Ideological Basis for the Gay Rights Movement

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Senior Honors Thesis

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Abstract: The gay rights movement is one of the major social changes of the last twenty years, drawing comparisons to the movements for women and African Americans in the 1960's. Changes in laws enacted by the legislature and the judiciary followed a massive shift in public opinion on gay issues, most notably marriage. This paper utilizes an experimental method to determine which of three arguments, focusing on a biological basis for homosexuality, a small government model and the number of gays in the population, is most persuasive on the whole and is most persuasive to different populations. The results of this method suggest that each argument is at least somewhat persuasive to groups already inclined to support gay rights, meaning they likely played a role in previous public opinion change but that groups that are known to be resistant to this social chance cannot be persuaded by these arguments. Analysis of correlations and regressions generated from World Values Survey data is then utilized to determine the impact of belief in science on support for gay rights in order to determine if results about the role of biology in support for gay rights could be generalized on a global scale. The analysis of this data suggests that this relationship is strongest in the United States and is minimal in many areas outside of the West.

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Introduction

When students of the future read about America during the first fifteen years of the new millennium, they will learn about the advent of the Internet, the War on Terror and the 2008 recession. However, the Gay rights movement is another surprising development that will need explanation. As recently as 1986, the Supreme Court upheld a law making consensual homosexual relationships illegal rather than "cast aside millennia of moral teaching" by accepting "an infamous crime against nature" (Bowers v. Hardwick 1986). Yet by 2015, the Court ruled that there was a constitutional right to marriage regardless of gender because "liberty… includes certain specific rights that allow persons, within a lawful realm, to define and express their identity" (Obergefell v. Hodges 2014: 2). Like many changes in judicial thinking, this was proceeded by an overwhelming change in public opinion. Support for same sex marriage existed in only around a quarter of Americans in 1996 but this became 60 percent by 2015. Similar trends occurred for issues that include adoption, hate crimes laws and employment laws (Gallup).

Explanations for this change in public opinion could reveal what tactics are likely to succeed in other societies where the gay rights movement is in its earlier stages. These could include but are not limited to Asian nations which have adopted many Western ideas in the past. Singapore has seen protests in opposition to anti-sodomy legislation led by young people ("On Permanent Parole" 2014). Japan is in the top ten countries where people are least likely to believe homosexuality is wrong but in comparison to many Western countries few legal protections for gay people exist (Spitzer 2015). Taiwan's high Court is currently hearing a case that could make it the first Asian country to legalize gay marriage ("Taiwan Top Court" 2017). Likewise, many Eastern European countries have not seen significant gay rights movements and many countries in famously liberal Western Europe such as Germany and Italy have failed to see gay marriage

enacted (Cameron 2017). The United States still has controversy over hate crimes legislation and anti-employment discrimination laws. With President Trump's election, actual and possible changes to the composition of the Supreme Court and GOP dominance in both houses, the United States may see renewed debate over gay rights in the coming years.

Why did the American public come to accept the gay rights movement? Through which lenses did Americans understand and accept the argument for gay rights? Gay rights have been a part of the Democratic Party agenda for over a decade. Liberals frequently cited the "born this way" argument that homosexual orientation is innate and therefore should be a category protected in a manner similar to race or sex. Even some prominent Republicans such as Cindy and Meghan McCain, who voiced their support for the repeal of Don't Ask Don't Tell and for the legalization of gay marriage, have contended that gay rights are consistent with conservative ideals (Grindley 2013). In theory, small government conservatism could lend itself to support for various gay rights initiatives. Finally, there is an argument that relies on the emotional appeal that one would not want to deprive a loved one of equal rights. Given that a relatively large number of Americans, estimated to be between five and ten percent, are gay, any given person likely has a gay friend or even a gay family member.

The major findings of this study are that none of the arguments were very effective among demographic groups that are generally less supportive of gay rights including Evangelical Christians and conservatives and that none of them are effective in persuading people that small businesses should be required to provide services for gay weddings. Nonetheless, the biology argument persuaded respondents to be more supportive of marriage, adoption, hate crime laws and employment nondiscrimination law. The small government argument was effective for growing support for gay marriage and to an extent for increasing support for adoption and hate crime laws.

The numerical argument resulted in statistically significant changes in what percentage of the population the respondents believed was gay and in increased support for marriage in the overall sample. This argument also resulted in participants becoming less supportive of some of these initiatives among groups that are known to generally oppose gay rights. Among demographic groups already inclined to support gay rights, this support seemed entrenched regardless of the perceived size of the gay population.

Chapter 1: Background

The origins of the gay rights movement are frequently attributed to the confrontation between police officers and gay patrons of the Stonewall Inn in 1969 (Hernandez 2016). Support for legal same sex relations began to grow in the early 1970's. By 1977, the public was evenly divided on this issue and support continued to grow through the 2003 Supreme Court decision (Gallup). Support for same sex marriage has grown rapidly: the proportion of Americans who support and oppose the idea entirely flipped within the ten years between 2005 when it was legal only in Massachusetts and 2015 when the Supreme Court made its ruling on the issue (Gallup). Support for adoption by gay couples has grown similarly though it has consistently been stronger than support for gay marriage (Gallup).

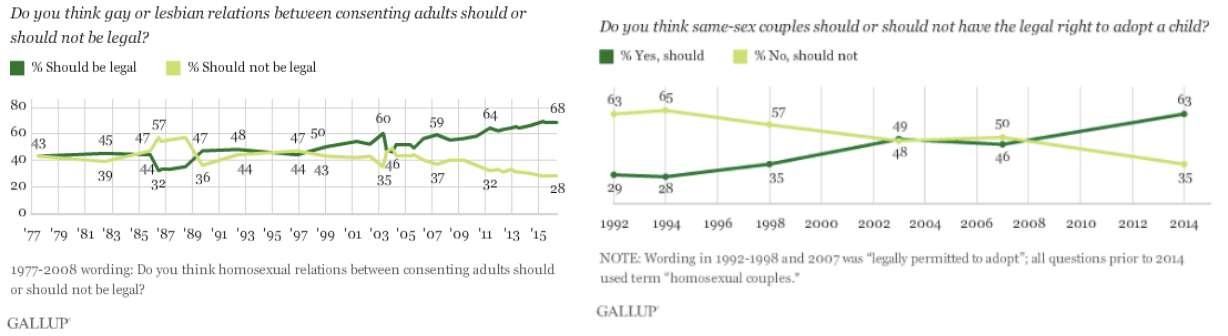
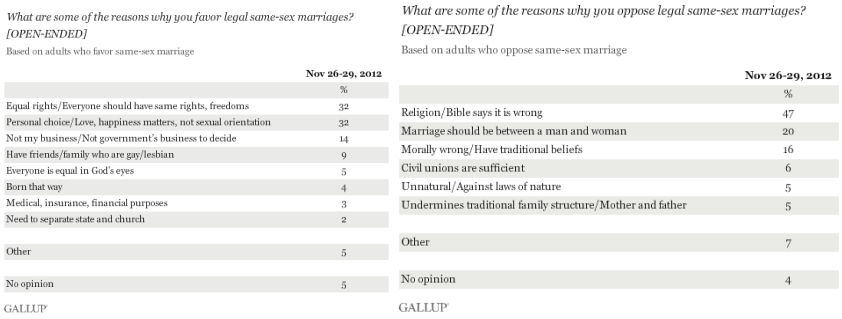


Figure 1: Support for Legalizing Gay Relations and Gay Adoption Over Time

Interestingly, support for legal gay relations has plateaued in recent years. Support for legalizing gay sex grew earlier, more slowly and over a longer period of time than support for gay marriage, but now both initiatives have relatively similar levels of support (Gallup). This suggests that there is a group of strong opponents of gay rights who make up most of both the portion of the population opposed to gay marriage, a new phenomenon, and the portion of the population still opposed to abandoning sodomy laws, a decision which has not been debated widely in the public sphere for over ten years. There is clearly significant polarization on this issue. Roughly forty

percent of the country disagrees with the rest on both one of the least extreme and one of the most extreme manifestations of gay equality.



What are some of the reasons why you favor legal same-sex marriages? [OPEN-ENDED]

Based on adults who favor same-sex marriage

	Nov 26-29, 2012
	%
Equal rights/Everyone should have same rights, freedoms	32
Personal choice/Love, happiness matters, not sexual orientation	32
Not my business/Not government's business to decide	14
Have friends/family who are gay/lesbian	9
Everyone is equal in God's eyes	5
Born that way	4
Medical, insurance, financial purposes	3
Need to separate state and church	2
Other	5
No opinion	5

GALLUP

What are some of the reasons why you oppose legal same-sex marriages? [OPEN-ENDED]

Based on adults who oppose same-sex marriage

	Nov 26-29, 2012
	%
Religion/Bible says it is wrong	47
Marriage should be between a man and woman	20
Morally wrong/Have traditional beliefs	16
Civil unions are sufficient	6
Unnatural/Against laws of nature	5
Undermines traditional family structure/Mother and father	5
Other	7
No opinion	4

GALLUP

Figure 2: Reasons Why People Support and Oppose Gay Marriage

In a country that is very religious relative to its Western peers, with roughly forty percent of Americans believing in the creationist view that God created humans in their present form, this is likely to include many members of the Christian right (Gallup). Polling about opposition to gay marriage supports this theory. The most popular reasons for supporting same sex marriage are equal rights and personal choice, which are tied, with government noninterference in a distant third. Meanwhile, religion and the Bible are overwhelmingly the most cited reasons against gay marriage (Gallup). The possibility of persuading people who are very religious to support same sex marriage should be a very important goal of the gay rights movement but has seen little success thus far.

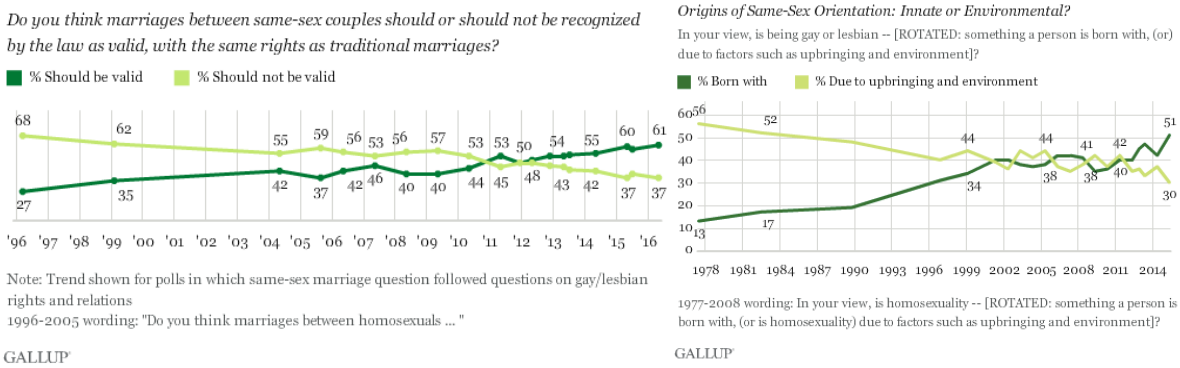


Figure 3: Change in Support for Gay Marriage and Innate Hypothesis Over Time

More than half of Americans now support both gay marriage and the idea that gays are born rather than made. Support for gay marriage and support for the belief that homosexuality is innate are correlated in both the general population over time and within certain demographic groups. The very religious, in particular the white Evangelicals, are most likely to both oppose gay marriage and believe that sexual orientation is not innate (Gallup). There may be a connection between lack of confidence in the views of the scientific claims such as the idea that homosexuality is innate and opposition to gay marriage. These findings lead one to ask if there is a causal relationship between the belief that gay orientation is innate and support for gay rights. Scientific evidence suggesting that homosexuality is innate has grown since Simon LeVay's 1991 finding that gay men had different brain structures than heterosexual men in the hypothalamus, an area known to be involved in sexual arousal. Given the relatively recent discovery of neuroplasticity, that the brain changes physically in response to its environment, this is not sufficient to conclude that there is an innate cause for homosexuality. However, a growing body of evidence including studies of pheromones, genetics, twins, prenatal hormones and perhaps most convincingly biological males raised as females due to penile damage during infancy suggests that this is likely the case ("Are People "Born Gay?", "Dr. Michael Bailey" 2013, Bailey 2003).

Chapter 2: Literature Review

There are many reasons for the changing views of homosexuality in American society and politicians, the media and academia all may be implicated. Support for same-sex marriage is highest among young Americans. Cohort replacement plays a role in support for same-sex marriage because older more conservative generations die and are replaced by young people coming of age in a world where homosexuality is much more acceptable than it once was. However, this has been found sufficient to explain only a third to half of the change in public opinion on gay marriage (Baunach 2006, Harrison 2016). Members of the older generations have also, to borrow from President Barrack Obama's famous remarks, seen their views on this issue "evolve" over time (Dwyer 2012). Gallup has found that 36 percent of Americans say their views on gay marriage have changed. However, most of these respondents gave general answers about being more accepting rather than specific ones about the ideology underlying their changing views. Why exactly this change came to be on an ideological level is the question at hand.

