

Social desirability bias and question framing effects: Evidence from a combined list and framing experiment on same-sex marriage support in Argentina

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Social desirability bias and framing effects: Evidence from a combined list and framing
experiment on same-sex marriage support in Argentina^{*}
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Scholars of public opinion have long recognized that elite and media discourse shape the public's understanding of political issues, particularly through the framing of issues (Chong and Druckman 2007). In order to test the resonance of different frames of an issue with the public, researchers increasingly rely on lab or survey experiments that present respondents with different frames prior to asking their opinion on a particular issue. Sometimes these experimental designs include real or realistic news articles with carefully crafted issue frames (e.g., Brewer 2002; Bolsen, Druckman, and Cook 2014). Other times, the framing is a more subtle change in a key phrase used to describe policy (e.g., Merolla, Ramakrishnan, and Haynes 2013; Schuldt, Konrath, and Schwarz 2011).

Usually, these designs assume that they measure the extent to which the vignette or frame is persuasive or resonates with particular respondents due to value or attitude congruence. However, measuring the effects of different issue frames may not be so simple when an issue is highly contested or sensitive. In general, we understand that it can be difficult to measure public opinion on such issues due to potential social desirability bias, or an impulse to give what is perceived to be the socially acceptable response. This poses a challenge for estimating the effects of different frames on opinions because it may not be possible to isolate a framing effect from the introduction of some social desirability bias through the framing of the issue in the experiment. To address this concern, we designed a survey experiment that combined two common experimental designs that are often used separately to estimate the size both of social desirability bias and of framing effects. We combine a list experiment, which is often used to measure and explain social desirability bias, with a framing experiment in which we remind respondents of dominant issue frames before directly asking them their opinion on the issue. This design enables us to both understand patterns of social desirability bias as well as compare unbiased opinions with those for different direct question frames.

We chose the issue of same-sex marriage (SSM) in Argentina as the setting for this survey experiment for several reasons. Argentina was the first country in Latin America, and tenth in the world, to legalize SSM. The 2010 legalization of SSM was the result of a very intense national debate, a debate that was largely induced by the country's lesbian, gay, transgender and bisexual (LGTB) movement. Furthermore, the national debate generated two very clear, dominant competing frames articulated by advocates and opponents of legalization. As the debate regarding legalization of SSM escalated in Congress in March and April of 2010, the AmericasBarometer asked Argentines directly whether they approved of same-sex couples having the right to marry (*casarse* in Spanish). At that time, 59.8% of Argentine respondents approved of SSM (95% confidence interval: 57.1% to 62.4%). Though this percentage was closer to 71% in the national capital, even beyond Buenos Aires more than 58% of respondents supported SSM in March and April 2010. Since its adoption, the level of support for SSM, according to direct questions in public opinion polls, has been stable but highly divided, with 55.1% approving in 2012 (95% CI: 51.4%, 58.8%) and 59.0% in 2014 (95% CI: 56.5%, 61.5%). Meanwhile, just over 70% of Argentines reported that religion was somewhat or very important

^{*} Earlier versions of this research has been presented at McMaster University, University of Guelph, and the Midwest Political Science Association.

in their lives in 2014 (Latin American Public Opinion Project (LAPOP) 2014), making Argentina a particularly ideal place to examine pressures to provide socially desirable responses to direct questions with alternative frames on this issue. Now, five years after the legalization of SSM in Argentina, we revisit public opinion to answer the following questions: When asked about SSM, do Argentines honestly report their opinion, and if not, who is most likely to overstate or understate their support? And, when reminded of the dominant frames deployed by advocates and opponents of SSM, to what extent do the frames prompt different types of respondents to over or understate their support for SSM?

We begin by providing an overview of the legalization of same-sex in Argentina, including how the debate was framed by elites and in the media. We then discuss issues of potential social desirability bias when asking respondents about sensitive issues and explain the ways that elite frames are expected to shape public opinion. We also provide a brief overview of other factors that the literature has found to influence individual positions on SSM. The next section describes the data and methods used in our analysis. We find that overall Argentines tend to overstate their support for SSM when they are asked directly (about 50% compared to the 55-59% in other surveys), though with interesting variations by gender and religious identity. Women tend to overstate their support, while men significantly understate it. While Catholics and evangelicals will tend to understate their support for SSM when asked directly, those who are other minority religions or non-religious significantly understate their support for same sex marriage. We also find that when a direct question about SSM is framed as either a human rights or religious issue, it alters the patterns of response as well.

