State law protects employees in the private sector from discrimination on the basis of sexual orientation?
2. State law protects employees in the private sector from discrimination on the basis of gender identity and/or gender expression?
3. State law expressly protects employees of state and local governments from discrimination on the basis of sexual orientation?
4. State law expressly protects employees of state and local governments from discrimination on the basis of gender identity and/or gender expression?

HIV & Healthcare

1. State explicitly bans transgender exclusions in health insurance? (*Reverse Coded)*
2. State has laws that may be used to fight against health care discrimination on the basis of sexual orientation and gender identity?
3. State has an HIV criminalization law? (*Reverse Coded)*
4. Occurrence of at least one HIV-based criminal prosecution—brought under an HIV-specific criminal law or a general criminal law—in the state in recent years? (*Reverse Coded)*
5. State has laws that criminalize or enhance the penalties for biting, spitting and/or throwing bodily fluids or substances (such as urine or excrement) if a person has been diagnosed with HIV? (*Reverse Coded)*
6. State has criminal laws addressing HIV+ sex workers and/or HIV+ patrons of sex workers? (*Reverse Coded)*

Parenting

1. Same-sex couples are allowed to adopt in the state?
2. Second-parent adoptions are legal in the state?

Continued

APPENDIX A: LGBT Policy Protections (Continued)
each question coded 1=yes; 0=no

Public Accommodations

1. State has public accommodations protections on the basis of sexual orientation?
2. State has public accommodations protections on the basis of gender identity?

Relationships (*coded for years prior to Supreme Court Marriage Equality*)

1. State allows same-sex couples to marry?
2. State recognizes marriages of same-sex couples from other jurisdictions?
3. State offers any other type of relationship recognition for same-sex couples?

Schools

1. State law prohibits bullying in public schools?
2. Law includes cyberbullying?
3. Law specifically mentions sexual orientation?
4. Law specifically mentions gender identity?
5. Law also applies to private, non-religious schools?
6. State has antidiscrimination law that applies (or may apply) to schools?

APPENDIX B

STATE HIV/AIDS PREVALENCE PROFILE MODELS

Impact of State- and Society-Centered Measures and State AIDS Profile on AIDS Mortality (rate per 100,000 population)

	State-Society Baseline	AIDS Incidence	AIDS Prevalence
State-Centered Measures			
State Government Ideology	-0.01**	-0.01**	-0.01**
	(0.004)	(0.003)	(0.004)
State LGBT-Related Bills in favor of LGBT Rights (%)	0.001	-0.000	0.001
	(0.002)	(0.001)	(0.002)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.02***	-0.002	-0.01**
	(0.004)	(0.003)	(0.004)
Society-Centered Measures			
LGBT Interest Group Real Assets ($ per capita)	-0.001	-0.001	0.001
	(0.003)	(0.002)	(0.003)
LGBT Interest Group Real Income ($ per capita)	-0.002	-0.01	-0.01
	(0.009)	(0.006)	(0.009)
LGBT Population (%)	-0.24***	0.03	-0.20**
	(0.084)	(0.059)	(0.081)
Citizen Ideology	-0.01	-0.01*	-0.01
	(0.007)	(0.005)	(0.007)
State AIDS Profile			
AIDS Incidence/Prevalence (rate per 100,000)		0.33***	-0.03***
		(0.014)	(0.004)
Control Variables			
Social Services and State Health Spending ($ per capita)	-0.0001	-0.0002**	-0.0001
	(0.000)	(0.000)	(0.000)
Ryan White Care ACT (CARE) Funding ($ per capita)	-0.0004***	-0.0002*	-0.0002
	(0.000)	(0.000)	(0.000)
Community Hospital Beds per 100,000 population	0.002	0.005*	-0.003
	(0.003)	(0.002)	(0.003)
Percent in Poverty	-0.08***	-0.06**	-0.05*
	(0.028)	(0.019)	(0.027)
Percent White	0.23***	-0.06	0.12**
	(0.050)	(0.037)	(0.051)
Percent Female	0.18	-0.48**	0.09
	(0.336)	(0.234)	(0.324)
Percent Urban	-0.001	0.002	-0.001
	(0.002)	(0.002)	(0.002)

Notes N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.

Impact of State- and Society-Centered Measures and State HIV Profile on HIV Mortality (rate per 100,000 population)

	State-Society Baseline	HIV Incidence	HIV Prevalence
State-Centered Measures			
State Government Ideology	-0.004	-0.002	-0.005
	(0.004)	(0.004)	(0.004)
State LGBT-Related Bills in favor of LGBT Rights (%)	0.001	0.0004	0.001
	(0.002)	(0.002)	(0.002)
U.S. Congressional Votes in favor of LGBT Rights (%)	-0.004	-0.002	-0.003
	(0.004)	(0.004)	(0.004)
Society-Centered Measures			
LGBT Interest Group Real Assets ($ per capita)	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)
LGBT Interest Group Real Income ($ per capita)	-0.01	-0.01	-0.010
	(0.008)	(0.007)	(0.007)
LGBT Population (%)	-0.07	-0.04	-0.06
	(0.076)	(0.069)	(0.075)
Citizen Ideology	0.0002	-0.01	-0.003
	(0.007)	(0.006)	(0.007)
State AIDS Profile			
AIDS Incidence/Prevalence (rate per 100,000)		0.19***	-0.01***
		(0.022)	(0.003)
Control Variables			
Social Services and State Health Spending ($ per capita)	-0.0003*	-0.0003*	-0.0003*
	(0.000)	(0.000)	(0.000)
Ryan White Care ACT (CARE) Funding ($ per capita)	-0.001***	-0.0004**	-0.001***
	(0.000)	(0.000)	(0.000)
Community Hospital Beds per 100,000 population	0.0001	0.001	-0.003
	(0.004)	(0.004)	(0.004)
Percent in Poverty	-0.03	-0.02	-0.03
	(0.028)	(0.025)	(0.03)
Percent White	0.27***	0.14**	0.18***
	(0.060)	(0.056)	(0.066)
Percent Female	-0.08	-0.19	-0.09
	(0.348)	(0.314)	(0.343)
Percent Urban	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)

Notes N=650 state/year pairings (2004-2016); ***p<0.001, **p<0.01, *p<0.05
Coefficients are random coefficient model coefficients. Standard Errors in parentheses.