Thinking back, would you say your views on same-sex marriage have or have not changed significantly over the course of your lifetime?

	Yes, have changed	No, have not changed	No opinion
	%	%	%
2012 Nov 26-29	36	63	1

GALLUP

In what ways have your views on same-sex marriage changed? [OPEN-ENDED]

Based on those whose views on same-sex marriage have changed

	2012 Nov 26-29
	%
More accepting/tolerant now	35
More awareness/educated/Didn't understand before	18
Changed mind (nonspecific)	9
Not as big a deal now as in past	9
I'm against it/Not right	8
Believe they deserve a civil union but not marriage	5
Not my business/Respect their wishes/Don't care	5
Legal now in some places	4
Have friends/family that are gay	3
Other	3
No opinion	7

GALLUP

Figure 4: Change in Support for Gay Marriage and Reasons Why

In his famous book, *On the Origins of Mass Opinion,* political scientist John Zaller argued that elite opinion disseminated to form public opinion. One example he gave was the case of the American Psychiatric Association's de-medicalizing homosexuality in 1973 and subsequent

changes in public opinion that supported legalizing intimate gay relations. This raises the question of whether similar changes in elite opinion on the origin of gay orientation may have altered the views of the public on same sex marriage. The "born this way" argument used by many gay rights activists compares opposition to same sex marriage to opposition to interracial marriage and the other gains of the black civil rights movement.

Indeed, one analysis of the success of the gay rights movement involves the success of civil rights more broadly over the course of United States and Western history. Feminism and the success of the woman's movement brought about new ideas about gender equality and the abandonment of gender roles. Egalitarian heterosexual marriages made it possible to conceptualize a marriage between two men or two women, a point Ruth Bader Ginsburg made while defending the legal reasoning behind the Court's decision in favor of gay marriage (Galanes 2015). Yet it is still worth asking why the gay rights movement took off at this particular moment in history when these issues began to enter the public light in the late sixties after the Stonewall inn incident (Hernandez 2016).

Donald P. Haider-Markel and Mark R. Joslyn analyzed support for gay marriage through the lens of Bernard Weiner's attribution theory. This refers to the idea that people assign behaviors to one of two loci of control. An external locus of control means that the behavior is outside of one's control and an internal locus of control means that the behavior is within one's control. The authors asked if respondents believed homosexual orientation was a choice, which indicated an internal locus of control, or if it was inborn or due to upbringing, which indicated an external locus of control. They found that assigning an external locus of control to sexual orientation was highly predictive of support for gay marriage and the belief that homosexuality was morally acceptable. This was true controlling for religion, political affiliation, race and gender. Most surprisingly, older

respondents were more likely to attribute sexual orientation to biological causes and to an external locus of control than younger respondents, even though it is a known fact that younger people are more likely to support gay rights. They contrasted this idea with how during the Civil Rights Movement of the 1950's and 1960's, an external locus of control which held that black people were genetically intellectually inferior to white people led to declining support for initiatives to improve the status of black Americans. Despite this study's findings and use of controls, it did not use a controlled experimental design, meaning its inferences about causation are questionable.

Elizabeth Suhay and Jeremiah Garretson of NYU completed a survey experiment that is somewhat similar to the one completed for this thesis. They focused on whether the correlation between support for gay marriage and the belief homosexuality that is innate was due to a causal relationship. They found that there was no evidence for causation using an experimental method which exposed people to research for and against the inborn sexual orientation argument as well as a control. It is possible that the reason why they found a different result than the earlier researchers is that there is actually a correlational rather than a causal relationship and that factors outside of race, gender, religion or politics act as a confounding variable. The methodology provided will act a partial replication of this research but will also expand to several other relevant arguments in favor of gay rights. The authors hoped that their findings "will encourage a less politicized, and more accurate, discussion of scientific evidence on the subject", which would be another aim of this research as well (Suhay and Garretson 2015: 3).

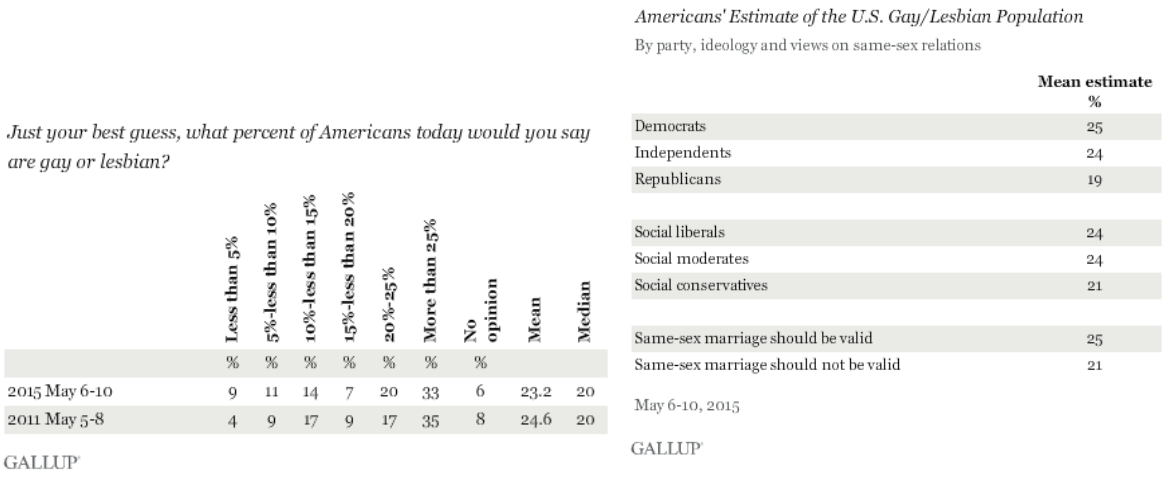
Indeed, Michael Bailey of Northwestern University, a Psychology professor and leader in the field, has commented that public understanding of "LGBT science" often involves misconceptions. For instance, many people fail to understand that the distinction between innate and learned behaviors does not equate with the distinction between genetic and environmental

causes. It is thought that there is probably a genetic component to homosexual orientation but that much of one's chance of becoming homosexual is determined through environmental factors involving prenatal hormone exposure in the womb ("Dr. J. Michael Bailey", Bailey 2003). Some gay rights activists will overstate or simplify their claims about sexual orientation in order to meet presumed political needs, which would seem unnecessary if further evidence concurred that science does not impact support for this social change.

Conversely, it is possible that a replication of Suhay and Garretson could result in a positive result. This may be relevant to the growing movement for awareness of transgender rights initiatives. Studies have shown that Americans are both more likely to believe that homosexual orientation is innate than that transgender identity is innate and more likely to believe in gay marriage than in trans people using the bathrooms that align with their social gender identity (Lopez 2016). It may be that growing evidence that transgender identity is innate, a belief that researchers are also beginning to espouse, may have a similar effect on increasing support for legal and social change (Bailey 2003).

Brian Harrison of Northwestern has studied how one can change levels of support for gay rights initiatives and more recently for transgender rights initiatives. He has found some success with using other identity factors such as race to change opinions on gay rights initiatives. For instance, black callers were better able to persuade black responders than white callers. Identity priming can affect even strongly held opinions. Even sports affiliation has had an effect on whether someone is able to persuade a respondent to change their opinion on gay marriage. However, there remain questions about what frames and what arguments are successful in convincing people to support gay rights. If arguments about biology are not persuasive what alternative would exist? A

libertarian argument implemented by some conservatives may explain support for gay rights initiatives by those who do believe homosexual orientation is a choice.



Just your best guess, what percent of Americans today would you say are gay or lesbian?

	Less than 5%	5%-less than 10%	10%-less than 15%	15%-less than 20%	20%-25%	More than 25%	No opinion	Mean	Median
	%	%	%	%	%	%	%		
2015 May 6-10	9	11	14	7	20	33	6	23.2	20
2011 May 5-8	4	9	17	9	17	35	8	24.6	20

GALLUP

Americans' Estimate of the U.S. Gay/Lesbian Population

By party, ideology and views on same-sex relations

	Mean estimate %
Democrats	25
Independents	24
Republicans	19
Social liberals	24
Social moderates	24
Social conservatives	21
Same-sex marriage should be valid	25
Same-sex marriage should not be valid	21

May 6-10, 2015

GALLUP

Figure 5: Perception of the Number of Americans Who are Gay/Lesbian

Americans grossly overestimate the number of gays in the United States. Gallup has found that more than half of the United States population believes that at least twenty percent of people are gay while it has found that the percentage of the population that is openly gay is around three percent. Google data comparing the number of online searches by men for homosexual and heterosexual pornography suggests that the true figure in men sits at around five percent (Stephens-Davidowitz 2015). It is worth noting Americans also overestimate the numbers of black and Hispanic people, though not as badly (Gallup). It is possible that this phenomenon is tied to the prevalence of discussion of gay rights in the media in recent years. This could lend evidence to the theory that people support gay rights because they believe that they could have gay friends, siblings or even children. Those who support gay marriage made a four percentage point higher estimate on average than those who do not support gay marriage. Accordingly, Elisha Marr of the University of Michigan has found that exposure to people in same-sex relationships results in

greater support for these relationships. This paper will examine the role of various ideologies that support the gay rights movement in changing public opinion.

Chapter 3: Hypotheses

There are a large number of arguments that have been or could be used in favor of gay rights and though this thesis is not as concerned with these, there are also numerous arguments that have been levied against gay rights. This matter is further complicated by how a number of these arguments overlap and can be conflated. In order to study the gay rights movement in a systematic manner, this paper will limit the arguments to three core ideas that have been a major part of the gay rights movement in the United States. The "born this way" line, espoused by leaders in academia like Professor Michael Bailey of Northwestern, repeated by politicians like Hillary Clinton in her speech in front of the United Nations and immortalized by celebrities like Lady Gaga in her 2011 song, has been a crucial idea throughout the gay rights movement ("Hillary Clinton", Zafar). This argument suggests that an individual cannot be held responsible for attraction that is beyond his/her control and often uses comparisons to race and sex. The argument that gay rights align with the model of a small government that does little to intervene in the lives of the population, that has been made by some unconventional Republicans and by Democrats accusing the GOP of hypocrisy, will also be considered. This argument, also referenced in the abortion debate, is that like guns, the economy, and the environment, marriage should be subject to little intervention by the state. Finally, the appeal of Harvey Milk and countless others that the relatively large number of gays in the general population means the possibility of a friend, sibling or most emotionally a child coming out in a world without equal rights is strong will be analyzed (Knapp 2014). This argument appeals to one's personal relationships and tries to induce empathy for those who are discriminated against. One person may believe each of these different arguments and they may strengthen one another. If homosexual orientation is innate for instance, a parent can do little to control the orientation of his or her child, meaning that the possibility of knowing a

closeted homosexual is greater. Nonetheless, these are distinct lines of reasoning, each of which could be persuasive on its own and each of which could be more persuasive to certain demographic groups than others. Each of these three arguments is likely to be effective overall. However, they may affect different subgroups of participants in different ways.

Based on what is known about growing support for an innate causation theory and for gay marriage growing in tandem, it is likely that this argument is persuasive to some people. The biological science argument is most likely to be effective in nonreligious people because some religions teach their adherents not to trust certain scientific findings. On the other hand, this effectiveness may be difficult to observe because most nonreligious people (77 percent according to the Public Religion Research Institute) already favor same sex marriage ("Attitudes"). Thus, there may only be a small difference in support for gay rights between the group of unaffiliated persons exposed to the biology argument and the group of unaffiliated persons exposed to the control group because support in each group should inherently be very high and those that have not been persuaded by the gay rights movement yet may have strongly held beliefs that are difficult to change. It is also worth noting, of course, that there may be no change in support for these initiatives after exposure to this passage because it is possible that the biology argument is simply not effective. The relationship between belief in innate sexual orientation and gay rights could be correlational. It is also possible, as Suhay and Garretson suggested, that the biology argument may have been effective in changing public opinion on gay rights in the past but that so many people have now been exposed to it that those who have not been persuaded yet could never be susceptible to this particular argument.

The libertarian argument is more likely than other arguments to be effective in Republicans and conservatives. It uses conventionally conservative reasoning and a traditionally conservative

view of the role of government. It may be more persuasive in religious people than the biological argument because it does not require rejecting beliefs about religious freedom which Alaskan Senator Lisa Murkowski promises to uphold and does not utilize scientific research that contrasts with religious teaching about the nature of sexual orientation. However, it is possible that the conservative group's opposition to gay marriage will be so strong that this argument is unable to persuade them to change their views on an issue that has been so widely discussed that most people have developed strong views about it.

One would expect that informing people of the percentage of the population that is gay would be effective because it causes people to consider the possibility that their friends or family members could be in the closet. However, this would only be true if people underestimated the percentage of the population that is gay. Because so many people overestimate the number of gays, it is impossible to replicate the effect learning that there are a significant number of gays may have had in the past decades when homosexuality was taboo and rarely discussed. A manipulation in the opposite direction would need to be used to demonstrate this. An argument that five percent of the population is gay may have a negative effect relative to the control, given that studies have shown that people overestimate the percentage of the population that is gay. Assuming the sample makes the same estimates about the size of the gay population as Gallup's sample of the general population did, this article will tell most people that the gay population is smaller than they believe it is. If people believe that a lower percentage of the population is gay, they may not be persuaded by this argument or may be dissuaded by it even though it references the way gay men suffer from hiding their sexual orientation. It is also possible that the perception of the number of gays in the population is not crucially important to support for gay rights. Those who are made aware that the

gay population is smaller than they believed it was may not care given the level of support for or opposition to gay rights they have already developed.