Argentina's legalization of SSM

As early as 2007, several bills to legalize SSM had been introduced in Argentina, though none made it out of the committee level. In October 2009, after a meeting between Deputy Vilma Ibarra from the lower house and the leaders of prominent LGTB activist groups, two existing proposed bills were combined and discussions were planned at the committee level.¹ However, lack of support from President Cristina Fernández de Kirchner (2007-2015) meant that no quorum was achieved, and legislative debate stalled. Nevertheless, the national debate gained force when a judge in the city of Buenos Aires ruled days after the failed committee meeting that the articles of the Civil Code that established marriage to be between a man and woman violated equal protection by the national and the Buenos Aires constitutions (*Clarín*, November 12, 2009). The case was followed by similar cases in which courts ruled favourably on the grounds of unconstitutionality, many of which were overturned by other judges.

The national debate continued apace as rulings in favor, and against, SSM cases continued. Some 60 couples had filed for writs of *amparo* (exemptions or protections related to a law) by the end of February 2010. In the same month, a Supreme Court judge indicated in an interview in the daily *Página 12* that the court was ready to rule on the issue, and in a rather cryptic way, that it would do so favorably because the prohibition of gay marriage did not pass constitutional muster (February 15, 2010). The judge also indicated that the debate in the bench was whether they should wait until parliament debated the issue. It is within this context that the

¹ The activist groups were the Argentine Homosexual Community (Comunidad Homosexual Argentina, CHA) and the Argentine Federation of Lesbians, Gays, Bisexuals and Transexuals (Federación Argentina de Lesbianas, Gays, Bisexuales y Transexuales, FALGBT). For a deeper discussion of the mobilization of LGTB activism in Argentina, see Díez (2015).

bill was reintroduced to Congress for debate, and proponents and opponents began to firm up their arguments along very clear policy frames.

Acting strategically, proponents advanced their demand for SSM through arguments crafted as an issue of equality and human rights. Taking advantage of the importance of human rights in post-transition Argentina, they framed SSM as a matter of human rights and central to the country's democratization (Schulenberg 2012). They borrowed from their Spanish counterparts the term 'equal marriage' to refer to SSM and deployed the slogan "the same rights with the same names" (Díez 2015). A clear human rights frame thus emerged. Arguments against SSM, led by the Catholic Church leadership, were articulated in a document, *On the Unalterable Good of Marriage and the Family*, published by the Plenary Assembly of the Argentine Bishops' Commission (Vaggione 2010, 941). The framing clearly rested on Natural Law principles, according to which a sexual act can only be moral if it is for procreation and performed within the bounds of a married life. For opponents, then, the issue was framed as one of morality.

Armed with these policy frames, proponents and opponents of SSM lobbied legislators. Debate resumed at the committee level on April 14, 2010, when the combined bill was re-introduced to the lower house, the Chamber of Deputies, and the bill moved onto the floor of the Chamber, with May 4 as the date for the vote. Proponents and opponents mobilized through the media and on the streets and continued to lobby legislators to vote for their position (Díez 2015). After a very heated debate and strong lobbying pressure from both sides, the pro-SSM forces won with 126 votes cast in favor, 110 against and 4 abstentions (Schulenberg 2012). The vote's final numbers cut across the two main political parties, none of which is confessional. The bill then moved to the Senate, a more conservative chamber given its disproportionately higher rural representation. The Senate itself held public hearings with testimony from non-state actors, including scientists and religious leaders, in Buenos Aires and several provinces, all of which attracted media attention and street protests. Given the magnitude of the debate, President Fernández de Kirchner began to pressure her own Senators and publicly declared support for the reform.

Gay and lesbian activists organized a rally in late June in front of Congress at which they presented a list of organizations, public figures and personalities that had declared their support for SSM (*Página 12*, June 29, 2010). Meanwhile, religious groups changed their strategy, supporting civil unions (*Clarín*, June 1, 2010), organizing protests in front of Congress (*Clarín*, June 1, *La Nación*, June 4, 2010), and calling for a referendum on SSM, convinced that a majority of Argentines were not in favor. After a 14-hour debate, the Senate approved the measure 30 votes in favor, 27 against. On July 21, 2010, President Fernández de Kirchner promulgated the law, making Argentina the first country in Latin America in which SSM became legal.