To Summarize, the hypotheses are:

1) The biology argument will be persuasive overall but will be most effective in nonreligious people which will only alter the overall means somewhat because this group is already known to be highly supportive of gay rights. It will not be effective in Evangelical Christians.
2) The small government argument will be most persuasive among conservatives and has the best chance of affecting Evangelical Christians. It should also be persuasive overall for this reason.
3) The numerical argument will decrease support for the gay rights initiatives if the control group overestimates the size of the gay population which it likely will based on national polling.

Chapter 4: Methodology

4.1: Experimental Portion

An experimental methodology was clearly the best choice because the principal aim of this research is to establish whether the correlation between exposure to these arguments and support for gay rights is due to a causal relationship. The main part of this research was an experiment performed in a Northwestern Political Science Research Lab and through Mechanical Turk. Those under 18 were excluded because of the complications of performing experiments using minors. In the Mechanical Turk sample, noncitizens were included because their responses did not differ greatly from the overall group and because it made it easier to perform significance testing by increasing the sample size. The Northwestern sample was gathered using the Northwestern Political Science lab. Students could choose between completing the survey over the internet and writing a five-page paper. A replication in Mechanical Turk was necessary to ensure that a representative sample was used because Northwestern students have a reputation for being very liberal. (As the results of this survey will show, that reputation is more than accurate.) Mechanical Turk is an Amazon service that allows the user to advertise Human Intelligence Tasks (HITs) to users who complete them in exchange for money. The users elected to complete the task based on a brief description of the survey and were redirected to the Northwestern Qualtrics interface to complete the survey.

The first portion of the survey consisted of demographic data on a person's gender, race, religion and home region which was collected for analysis. The Mechanical Turk sample also was asked questions about age and family income because adults are more likely to be able to accurately guess this within a range than college students.

The second portion of the survey was the treatment or independent variable was which the brief written passage subjects were exposed to. There was a control passage about global warming, a topic that is unrelated but somewhat similar in nature given that it is empirical rather than normative but has political implications. The first treatment passage was an interview with Professor Michael Bailey, who teaches Psychology at Northwestern and who argues that homosexual orientation is entirely innate, particularly in men, and that the narrative that an overbearing mother and absent or ineffectual farther results in homosexual orientation is lacking in any evidence. The second was an opinion piece written by Alaskan Republican Senator Lisa Murkowski in 2013, in which she became the third Republican senator to express support for same-sex marriage. Her argument reflects a libertarian viewpoint that supports small government and personal freedom. An allusion to Ronald Reagan whose daughter now says that he would support same-sex marriage if he lived to see the modern gay rights movement was removed to avoid confusing this argument with identity priming. The last treatment was a *New York Times* article written by Seth Stephens-Davidowitz, a Harvard Ph.D. in economics, published author and former Google researcher, who cites a comparison of data from social networking cites and dating apps with private searches for gay pornography to argue that there an equal number of gay men in all states despite the higher openly gay population in liberal states. He also places the overall figure for the gay population at around five percent of men based on the ratio of searches for heterosexual and homosexual explicit sexual material. All three of these arguments come from sources that are likely to be deemed highly credible by readers given their associations with Northwestern, Harvard and the United States Senate and reliance on evidence and sources that are likely to be deemed legitimate including scientific studies, big data and the Constitution. Each passage was accompanied by a manipulation check to determine if the participant had actually read and

understood the factual matter of the article. Participants were randomly assigned to only one of three experimental passages or to the control.

The final portion of the survey included the questions participants were asked to gage their support for gay rights based on various key issues that the gay rights movement has focused on. A number of tools have been used over the past few decades to determine levels of support for gay rights initiatives. However, many are now antiquated given that support for developments such as the legalization of gay relations and the repeal of Don't Ask Don't Tell is very high and that these issues are not publically debated. For this reason, the experiment operationalized support for gay rights using a number of questions taken from the Gallup Poll's survey on gay and lesbian issues. These included marriage, the issue that gay rights movement has based itself around, and adoption, which is legally related and which is possibly even more vital for some gay people. It also asked about hate crime laws and employment rights, both of which are currently matters of political and legal dispute but enjoy a relatively high level of support among the general population. For three of the questions, Gallup Poll questions were used to make the results more generalizable to the overall population. Gallup asks "Do you think marriages between same-sex couples should or should not be recognized by the law as valid, with the same rights as traditional marriages?" It asks, "Do you think same-sex couples should or should not have the legal right to adopt a child?" After an explanation of federal hate crime laws, it asks, "Would you favor or oppose expanding the federal hate crime laws in this way?" These questions were modified to fit a five prong feeling thermometer model of "strongly disagree, disagree, neither agree nor disagree, agree and strongly agree".

The question about employment used a description of the Employment Non-discrimination Act, which failed in Congress due to opposition from Republicans concerned about freedom of

religion, taken from *The Washington Post* and then asked respondents if they agree with this legislation. Gallup's question was not used here because it focused on support for equal job opportunities for gays and lesbians in general workplaces which has been high since the 1970's, even though support for gays in positions that interact with children such as doctors and teachers is a more recent development. This question instead focused on the specific legislation which some people believe would force religious employers to violate their beliefs and which is more controversial at the moment.

A final question was added as part of the Mechanical Turk survey and was original writing. It asked participants to agree with the statement that "Small businesses should be required to provide services for gay weddings regardless of the personal moral beliefs of their owners." While the questionnaire was modified to use with the Mechanical Turk sample, the scale of answers was also changed to a zero to ten scale, where zero represented strong disagreement and ten represented strong agreement. These changes were made in order to create a wider spectrum of support for and opposition to the proposals of gay rights activists.

4.2: Survey Data Analysis

The second part of the analysis looked at data taken from the World Values Survey. Because this is intended in part to determine how a gay rights movement could proceed in other countries, questions of the generalizability of findings about the persuasiveness of arguments made in the United States to other parts of the world exist. Unfortunately, data on the perceived percentage of the population that is gay by country does not exist or could not be located. Nor was data on the role of government with respect to social issues easily accessible. However, data about belief in religion and science was readily available. On an international level, the correlation between what percentage of people in each country supported religion when it conflicted with

science and what percentage of people in that country were strongly opposed to homosexuality was calculated. A control for socioeconomic status that computed this correlation coefficient for only countries in each of a high, middle and low income group was also used to determine if these relationships may be due to wealth acting as a confounding variable. The within-country portion of this analysis, involved looking on a national level at the correlation between how strongly a citizen supported homosexuality and how strongly he or she agreed with the statements. Finally, a regression was created for each country that included not only one's support for science in favor of religion but also one's self-perception of one's social class and one's income level as independent variables. This allowed for the calculation of Beta values for each independent variable in order to determine its effect on support for homosexuality after controlling for other variables.

Chapter 5: Northwestern Sample

As one would expect based on the university's liberal reputation, the Northwestern sample was not reflective of the national population. However, this was true to an extent that severely limited the ability to analyze the data to determine the effectiveness of each treatment. The sample was extremely supportive of gay rights: a majority of respondents "strongly supported" every gay rights initiative, minimizing any differences in support that would arise based on what treatment a participant was exposed to.

The demographic data collected reflected strong overrepresentations of groups known to be supportive of gay rights. Liberals and people not affiliated with any religion were highly overrepresented while Evangelical Christians were very underrepresented and Protestants were somewhat underrepresented. White people and Asians were also overrepresented and Black and Latino people were underrepresented. It was also obvious from the onset that this is a sample of students that is highly educated. The vast majority of Northwestern students successfully complete a bachelor's degree, an accomplishment most Americans do not achieve, and Northwestern is a highly selective institution, making this sample even more different than the general population. While this was not asked of the students because they may not know, it is known that Northwestern students tend to come from highly affluent families. The average yearly family income of a Northwestern student is approximately 170,000 dollars, more than three times the national average ("Economic Diversity" 2017).

A significant number of Northwestern students failed to answer the manipulation check question that corresponded to the biology passage correctly. For that reason, the responses of these students were not considered. It may be that the repeated use of the words male and female within

the question and answer confused participants. This question was entirely changed in preparation for the Mechanical Turk replication of the survey.

Support was strongest for marriage and adoption and was lower for hate crime legislation and employment nondiscrimination laws. This conflicts with the existing data about the national population as a whole, at least to an extent. Hate crimes legislation enjoys larger support than gay marriage (Gallup). It is worth noting that this issue goes beyond just a question of sexual orientation: some Americans strongly oppose hate crime legislation regardless of the identity of the victim on the basis of the idea that all crimes should be treaty equally and therefore would object to this change even if it were not about sexual orientation specifically. These respondents may otherwise be highly supportive of gay rights.

Comparing the effects of different treatments requires significance testing, specifically a test of the difference of means. The conditions to complete this test are as follows: each sample must be independent, which these are because it is random whether the participants were exposed to one treatment or another. Men were not any more likely than women to be exposed to the passage about biology nor were Christians more likely to be exposed to the small government passage than Jews. The sample must be a simple random sample of the population which it is relative to the Northwestern population aside from the fact that most respondents are studying Political Science. However, it is obviously not a simple random sample of the general population as has been discussed. The final and most problematic condition is that the sample must be normally distributed or be able to be assumed to be normal based on the central limit theorem. The sample can be assumed to be normally distributed if the sample size is greater than 40 or is between 15 and 40 and is relatively symmetrical with no outliers, which was not always the case here.

The difference in support between participants exposed to the biology passage and participants exposed to the control passage was not statistically significant. This could be interpreted as a replication of Suhay and Garretson but the sample size is biased in favor of supportive attitudes and relatively small so further replication was necessary. Likewise, neither of the other arguments were found to be statistically significant.

The Northwestern sample did provide interesting information about the role of gender in shaping support for gay rights. This replicated the findings of numerous other political scientists, psychologists, sociologists, anthropologists and gender and sexuality scholars: women are more supportive than are men. The p value of 0.0164 allows this to be determined with more than 95 percent confidence using a sample of 59 women and 45 men. This is an important finding because it occurs within a sample of largely liberal college students. The greater support for gay rights among women than men should be attributed to factors outside of their greater likelihood of attending college, a trend beginning several decades ago and that is becoming more pronounced among Millennials (Guo 2014).

This also replicated the finding that those who described themselves as any form of Christian, including Catholics, Evangelical Protestants and Mainline Protestants were less likely to be supportive of gay rights initiatives than those who described themselves as unaffiliated or not religious. Because given that the sample is biased in favor of a well-educated, liberal populace, religious affiliation in and of itself seems to play a major role in determining levels of support for gay rights. It seems that there is something in Christian teaching that makes people less likely to support equality for than religiously unaffiliated persons.

Chapter 6: Mechanical Turk Sample

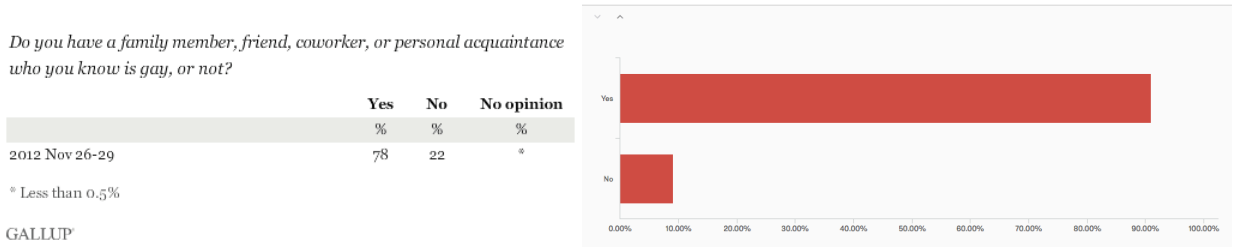
6.1: Overall Demographics of the Sample and Overall Results

The Mechanical Turk sample was less liberal than Northwestern student sample though it was still more liberal than the general population. Thirty-four percent of respondents described themselves as very liberal and 30 percent described themselves as liberal while twenty percent chose neither and only twelve percent identified as conservative. Only three percent identified as very conservative. People who identified as "unaffiliated/none" when asked about their religion were overrepresented at 44 percent. Of the respondents, 18 percent were Catholic, ten percent were mainline Protestants and seven percent were Evangelical Christians.

Interestingly, party affiliation showed a somewhat different trend. Only 13 percent identified as "strongly affiliated with the Democratic Party" and only 23 percent identified with the party less strongly. Only twelve percent identified with the Republicans and only two percent strongly identified with the GOP. Forty-eight percent of respondents did not identify with either party. It is worth noting that these results may be impacted by the unique political climate of the moment. Because the 2016 election involved the two least popular candidates of the post war era, Americans may have turned against party labels (Gallup). This is reflected in an August Al Jazeera Poll that found that 42 percent of Americans identify as independents, a historical high (Culhane 2016).

The sample was also heavily male, with 62 percent of respondents identifying as men, 34 percent identifying as women and a lone respondent identifying within the other category. Roughly 65 percent of the sample reported a family income of less than $50,000 per year, which is near the median national income (US Census 2015). This is likely because almost half the respondents, 48 percent, were between 20 and 30 and another 31 percent were between 31 and 40. This means that

these respondents may not actually be more likely to come from lower socioeconomic backgrounds. The opposite may actually be the case: forty percent of respondents had or planned to obtain a Bachelor's degree and sixteen percent had or planned to obtain a graduate or professional degree. Respondents may have been using the Mechanical Turk service because they were pursuing full time education and in need of money. People who had a gay friend or relative were also overrepresented in the Mechanical Turk Sample.



Do you have a family member, friend, coworker, or personal acquaintance who you know is gay, or not?

	Yes	No	No opinion
	%	%	%
2012 Nov 26-29	78	22	*

* Less than 0.5%

GALLUP

Figure 6: % of Respondents Who Know a Gay Person in Population and in MTurk Sample

The Mechanical Turk sample demonstrated many of the patterns that are known about support for gay rights. This data can be found in Appendix III and effect sizes refer to differences in support between two groups on a scale that ranges from zero to ten. This study's use of different gay rights laws allows us to speculate with more accuracy about the possible reasons for discrepancies that exist between different genders, religions and political factions. Males were less likely to be supportive of marriage, adoption, hate crime laws and employment nondiscrimination. However, there was no statistically significant difference between men and women in support for requiring businesses to provide services for a gay wedding. This may be because many respondents see this question as separate from the issue of gay rights. It may be that for them this question is more telling of one's beliefs about the role of the state and the special dispensations that should or should not be given to the church. (One respondent actually contacted the email address provided on Mechanical Turk to state that he felt this way.)

This replicated the finding that Christians are less likely to be supportive of marriage and adoption than non-religious people. Catholics and Protestants were both more supportive of every measure than were those who self-identified as Evangelical Christians. There was not a statistically significant difference in support for any of the initiatives with the exception of the small business rule, which Catholics were more supportive of than Protestants with an effect size of 1.38 and a p value corresponding to greater than 98 percent confidence. The samples of Buddhists, Jews and Hindus were too small to reasonably extrapolate from.

The political ideology scale revealed almost exactly what was expected. Support for the initiatives generally increased as one became more liberal. However, conservative and very conservative individuals did not differ greatly in their support for the hate crime law, employment nondiscrimination law and requirement that small businesses serve gay weddings. A large change in support for requiring businesses to serve gay weddings, does occur however, between conservative respondents and those answering neither. This change had an effect size of 2.66 and was statistically significant at p=.001. Collecting data by party affiliation generally showed the same trend. However, a large change between Republicans and those strongly affiliated with the Republican Party did occur with respect to the final question about small businesses. The "conservative" label is more telling than GOP affiliation of who is willing to require small businesses to serve gay weddings.

Analysis by race also provided interesting results. Respondents who identified as black or African American were less supportive of gay rights on the whole than respondents who identified as white, Asian or Hispanic/Latino. There were only 17 black respondents, an underrepresentation by almost a factor of five to one, making significance testing difficult and extrapolating from this finding highly questionable. It is impossible with this few respondents to determine whether the

greater religiosity of African Americans acts as a confound (Briggs 2015). The true cause of this difference is likely the large number of devoutly religious black people rather than other cultural differences between the races. However, this is only speculative due to the small sample size and lack of a measure of intensity of religious belief, a concept that is notoriously difficult to operationalize. White people were more supportive than Hispanics of hate crime legislation, a difference that was statistically significant at the 95th percentile with a p value of .0235 and substantially significant at an effect size of 1.28. No statistically significant differences between white and Hispanic respondents existed when they answered the other questions. This is made even stranger by the fact that Latino Americans are members of a minority group that is also subjected to hate crimes (Romero 2016). It is possible that this could have to do with levels of trust in law enforcement which are lower in Latinos than white people (Krogstad 2014). Nonetheless, this finding lacks a satisfactory explanation.

When the responses of white and Asian respondents were compared, the results were statistically significant with 95 percent confidence for hate crime laws and employment nondiscrimination and with 90 percent confidence for marriage and adoption. It is unclear why this is the case. One possibility is that Asians are more likely to be immigrants. Many come from cultures with more traditional gender norms and thus Asians could be inclined to be less supportive of gay rights. Research on the reasons why Asian Americans support or reject gay rights is of particular importance for the gay rights movement as Asians Americans are the fastest growing ethnic group in the United States ("Census: Asians" 2016). Additionally, though there are large cultural differences between Asian Americans and the citizens of Asian countries, findings about the role of Asian culture in support for gay rights could be useful because many believe the gay rights movement could make its next strides in parts of Asia.

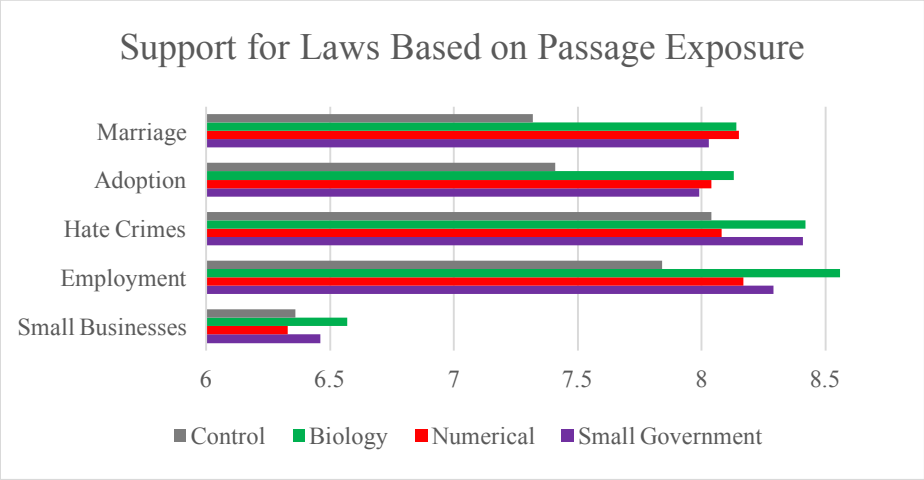


Figure 7: Support for Laws Based on Passage Exposure

Of the three arguments, the biological argument was the most persuasive overall, as can be seen on the chart found in Appendix III. It both yielded the greatest effect sizes and was statistically significant for the most questions, changing opinions for three out of five questions. The small government argument in contrast was highly persuasive only for the question of marriage and to an extent for adoption. The numerical argument increased support for marriage and did not affect support for any other initiative on the whole despite convincing respondents that the number of gays in the population was lower than the control group believed.

6.2: Results of the Biological Argument

For the biological argument, results were statistically significant with greater than 95 percent confidence for the questions of marriage and employment discrimination and with greater than 90 percent confidence for the question of adoption. Results were not near statistical significance for hate crime laws or small business requirements. The lower change in support for adoption than marriage may be because support for adoption was slightly higher in the control group, which is consistent with the national figures for these questions (Gallup). Indeed, support for marriage and adoption was virtually the same in the biology group and the larger effect size

for marriage is the reason for greater statistical significance. The reason why the results were not statistically significant for hate crime laws may be the same: support for both hate crime laws and employment nondiscrimination laws was at around 8.5 among those exposed to the passage but support for hate crime laws was higher in the control group. In other words, support for these initiatives may plateau among those exposed to the biology argument. In the future, it would be worth addressing whether exposure to multiple different effective arguments has an increased effect over exposure to one argument. The lack of an effect on answer to the small business question may be because people do not perceive that question through a lens of civil rights at all and instead prefer to think of that as an issue of religious establishments and free choice. This is a pivotal point to supporters of gay rights and the law because this has been the main frontier that debate over gay rights has confronted since the ruling in *Obergefell v Hodges*.

The effect of reading the biology passage on answers to the marriage and adoption questions was twice as strong among those unaffiliated with any religion than it was among Christians. The effect was not statistically significant for Christians for any of the questions asked, confirming the hypothesis that an argument based in biology is not persuasive to this group. It is more than 99 percent certain that the nonreligious were persuaded to favor marriage and adoption more strongly. This resulted in effect sizes of 1.1 for each of these questions. Little change occurred among the nonreligious who answered the question about hate crimes after reading the passage. This last finding may be because support for hate crime laws is high anyway especially among nonreligious people, who average an 8.4 when they answer this question in the control group. Many unaffiliated with any religion choose nines and tens even when exposed to the control so little room for increasing support for hate crime laws among this group exists. Among Christians, the biology passage seemed to actually decrease support for the small business

requirement by a negligible amount of .23. This further suggests that Christians in particular, do not see this as an issue of gay rights but as an issue of state interference.

When members of each sex were exposed to the biology passage, support increased among women but not among men. The results were statistically significant with greater than 90 and 99 percent confidence for women asked the marriage and adoption questions respectively and were substantively significant with effect sizes of over 1. The results were true with 99 percent confidence and an effect size of about 1.5 for employment laws but were not statistically significant for hate crime laws. This may result from how strongly women in the control supported hate crime laws; they averaged a response of 8.69. The fact that this argument did not result in statistically significant findings among males is perplexing. It may be that men are less likely to be persuaded to support gay rights by any argument rather than about how men interact with this particular argument. This is likely to be the case, because, as this paper will show, this trend continues for each of the other arguments. Like those unaffiliated with a religion, women were generally open to being persuaded by this argument, with the exception of when they answered the question about requirements for small businesses.

The biology passage generated relatively large effect sizes on the whole for both liberal and moderate respondents who answered the questions about marriage and adoption. (These categories were constructed by classifying respondents who identified as “very liberal” or “liberal” as liberals and “neither” as moderates.) It was impossible to analyze the impact of the biological argument on conservatives because the sample size of respondents exposed to the biology arguments that identified as conservatives was only four people. As such, this portion of the table in Appendix III is left blank.

6.3: Results of the Small Government Argument

The small government argument resulted in statistically significant changes in support for marriage, adoption and employment but not for any of the other measures. The adoption question resulted in an effect size of .58 and a p value of .08, meaning it showed statistical significance at only the 90 percent confidence level. The employment question resulted in only an effect size of .45 with 90 percent confidence. Marriage saw the highest impact with an effect size of .71 and 95 percent confidence in this finding. This is likely because marriage and adoption can be supported by a libertarian argument in favor of government nonintervention whereas hate crime laws can be construed as government intervention, because they regulate morality due to their focus on how groups are treated. Employment law regulates private entities but this effect size was not very strong and can possibly be attributed to general priming in favor of gay rights. The last question could be construed as government interference most easily and thus saw virtually no difference in support when respondents were exposed to the small government argument.

Like the biology argument, the small government argument was more persuasive among those not affiliated with any religion than it was among Christians. The argument did not result in statistically significant changes for any of the five questions about gay rights among Christians. The nonreligious on the other hand were more likely to support marriage and adoption after being exposed to this argument, a finding that holds true with greater than 95 percent confidence. This may be because this group of people is more inclined to support gay rights to begin with. It could also be that Christians view it as the role of the state to enforce the moral norms that align with Christianity and that therefore, a libertarian type reasoning will not be effective among them in arguing for gay marriage. This is the opposite of the expected results: the biology argument was closer to being effective among Christians than the small government argument. However, it is worth noting neither argument was persuasive to Christians, a group that gay rights activists need

to target to expand support for these measures in the population as a whole. In contrast, among those with no religious affiliation, the small government argument and the biology argument are persuasive to varying degrees.

The small government argument was also more persuasive among women than men. This is likely the case for the same reason it was more persuasive among the unaffiliated: women are more inclined to support gay rights to begin with. The argument did not result in any statistically significant changes among males but did for women answering the questions about marriage, adoption and employment.

The argument seemed if anything to have a counterproductive effect among conservatives, unfortunate news for Senator Murkowski and any other right leaning politician or commentator who hopes to bring gay rights to the Republican Party using the conventional logic of conservatives. In the case of the requirement that businesses serve gay weddings, there was actually a finding that holds true with 95 percent confidence that the argument made conservatives less likely to support the stance of gay rights activists. This finding had a high effect size of two. This is likely because requiring small businesses to serve gay weddings can be seen as government intervention.

Even liberals were not persuaded by the small government argument. They did not show a statistically significant change for any of the five questions. This is likely because this is a fundamentally conservative line of reasoning. This may also be because liberals are generally supportive of gay rights to begin with and there is less room to increase this support after exposure to the libertarian argument.

Those unaffiliated with any particular political ideology were the only ideological group affected by this argument. The results were statistically significant for all of the questions but the

final one and effect sizes were generally large, ranging from just under one to around two. Significance levels were close to 95 percent. It may be that this group was highly affected because it includes people who believe in a small government but not in traditional social conservatism. Gay rights activists can likely use this line of reasoning to win over moderate voters. This group is extremely politically important in determining election outcomes but is already generally supportive of gay rights, meaning that there may be little room to make advances (Mitchell 2016).

6.4: Results of the Numerical Argument

The numerical argument persuaded those who read it that the gay population was lower than the control group believed it was. This was found to be true with virtual statistical certainty due to the large effect size of several percentage points and large sample sizes of 75 and 399 participants. This was determined by comparing the estimates of people exposed to the numerical argument who answered the manipulation check correctly to those of people who were exposed to any other argument or the control argument. People overestimate the percentage of the population that is homosexual, so it actually convinced them that on the whole the population of homosexuals is lower than they otherwise would believe it is. On the other hand, because the survey did not ask what portion of the gay population they believe is in the closet, it is unclear if it also made them more aware of the struggle of closeted individuals. The data was analyzed through a difference of means test by converting each range to its median. If someone said that they believed the population fell between five and ten, the response was treated as a 7.5. Less than five was treated as five and more than 25 was treated as 25. The mean for those exposed to the numerical argument was 8.95 while the mean for all other groups was 10.87.

The numerical argument overall appeared to be persuasive for the marriage question but not for any other question. It resulted in an increase in support for gay marriage by .83. This finding

was statistically significant with 95 percent confidence. No statistical significance was found for any of the last four questions.

Among liberals, the numerical argument had no major effect. Support for marriage increased by .6 and this held true with 90 percent confidence. Among those who identified with neither political viewpoint, support increased for adoption, a finding that held true with 95 percent confidence and an effect size of 2.08, but remained the same for the latter three initiatives. The argument seemed to have no effect among conservatives with the exception of the final question, where it can be said with 90 percent confidence that it decreased support for the small business service requirement by 1.68. It seems that this argument strengthens the views that a group is already likely to hold because it can be interpreted in several different ways.

A similar pattern of the numerical argument having a positive effect among the nonreligious and a negative effect among Christians can be observed. It increased support for marriage and adoption by more than one point among the unaffiliated. This held true with 99 and 95 percent confidence respectively. It seemed with 95 percent confidence to decrease support for adoption by half a point and with 90 percent confidence to decrease support for employment laws by .068 among Christians.

The pattern continued with gender but the difference was less pronounced: the male in the group exposed to the passage did not differ significantly from those in the numerical treatment group. It can be said with 99 percent confidence that females in the numerical argument group were more supportive of marriage by about .63 than females in the control group. There were also moderate effect sizes and around 95 percent confidence for adoption and employment laws when women read this passage.

This may mean that becoming aware of the both the lower than expected number of gays in the population and the large number of gay men in the closet has a different effect based on how one is predisposed to view gay rights. Among groups that are likely to be supportive to begin with, including women, liberals, those not affiliated with a political party and those not affiliated with a religion, this argument leads to greater support for gay rights. Among groups that are already inclined to be less supportive of gay rights, including men, conservatives and Christians, this argument leads them to be less supportive of gay rights. This may be due to two lenses through which one can view the passage: it reveals the plight of closeted gay men who are forced to hide their true lives but it also reveals that the percentage of the population that is gay is lower than people are inclined to estimate, meaning there are less people in need of these rights and a lower chance that one's friend, family member or most emotionally one's child is a closeted homosexual.

It is worth noting that a very direct argument, where Senator Murkowski unabashedly states her support was not more persuasive than the arguments by implication made by Bailey and Davidowitz. It is possible that people are more prone to being persuaded by objective facts that lend themselves to support for gay rights than they are by outright arguments.

Chapter 7: World Values Survey Data

World Values Survey data reveals that there is a correlation between the percentage of the population that believed that "homosexuality is never justifiable" and the percentage of the population that believed that "when science and religion conflict, religion is always right". An overall country level analysis shows that there is a somewhat strong correlation of .604 between a country's overall percentage of the population opposing homosexuality and supporting religion in the place of science. This confirms what was already known, that areas of the world that tend to reject religion in favor of science tend to have more animosity toward homosexuals.

Socioeconomic status is a highly relevant confounding variable. Countries were divided into groups based on socioeconomic status where the high-income countries had a yearly GDP per capita of more than $30,000. The middle-income countries had a yearly GDP per capita of between $15,000 and $30,000 and the low-income countries had less than $15,000 for this figure. The correlations found within in socioeconomic group were significantly lower than the correlations observed for the entire group of countries, meaning that GDP per capita played a role in the correlation between belief that religion should be accepted over science and opposition to homosexuality. For belief in religion, the overall correlation was .60 whereas the correlations for high middle and low income groups were .59, 42 and .38 respectively. This indicates that the correlation between opposition to homosexuality and acceptance of religion over science is stronger among the more affluent countries.

There is a negative correlation of about -.32 between GDP per capita and acceptance of homosexuality. However, this correlation is only half of the one that exists between the science variable and opposition to homosexuality variable. This suggests that there are more than just socioeconomic differences connecting the two variables. This should be readily apparent:

countries like Singapore and Sweden have similar GDP per capita but very different perspectives on homosexuality. In Singapore, homosexual behavior between two males is still *de jure* illegal even if this law is not enforced while Sweden was one of the first countries to legalize same-sex in famously progressive Scandinavia (Oi 2013). These countries also have differing views of the role of the state: Singapore epitomizes *Laisse Faire* capitalism while Sweden has a large welfare state.

Data for individual countries confirms the finding that correlation between rejecting science in favor of religion and believing homosexuality to be unjustifiable is strongest in the wealthiest countries. Importantly, this analysis used correlations within countries allowing it to consider the full range of responses rather than only look at a correlation between the proportion of respondents that believed homosexuality was unjustifiable and the proportion of respondents that believed that they should believe in religion instead of science when the two conflict in each country. This looked at how individuals rank whether homosexuality is justifiable on a scale of one to ten and whether they should trust science over religion. In the country wide analysis, any answer besides "never justifiable" (ten) counted the same way whereas this method is able to distinguish mathematically between all of the numbers between zero and ten.

This found the highest correlation of any of the countries analyzed to be in the United States at .516, calling into question the issue of the generalizability of research on the role of biology in determining support for gay rights. The other English speaking countries analyzed had high correlation coefficients. Correlations for Australia and New Zealand were .395 and .402 respectively. Spain, Germany, Cyprus, the Netherlands and Sweden also had high correlations as did Estonia. This indicates that this connection seems to be largely a Western phenomenon. Of the Asian countries in this income category, Hong Kong, which was a British territory until 1991, had

one of the highest correlations at .191, while Japan, and Taiwan had correlations of .108 and .191. Trinidad and Tobago saw the lowest correlations in this income group. South Korea, classified as a middle-income country, reported a high correlation of .257, the highest in its income group and higher than the other Asian countries. South Korea like Taiwan and Japan was heavily influenced by the West during the postwar era. The highest income Asian countries on the continent are also where women are the most emancipated from traditional gender norms and gay rights are more frequently debated in public. It seems that in the Western World, and perhaps parts of Asia, there is a significant correlation between opposition to homosexuality and support for religion as a source of knowledge in the place of science.

A regression method revealed similar results: the regression included the answer to whether homosexuality was justifiable as the dependent variable and support for religion over science, social class and scale of incomes as independent variables. The question about science and religion included answers from one strongly agree to four strongly disagree, the question about incomes included answers from one, the lowest decile in income (based on estimation), to ten, the highest decile in income, and the question about social class included answers from one upper class to five lower class. R Squared values determined how strongly the model predicted the dependent variable while standardized Beta coefficients allow one to determine which independent variable has the most impact. The R square values are low which is highly problematic for this analysis. Nonetheless, the standardized Beta coefficient can allow one to determine which variable plays the largest role in determining the dependent variable, even if the model overall is not highly predictive of this variable.

The standardized beta coefficient for the science variable was by far the most predictive in high income countries, was still the most predictive in middle income countries though not by as

large an amount and was equally predictive with scale of income among low income countries. In Western countries, income and social class generally were mildly predictive of support but the belief in science was by far the strongest predictor. This beta value was highest in the United States, but also high in countries such as Taiwan, Hong Kong and Bahrain.

Correlation coefficients were also high in Latin American countries, many of which were considered middle income. Argentina, Chile and Uruguay in particular had high r values of over .2 and the first two of these countries had high Beta values for rejection of science. This trend was also true of Colombia among Latin American countries considered low income. Mexico and Brazil had notable but lower correlations of between .1 and .2.

Among the lowest income countries, this trend was most visible in Jordan, Pakistan and Yemen, all Muslim countries where Islam is tied to opposition to homosexuality. Notably India had the only correlation that was lower than -.1 and a corresponding Beta value of -.11. This could be tied to how the depiction of homosexuality in Hinduism is more nuanced than in any of the Abrahamic religions. Hinduism includes many instances of deities changing genders, being hermaphrodites or androgynous entities and of homosexual relations, some of which are not condemned ("HAF Policy Brief").

This suggests that the relationship between supporting religion over science as a source of knowledge and being morally opposed to homosexuality holds truer in Western countries and advanced economies. This is the case even when controls are implemented for socioeconomic factors. That it is more pronounced among wealthy nations may be tied to the relationship between levels of Westernization and wealth. There is almost no correlation in China but there is one in Japan, South Korea, Taiwan and Singapore. This could be tied to the greater per capita wealth of these Asian countries or also to the Westernization each of these countries experienced as

Americans conquered, fought alongside and supported the populace of these nations in the formative years of the postwar era.

The correlation, Beta value and R square value being higher in the United States than anywhere else suggests that the results of the experimental treatment of the biology passage may not be generalizable to other countries. In the United States, the Christian Right political lobby represent clear leaders in the opposition to expanding gay rights. In Latin America, certain Catholic factions may play the same role while in parts of Western Europe, different Christian factions play a role in the debate and in the Middle East, many countries see extreme aversion to homosexuality. However, in countries where this correlation is very low, such as China, where homosexuality is illegal, secular factors may be driving opposition to reform. Arguments that were not tested and that would not even surface in a paper on the United States, including those about the Communist Party dogma. This suggests that the gay rights movement may need to be addressed differently outside areas of the world that are heavily influenced by the West.

Conclusion

The experimental procedure confirmed many of the findings of previous writers on this subject: the disparities in gender, religion and political orientation with respect to support for gay rights remain in both the general sample taken from Mechanical Turk and in the sample taken from generally liberal, universally well-educated, typically liberal Northwestern students.

The Mechanical Turk results revealed that the biology argument was the most effective on the whole though the small government argument was still effective for the issues of marriage and adoption and to an extent for employment. This is explainable by the fact that the first two of these issues involve the government entering people's private lives whereas the others do not. In other words, the government is denying gays the rights to marry and adopt whereas it is private individuals that are perpetrating hate crimes against homosexuals. Support for employment protections may have increased because even proponents of small government often accept some government protection in this area. It is also possible that priming with any argument in favor of gay rights, could lead to support for these changes and that the small government lens itself is not as crucial. The small government lens also convinced conservatives to oppose the requirement that businesses provide services to gay weddings more strongly, meaning it could contribute to more opposition to the next frontier of the gay rights movement if it is used in public discourse.

The numerical argument convinced respondents that the gay population was smaller than they likely otherwise would have believed it was based on the control group. The only effect this had in the overall sample was a minor increase in support for gay marriage. It seems that the numerical argument does not play as large a role in changing opinions on gay marriage, at least at this point. Coming to realize that the gay population is smaller than people thought it was only negatively impacts support for these initiatives in groups that already tend to oppose gay rights.

Support for gay rights on the other hand, seems entrenched despite changes in knowledge of the gay population.

None of the arguments were persuasive among Christians while all were persuasive for at least some issues among people who were not religious. It seems that the groups most supportive of gay rights to begin with held their views more strongly after reading the passages while groups that are more likely to be hesitant to begin with were not persuaded. This indicates that polarization is likely to increase in the United States. It is possible that non-secular arguments could be persuasive to Christians.

The generalizability of these findings outside the United States must be called into question. Because the religious right represents much of the opposition to gay rights in the United States and the US sees an exceptionally strong relationship between opposition to science and opposition to homosexuality, the biology argument may be more persuasive in other parts of the world where this faction does not exist. For instance, Europe is more secular than the United States and the unaffiliated group that was more persuaded by the biology argument makes up a greater portion of the population of many European countries (Blumberg). The biology argument could potentially play a large role in persuading Europeans in the countries that have not yet adopted gay rights reforms such as marriage equality. It seems that the religious in the United States are not persuaded by biological research, likely because they reject scientific explanations in favor of theological ones. However, if research like this became more prevalent in Asian countries where the relationship between religion and the moral condemnation of gays is less clear, it is possible that opponents of gay rights there could be swayed. However, other cultural factors may drive opposition to gay rights instead and undermine this argument through different channels. This represents an area of research for future scholars interested in gay rights in the international arena.

Though the correlation between support for religion and opposition to gay rights held true in some of the areas of the world where gays struggle the most, including the Middle East, these countries are unlikely to see significant changes soon given the repressive regimes and political turbulence of the region.

Many of the remaining opponents of gay rights in the United States are conservative Christians, a group that was not persuaded by any of the arguments. In order to make advances in overall support for these initiatives, the gay rights movement may need to utilize theological rather than secular arguments to persuade this demographic. That increases in support were most visible among demographic groups that are already likely to support gay rights suggests that polarization of opinion on this issue may increase in the United States in the coming years. Much like abortion remains a dividing line almost forty-five years after *Roe v Wade,* gay rights may remain an issue that is debated from time to time in the era following the *Obergefell v Hodges* ruling.

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Appendix I: Survey Passages

Biology passage:

"The following is taken from an interview with Michael Bailey, a professor of psychology at Northwestern University and an expert on human sexuality.

Interviewer: Is there a biological basis for sexual orientation?

Professor Bailey: So, I've been studying the genetics of sexual orientation and using twin studies for twenty-five years or so. I think that male sexual orientation is inborn. And I think that we have pretty good reason to think that it is. I mean very inborn, resistant to change. There is no evidence that it changes.

Interviewer: So-called "ex-gay" activists like to claim that homosexuality is a learned behavior that can be fixed. What is your view?

Professor Bailey: People will often get confused in their terminology. They ask for example is homosexuality genetic or learned? Well, genetic is not the opposite of learned. I think inborn is the opposite of learned. A trait can be completely inborn without being completely genetic. And I think male sexual orientation is a case in hand. I think that we can reject immediately the idea that male homosexuality is caused by having a distant father or an overbearing mother. We have lots of evidence to the contrary.

Interviewer: So, in your view, is sexual orientation inborn?

Professor Bailey: In men sexual orientation is completely inborn. The reason why I believe that comes from cases of boys who due to some accident or medical condition are turned into girls early in life and followed into adulthood. These cases are very rare. When these cases are followed into adulthood you want to know who are they attracted to? If it's nurture, then because they are raised as girls they should be attracted to men. If it is nature because they were born males, they should be attracted to women. And it is to women they are attracted in every single published case. There are about five cases in the literature like this. I think that if you can't make a male attracted to other males by cutting off his penis and rearing him as a girl, then its impossible that sexual orientation is learned in men.

Interviewer: Scientists like to use the word environment. Anti-gay activists can easily distort this. Could you set the record straight on the meaning of this word in a scientific context?

Professor Bailey: Now, something to make very clear is the nature of environment. When I talk about environment as a behavioral geneticist, all I mean is something that is not genetic. I don't mean it has to be social, or what your mother did to you, or what your father did to you. Or that experience that you had early on. It could also be whatever happened to you in the womb. Or, illnesses that you might have had. Things you might have eaten. Even kind of random processes that we don't understand very well that seems to affect development."

Source: 18, 2013 September. "Dr. J. Michael Bailey." *LGBT Science*. N.p., 06 Nov. 2013. Web. 30 Apr. 2017.

Small Government Argument:

"The following is taken from an op-ed written by Alaskan Senator Lisa Murkowski, expressing support for same-sex marriage.

I believe in promoting freedom and limiting the reach of government. When government does act, I believe it should encourage family values. I support the right of all Americans to marry the person they love and choose because I believe doing so promotes both values: it keeps politicians out of the most private and personal aspects of peoples' lives – while also encouraging more families to form and more adults to make a lifetime commitment to one another. While my support for same sex civil marriage is something I believe in, I am equally committed to guaranteeing that religious freedoms remain inviolate, so that churches and other religious institutions can continue to determine and practice their own definition of marriage.

First, this is a personal liberty issue and has to do with the most important personal decision that any human makes. I believe that, as Americans, our freedoms include the rights enumerated in the Declaration of Independence: life, liberty and the pursuit of happiness. What could be more important to the pursuit of happiness than the right to choose your spouse without asking a Washington politician for permission? We don't want the government in our pockets or our bedrooms; we certainly don't need it in our families.

Secondly, civil marriage also touches the foundation of our national culture: safe, healthy families and robust community life. In so many ways, sound families are the foundation of our society. Any efforts or opportunity to expand the civil bonds and rights to anyone that wants to build a stable, happy household should be promoted.

Thirdly, by focusing on civil marriage -- but also reserving to religious institutions the right to define marriage as they see fit -- this approach respects religious liberty by stopping at the church door. I see marriage as a valued sacrament that exists exclusively between a man and a woman. Other faiths and belief systems feel differently about this issue – and they have every right to. Churches must be allowed to define marriage and conduct ceremonies according to their rules, but the government should not tell people who they have a right to marry through a civil ceremony.

Countless Americans want to give themselves to one another and create a home together. I support marriage equality and support the government getting out of the way to let that happen."

Source: Murkowski, Lisa. "OP-ED: Murkowski Shares Thoughts on Marriage Equality with Alaskans."*U.S. Senator Lisa Murkowski of Alaska*. N.p., 19 June 2013. Web. 30 Apr. 2017.

Numerical Argument:

"The following is taken from a New York Times op-ed by Seth Stephens-Davidowitz, a Harvard Ph.D. in Economics, published author and former analyst at Google**.**

What percentage of American men are gay? This question is notoriously difficult to answer. Historical estimates range from about 2 percent to 10 percent. But somewhere in the exa-bytes of data that human beings create every day are answers to even the most challenging questions.

Using surveys, social networks, pornographic searches and dating sites, I recently studied evidence on the number of gay men. While none of these data sources are ideal, they combine to tell a consistent story.

At least 5 percent of American men, I estimate, are predominantly attracted to men, and millions of gay men still live, to some degree, in the closet. Gay men are half as likely as straight men to acknowledge their sexuality on social networks. More than one quarter of gay men hide their sexuality from anonymous surveys. The evidence also suggests that a large number of gay men are married to women.

Data from Gallup, Facebook and the census suggests that the openly gay population is dramatically higher in more tolerant states, defined using an estimate by Nate Silver of support for same-sex marriage. On Facebook, for example, about 1 percent of men in Mississippi who list a gender preference say that they are interested in men; in California, more than 3 percent do.

Are there really so many fewer gay men living in less tolerant states? There is no evidence that gay men would be less likely to be born in these states. Have many of them moved to more tolerant areas? Some have, but Facebook data show that mobility can explain only a small fraction of the difference in the totally out population. I searched gay and straight men by

state of birth and state of current residence. (This information is available only for a subset of Facebook users.) Some gay men do move out of less tolerant states, but this effect is small. I estimate that the openly gay population would be about 0.1 percentage points higher in the least tolerant states if everyone stayed in place.

We can approach the question of whether intolerant areas actually have fewer gay men another way, too, by estimating the percent of searches for pornography that are looking for depictions of gay men. The advantage of this data source, of course, is that most men are making these searches in private.

While tolerant states have a slightly higher percentage of these searches, roughly 5 percent of pornographic searches are looking for depictions of gay men in all states. This again suggests that there are just about as many gay men in less tolerant states as there are anywhere else.

Since less tolerant states have similar percentages of gay men but far fewer openly gay men, there is a clear relationship between tolerance and openness. My preliminary research indicates that for every 20 percentage points of support for gay marriage about one-and-a-half times as many men from that state will identify openly as gay on Facebook.

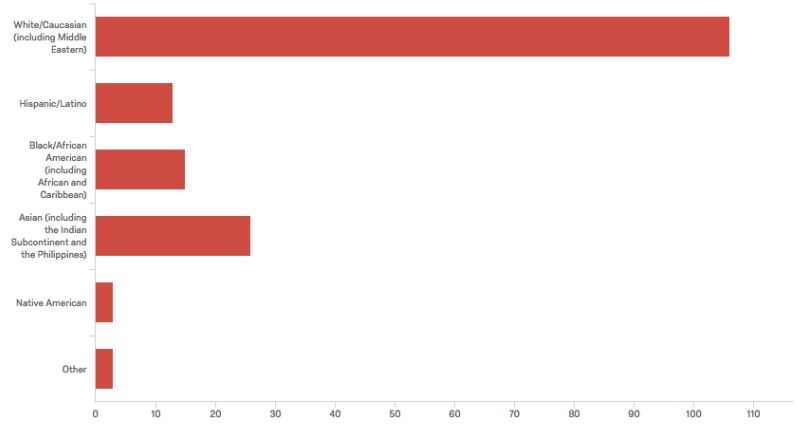
These results suggest that the closet remains a major factor in American life. For comparison, about 3.6 percent of American men tell anonymous surveys they are attracted to men and a tenth of gay men say that they do not tell most of the important people in their lives. In states where the stigma against homosexuality remains strong, many more gay men are in the closet than are out."

Source: Stephens-Davidowitz, Seth. "How Many American Men Are Gay?" *The New York Times*. The New York Times, 07 Dec. 2013. Web. 30 Apr. 2017.

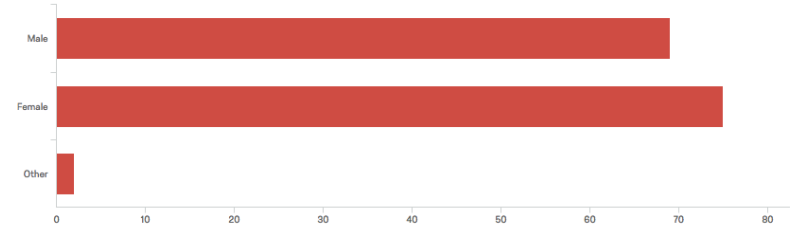
Appendix II: Northwestern Data

Demographics:

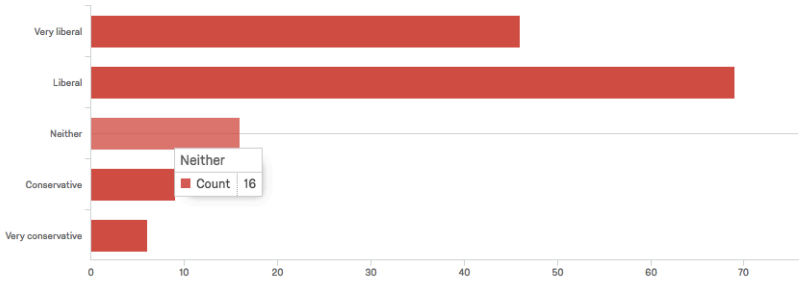
Race:



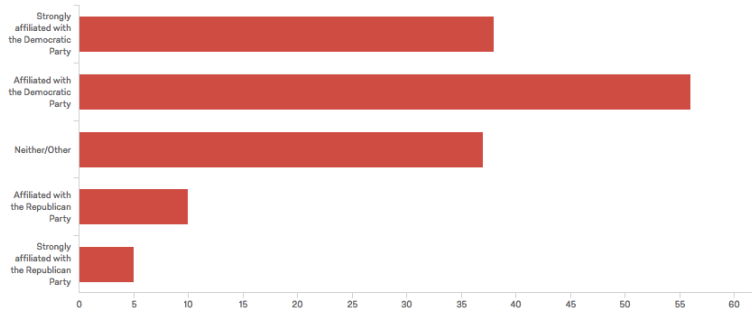
Gender:



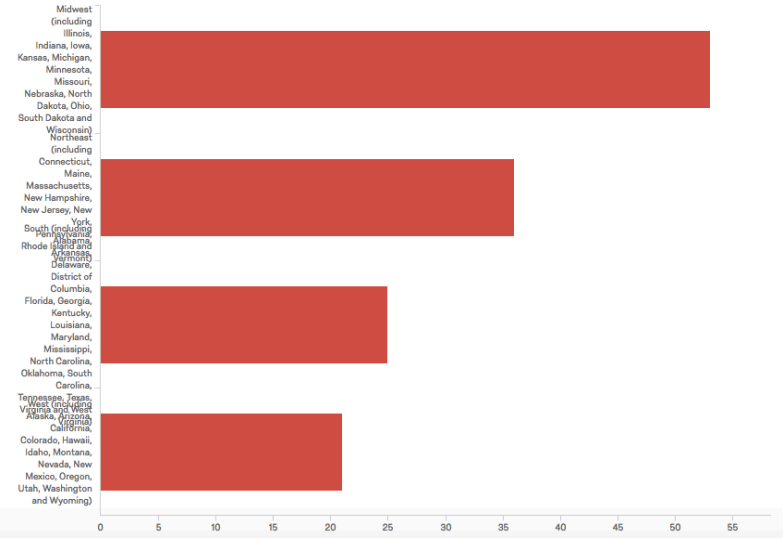
Political Ideology:



Party Affiliation:



Geography:



Religion (Partial):

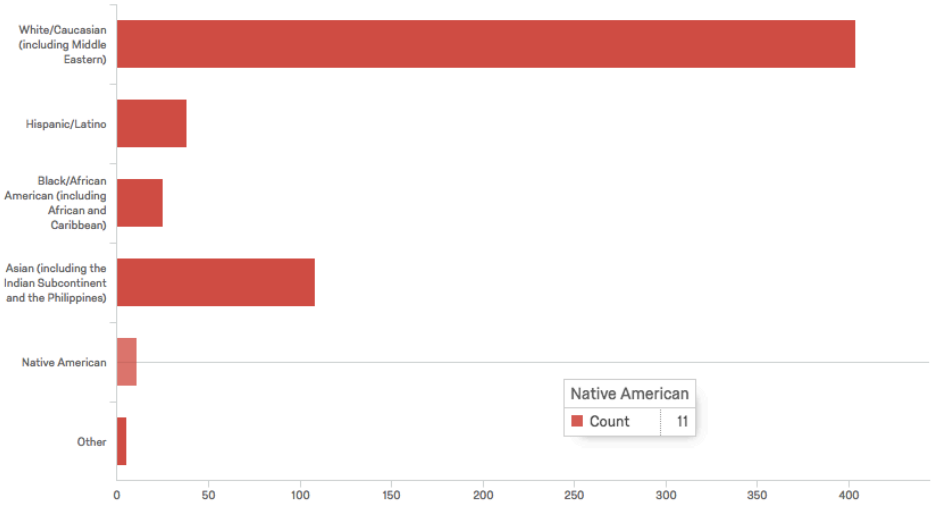
Overall Data:

		n:
Female Mean	15.58	59
Male Mean	14.56	45
Female/Male Effect Size	1.02	
Female/Male P Values	0.0164	
Unaffiliated Mean	15.43	44
Christian Mean	14.62	34
Christian/Unaffiliated Effect Size	0.81	
Unaffiliated/Christian P Value	0.085	
Control Mean	15	20
Biology Mean	13.83	19
Biology/Control Effect Size	1.17	
Biology/Control P Value	0.23	
Small Government Mean	15.64	22
Small Government/Control Effect Size	0.64	
Small Government/Control P Value	0.15	
Numerical Mean	15.52	25
Numerical/Control Effect Size	0.52	
Numerical/Control P Value	0.24	

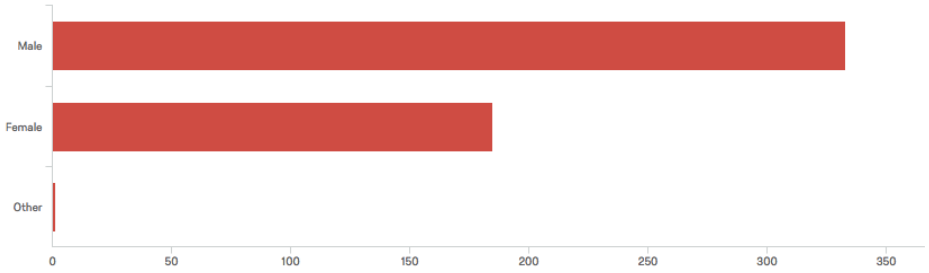
Appendix III: Mechanical Turk Data

Demographics:

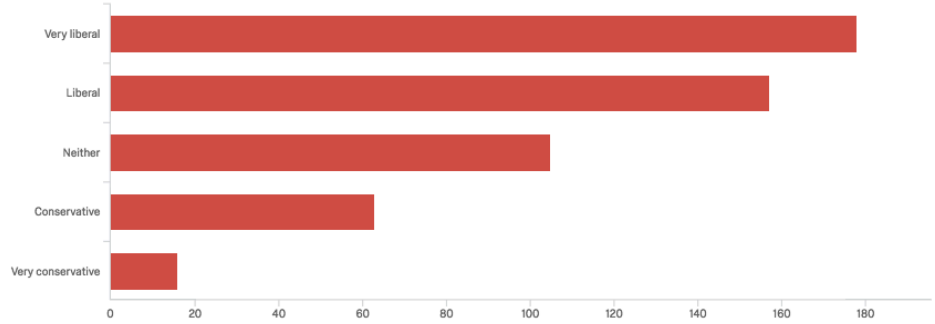
Race:



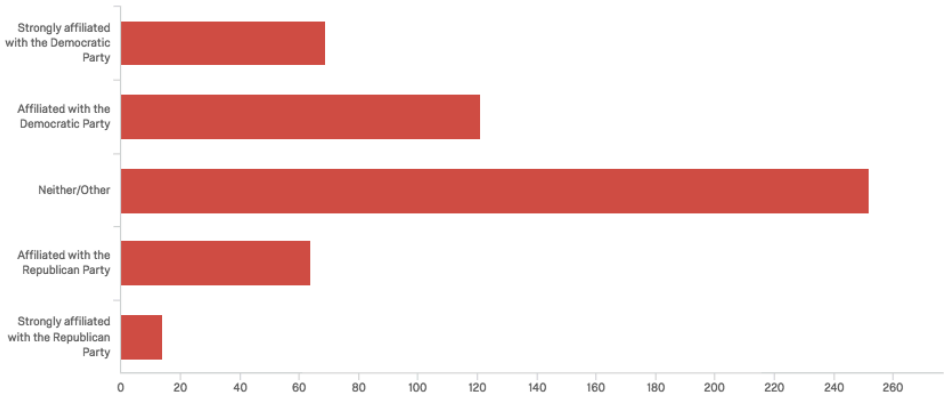
Gender:



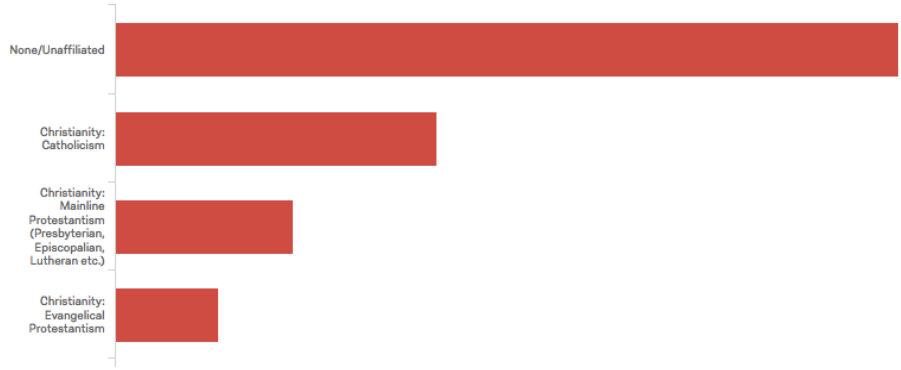
Political Ideology:



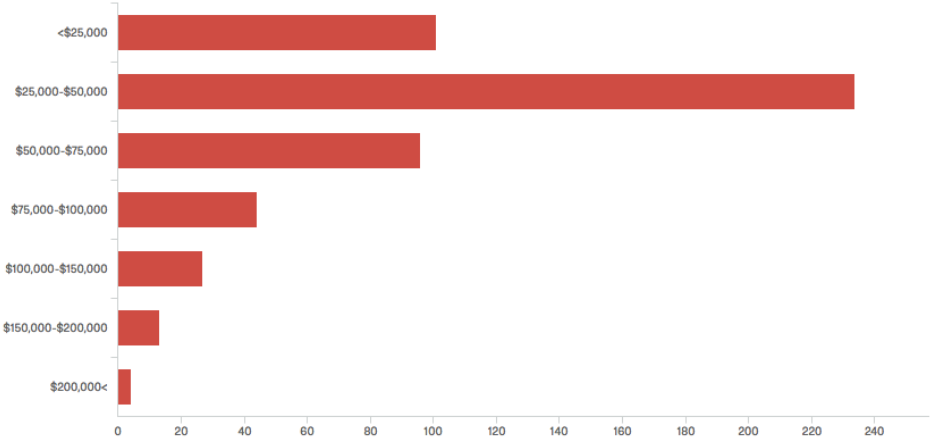
Party Affiliation:



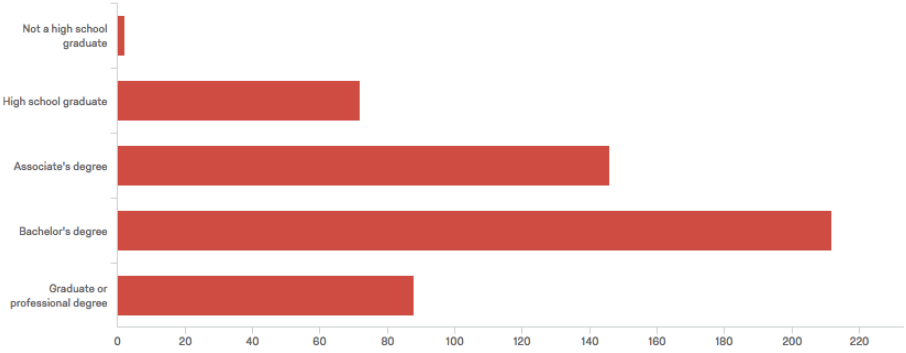
Religion (Partial:



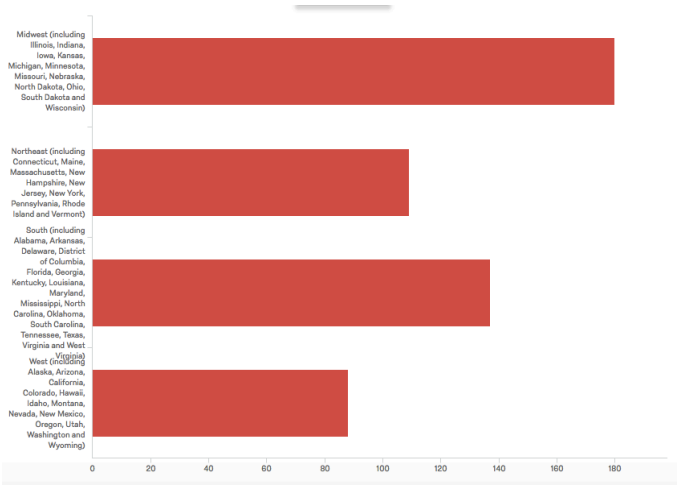
Average Yearly Family Income:



Planned or Achieved Highest Level of Education:



Geographic Origin (Where they attended high school for NU students and where they currently live for Mechanical Turk sample):



Overall Data:

	Marriage	Adoption	Hate Crimes	Employment	Small Businesses	
Overall Sample Means	7.72	7.53	8.05	8.05	6.6	
						n
Female	8.01	8.06	8.7	8.45	6.32	183
Male	7.54	7.43	7.68	7.81	6.61	328
Female/Male Difference	0.47	0.63	1.02	0.64	-0.29	
Female/Male P Values	0.051	0.0155	<0.001	0.00289	0.2	
Unaffiliated	8.9	8.67	9.02	8.83	7.27	224
Christian	6.64	6.54	7.47	7.29	5.29	175
Unaffiliated/Christian Difference	2.26	2.13	1.55	1.54	1.98	
Unaffiliated/Christian P Values	<0.001	<0.001	<0.001	<0.001	<0.001	
Catholic	7.37	7.03	7.55	7.48	6.17	93
Protestant	6.69	6.41	7.94	7.58	4.79	52
Evangelical	4.3	4.3	6.43	6.17	3.43	30
Catholic/Protestant Difference	0.68	0.62	-0.39	-0.1	1.38	
Catholic/Protestant P Values	0.13	0.3	0.21	0.43	0.0167	
White	8.04	7.95	8.48	8.34	6.54	331
Black	5.88	5.59	6.88	6.59	5.29	17
Asian	7.17	7.28	7.11	7.58	6.92	64
Latino	8.08	7.8	7.2	7.64	6.48	25
White/Asian Difference	0.87	0.67	1.37	0.76	-0.38	
White/Asian P Values	0.089	0.059	<0.001	<0.001	0.17	
White/Latino Difference	-0.04	0.15	1.28	0.7	0.06	
White/Latino P Values	0.47	0.4	0.0235	0.089	0.47	

Very Liberal	8.59	8.52	8.62	8.61	8.13	173
Liberal	8.07	7.95	8.08	8.31	6.63	156
Neither	7.51	7.4	8.13	7.92	5.99	104
Conservative	5.54	5.65	6.6	6.51	3.33	63
Very Conservative	4.56	4.75	6.88	6.44	3.69	16
Range (V Lib/V Cons Difference)	4.03	3.77	1.74	2.17	4.44	
Very Liberal/Lib Difference	0.52	0.57	0.54	0.3	1.5	
Conservative/Very Cons Differenc	0.98	0.9	-0.28	0.07	-0.36	
Liberal/Neither Difference	0.56	0.55	-0.05	0.39	0.64	
Liberal/Neither P Values	0.071	0.11	0.44	0.11	0.076	
Neither/Conservative Difference	1.97	1.75	1.53	1.41	2.66	
Neither/Conservative P Values	<0.001	0.00146	<0.001	0.00185	<0.001	
Strongly Democratic	9.09	8.79	9.3	9.01	8.57	69
Democratic	8.33	8.22	8.11	8.45	6.83	120
Neither	7.62	7.61	8.1	8.07	6.54	246
Republican	6.16	6.25	6.86	6.92	4.55	64
Strongly Republican	4.5	4.86	6.29	4.57	2.36	14
<25	7.62	7.54	8.06	8.12	6.57	99
25-50	7.58	7.62	8.09	8.03	6.77	231
50-75	7.76	7.46	7.71	7.81	6.25	95
75-100	8.52	8.11	8.02	8.4	6.41	44
100<	7.77	8.02	8.62	8.09	5.72	43
General sample	7.72	7.53	8.05	8.05	6.6	513
Bio (MC)	8.14	8.13	8.42	8.56	6.57	69
Numerical (MC)	8.15	8.04	8.08	8.17	6.33	75
Small Govt (MC)	8.03	7.99	8.41	8.29	6.46	128
Control	7.32	7.41	8.04	7.84	6.36	114

Biological Argument Data:

Biology/Control Effect Size	0.82	0.72	0.38	0.72	0.21	
Biology/Control P Values	0.0391	0.064	0.17	0.0294	0.35	
Unaffiliated: Biology	9.39	9.21	8.82	8.88	7.21	33
Unaffiliated: Control	8.29	8.1	8.75	8.4	6.83	48
Unaffiliated: Biology Effect Size	1.1	1.11	0.07	0.48	0.38	
Unaffiliated: Biology P Values	0.00589	0.00198	45	0.2	0.31	
Christianity: Biology	7.33	7.05	8	7.86	5.1	21
Christianity: Control	6.69	6.57	7.62	7.45	5.33	42
Christianity: Biology Effect Size	0.64	0.48	0.38	0.41	-0.23	
Christianity: Biology P Values	0.22	0.3	0.3	0.3	0.41	
Male: Biology	7.75	7.44	7.93	7.83	6.24	41
Male: Control	7.21	7.44	7.65	7.68	6.31	72
Male: Biology Effect Size	0.54	0	0.28	0.15	-0.07	
Male: Biology P Values	0.18	0.5	0.31	0.39	0.46	
Female: Biology	8.67	9.11	9.11	9.63	6.93	27
Female: Control	7.52	7.36	8.69	8.12	6.45	42
Female: Biology Effect Size	1.15	1.75	0.42	1.51	0.48	
Female: Biology P Values	0.068	0.00695	0.22	<0.001	0.31	
LibVlib: Biology	8.76	8.61	8.89	8.72	7.22	46
LibVlib: Control	8.27	8.36	8.42	8.59	7.33	66
LibVlib: Biology Effect Size	0.49	0.25	0.47	0.13	-0.11	
Lib Vlib: Biology P Values	0.26	0.3	0.12	0.38	0.42	
Neither: Biology	7.42	7.68	7.42	8.37	5.63	19
Neither: Control	6.52	6.32	7.96	7.44	5.64	25
Neither: Biology Effect Size	0.9	1.36	-0.54	0.93	-0.01	
Neither: Biology P Values	0.21	0.11	0.3	0.14	0.5	
ConsVcons: Biology	N/A	N/a	N/A	N/A	N/A	4

Small Government Argument Data:

Small Government/Control Effect Size	0.71	0.58	0.37	0.45	0.1	
Small Government/Control P Values	0.0412	0.083	0.12	0.093	0.42	
Unaffiliated: Small Government	9.11	9.05	9.28	9	7	57
Unaffiliated: Control	8.29	8.1	8.75	8.4	6.83	48
Unaffliliated: Small Govt Effect Size	0.82	0.95	0.53	0.6	0.17	
Unaffliliated: Small Govt P Values	0.0456	0.0354	0.082	0.12	0.41	
Christianity: Small Government	6.81	6.6	7.68	7.51	5.4	47
Christianity: Control	6.69	6.57	7.62	7.45	5.33	42
Christianity: Small Govt Effect Size	0.12	0.03	0.06	0.06	0.07	
Christianity: Small Govt P Values	0.44	0.49	0.46	0.46	0.47	
Male: Small Government	7.46	7.36	7.99	7.84	6.51	80
Male: Control	7.21	7.44	7.65	7.68	6.31	72
Male: Small Government Effect Size	0.25	-0.08	0.34	0.16	0.2	
Male: Small Government P Values	0.32	0.44	0.22	0.13	0.36	
Female: Small Government	8.98	9.04	9.13	9.04	6.38	48
Female: Control	7.52	7.36	8.69	8.12	6.45	42
Female: Small Government Effect Size	1.46	1.68	0.44	0.92	-0.07	
Female: Small Government P Values	0.00858	0.00424	0.16	0.0311	0.46	
LibVlib: Small Government	8.74	8.71	8.79	8.7	7.8	76
LibVlib: Control	8.27	8.36	8.42	8.59	7.33	66
LibVlib: Small Government Effect Size	0.47	0.35	0.37	0.11	0.47	
Lib Vlib: Small Government P Values	0.12	0.19	0.15	0.38	0.18	
Neither: Small Government	8.81	8.73	8.88	8.5	6.88	26
Neither: Control	6.52	6.32	7.96	7.44	5.64	25
Neither: Small Government Effect Size	1.75	2.04	0.46	1.15	1.69	
Neither: Small Government P Values	0.00553	0.00695	0.069	0.0262	0.12	
ConsVcons: Small Government	5.19	5.15	6.85	6.88	2.11	26
ConsVcons: Control	5.27	5.68	6.86	6.18	4.09	22
ConsVcons: Small Government Effect Size	1.25	0.64	1.1	1.26	1.55	
ConsCcons: Small Government P Values	0.47	0.33	0.49	0.24	0.0369	

Numerical Argument Data:

Numerical/Control Effect Size	0.83	0.63	0.04	0.33	-0.03	
Numerical/Control P Values	0.039	0.13	0.46	0.21	0.48	
Unaffiliated: Numerical	9.55	9.57	9.31	9.37	7.47	38
Unaffiliated: Control	8.29	8.1	8.75	8.4	6.83	48
Unaffiliated: Numerical Effect Siz	1.26	1.47	0.56	0.97	0.64	
Unaffiliated: Numerical P Values	<.001	0.0255	0.18	0.43	0.39	
Christianity: Numerical	6.24	6	6.92	6.48	4.32	25
Christianity: Control	6.69	6.57	7.62	7.45	5.33	42
Christianity: Numerical Effect Siz	-0.45	-0.57	-0.7	-0.97	-1.01	
Christianity: Numerical P Values	0.32	0.04	0.19	0.068	0.16	
Male: Numerical	7.49	7.51	7.4	7.64	5.67	45
Male: Control	7.21	7.44	7.65	7.68	6.31	72
Male: Numerical Effect Size	0.28	0.07	-0.25	-0.04	-0.64	
Male: Numerical P Values	0.33	0.46	0.33	0.47	0.19	
Female: Numerical	8.15	8.04	8.08	8.17	6.33	30
Control: Female	7.52	7.36	8.69	8.12	6.45	42
Female: Numerical Effect Size	0.63	0.68	-0.61	0.05	-0.12	
Female: Numerical P Values	0.007	0.0403	0.19	0.0608	0.16	
LibVlib: Numerical	8.87	8.72	8.6	8.87	7.43	53
LibVlib: Control	8.27	8.36	8.42	8.59	7.33	66
LibVlib: Numerical Effect Size	0.6	0.36	0.18	0.28	0.1	
Lib Vlib: Numerical P Values	0.07	0.24	0.33	0.23	0.43	
Neither: Numerical	8	8.4	7.8	7.6	5.2	10
Neither: Control	6.52	6.32	7.96	7.44	5.64	25
Neither: Numerical Effect Size	1.48	2.08	-0.16	0.16	-0.44	
Neither: Numerical P Values	0.11	0.047	0.43	0.43	0.39	
ConsVcons: Numerical	5.08	4.5	6	5.58	2.41	12
ConsVcons: Control	5.27	5.68	6.86	6.18	4.09	22
ConsVcons: Numerical Effect Siz	-0.19	-1.18	-0.86	-0.6	-1.68	
ConsCcons: Numerical P Values	0.45	0.23	0.28	0.35	0.087	

Numerical Gay Population Estimate	8.95	n=75
All Other Arguments Gay Estimate	10.87	n=399
P Value	<0.001	

Appendix IV: World Values Survey Data

Questions:

Dependent variable:

For each of the following actions, please indicate whether you think it can always be justified, never be justified, or something in between.

Homosexuality: 1 (Never justifiable) to 10 (Always justifiable)

Independent variables:

Do you strongly agree, agree, disagree, or strongly disagree with the following statements?

Whenever science and religion conflict, religion is always right: 1 (Strongly agree) to 4 (Strongly disagree)

People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the...?

1 (Upper class) to 5 (Lower class)

Shown below is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please select the appropriate number, counting all wages, salaries, pensions and other incomes that come in.

1 (Lowest group) to 10 (Highest group)

Country level analysis:

	Correlation between choosing religion over science and opposing homosexuality
Overall r	0.6036
High income r	0.5905
Middle income r	0.4217
Low income r	0.3825
	Correlation between between GDP per capita and opposing homosexuality
	-0.3211

Individual level analysis:

High income countries:

				Standardized Beta Values:		
	Pearson r	R Square	Adjusted R Square	Science/religion	Social class	Scale of incomes
Australia	0.395	0.176	0.174	0.37	-0.046	0.121
Bahrain	0.123	0.033	0.03	0.151	-0.118	-0.106
Taiwan	0.174	0.084	0.082	0.165	-0.127	0.136
Cyprus	0.258	0.064	0.06	0.25	-0.006	0.012
Germany	0.226	0.063	0.062	0.218	-0.128	-0.01
Hong Kong	0.191	0.077	0.074	0.196	-0.063	0.163
Japan	0.108	0.02	0.018	0.025	0.082	0.116
Netherlands	0.341	0.13	0.128	0.297	-0.082	0.092
New Zealand	0.402	0.202	0.198	0.326	-0.091	0.198
Singapore	0.132	0.02	0.018	0.126	0.012	0.058
Slovenia	0.246	0.101	0.098	0.244	-0.07	0.128
Spain	0.309	0.101	0.104	0.317	-0.49	0.014
Sweden	0.292	0.089	0.086	0.275	-0.084	0.027
Trinidad and Tobago	0.089	0.014	0.01	0.093	-0.033	0.05
United States	0.516	0.277	0.276	0.512	0.008	0.084
Average:	0.253			0.238	-0.082	0.072
	0.2534375			0.2376875	-0.082375	0.0721875

Middle income countries:

				Standardized Beta Values:		
	Pearson r	R Square	Adjusted R Square	Science/religion	Social class	Scale of incomes
Algeria	0.141	0.018	0.015	0.131	0.011	0.026
Azerbaijan	-0.071	0.01	0.007	-0.079	-0.025	0.058
Argentina	0.235	0.066	0.063	0.231	-0.085	0.05
Brazil	0.138	0.019	0.017	0.136	0	0.006
Belarus	-0.026	0.006	0.003	-0.034	-0.064	0.008
Chile	0.304	0.103	0.099	0.321	0.051	-0.029
China	-0.025	0.005	0.003	-0.016	0.092	0.042
Estonia	0.126	0.04	0.038	0.103	0.102	0.23
Iraq	0.115	0.081	0.079	-0.311	-0.077	0.061
Kazakhstan	-0.083	0.018	0.016	-0.077	0.004	0.107
South Korea	0.257	0.084	0.082	0.257	0.073	0.169
Lebanon	0.072	0.006	0.004	0.071	0.029	0.028
Malaysia	0.1	0.027	0.025	0.066	-0.131	-0.004
Mexico	0.1	0.028	0.026	0.076	0.019	0.032
Poland	0.333	0.14	0.136	0.29	-0.206	0.061
Romania	0.25	0.079	0.077	0.224	-0.072	0.084
Russia	-0.016	0.025	0.024	-0.004	-0.051	0.129
Thailand	0.116	0.04	0.037	0.118	-0.109	0.114
Turkey	0.15	0.023	0.021	0.147	0.014	0.034
Uruguay	0.248	0.069	0.065	0.157	-0.058	0.017
Average:	0.123			0.09	-0.024	0.061

Low income countries:

				Standardized Beta Values:		
	Pearson r	R Square	Adjusted R square	Science/religion	Social class	Scale of incomes
Armenia	0.046	0.008	0.005	0.047	0.028	0.087
Colombia	0.252	0.082	0.081	0.228	-0.054	0.116
Ecuador	-0.034	0.012	0.009	-0.03	0.073	0.117
Georgia	0.103	0.02	0.017	0.11	0.097	0.09
India	-0.113	0.028	0.027	-0.11	-0.068	0.077
Jordan	0.283	0.099	0.096	0.268	-0.059	0.102
Libya	0	0	-0.001	0.001	-0.013	-0.019
Morocco	0.064	0.02	0.016	0.085	0.065	0.162
Nigeria	0.007	0.036	0.034	0.014	-0.182	0.013
Pakistan	0.228	0.054	0.051	0.231	0.044	0.041
Peru	0.117	0.043	0.04	0.099	-0.061	0.141
Philippines	0.086	0.014	0.012	0.082	0.089	0.033
Rwanda	0.042	0.006	0.004	0.037	0.084	0.061
South Africa	0.03	0.039	0.038	0.028	-0.002	0.195
Zimbabwe	0.047	0.003	0.001	0.046	-0.02	0.007
Tunisia	0.019	0.005	0.002	0.012	0.02	0.078
Ukraine	0.027	0.02	0.017	0.014	-0.059	0.099
Uzbekistan	0.144	0.005	0.002	-0.039	0.03	-0.037
Yemen	0.222	0.063	0.058	0.232	0.034	0.118
Average:	0.083			0.071	0.002	0.078