Sensitive questions, framing, and SSM

The preceding narrative makes clear two important characteristics of the debate over SSM in Argentina at the time of legalization. First, the public and policy elites were highly divided on this issue, which became the center of a national debate. Though SSM supporters had and continue to have a small margin over the opposition, the bifurcation of public opinion highlights the extent to which the issue was contested. Such polarized topics can lead to social desirability bias in opinion surveys, as respondents feel social pressure to answer questions in ways that align with what they believe to be more socially acceptable.

Though this issue has not been addressed yet in Argentina, a handful of studies have examined the potential for bias in polls related to SSM in the United States. For example, Powell (2013) notes that support for SSM is often lower in state-level ballot measures than it is in polls leading up to such referenda, even after taking into account poll timing relative to the ballot measure, poll margin of error and other factors. However, this gap could be due to differences between the electorate mobilized to vote on SSM and the representative samples included in statewide polls. By contrast, Lax, Phillips, and Stollwerk (2014), using an indirect method of asking respondents about same sex-marriage similar to that we use here, find that there is no significant overall bias in expressions of support for SSM when respondents are directly asked their opinion. Further, they find no significant bias even among religious conservatives or according to level of education. Given the polarization of the debate over SSM in Argentina, which is at once a predominantly Catholic society but also one that has reaffirmed its commitment to human rights as part of democratization, we want to understand the extent to which and why social desirability bias may be driving poll results.

Second, the divisions in elite opinion were clearly organized around competing issue frames. While LGTB activists framed SSM as an issue of democratization and human rights, religious elites framed it as an issue of religious values and morality. Research on social movements has often stressed that movement elites explicitly seek to mobilize support among the public through strategic use issue frames that resonate, or align, with master frames that dominate social debates (Anthony, Heckathorn, and Maser 1994; Fligstein and Mara-Drita 1996). Indeed, some even argue that such framing efforts by elites are the “essence of public opinion formation” (Chong 1993, 870). Meanwhile, political behavior studies demonstrate that these elite framing efforts have significant influence on public opinion, not only moving opinion on issues but changing the ways in which people think about issues (Druckman 2001; Jacoby 2000; Sniderman and Theriault 2004). Furthermore, as a mediating institution, the media often transmit dominant elite frames in ways that influence opinion as well (Brewer 2003b; Terkildsen and Schnell 1997). Studies of issue framing in the United States demonstrate that the way in which SSM is framed has a significant effect on levels of support for its adoption (Brewer 2003b; Brewer 2003a; McCabe and Heerwig 2012). However, when two competing frames are deployed by elites, the success of such frames will depend on the extent to which they resonate with the public’s values (Zaller 1992, chap. 9). In Argentina, we expect expressions of support for SSM to be higher among those who are committed to democracy and its values and to be lower among those who are more religious.

In addition to these particular characteristics of the public debate in Argentina, a growing literature has examined the correlates of support for SSM around the globe, converging on a common set of factors that help explain why some people are more likely to support SSM. Two of the most important demographic characteristics are gender and age. Some argue that women are more likely to support SSM because they empathize with those who experience discrimination and feel less threatened by homosexuality (Wilkinson 2006; Sherkat et al. 2011, 175). In Latin America, homosexuality is often stigmatized and seen as a sign of femininity and weakness (Carrillo 2002), and heterosexual men are also known to be particularly disapproving of homosexuality compared to women (Lancaster 1992; Parker 1999). We expect that social norms around gender in Argentina may create incentives for women to understate and men to overstate their support for SSM when they are asked about the issue directly. Older generations are also more likely to hold these negative views of homosexuality and therefore oppose SSM. Research in the United States suggests that older individuals are not only significantly less likely to

support SSM, but that this is often one of the best predictors of attitudes (Baunach 2011; Becker 2012; Becker and Scheufele 2011; Brewer 2003b). Finally, several studies in the United States find consistent evidence that political liberals or leftists are more supportive of LGTB rights and SSM (Olson, Cadge, and Harrison 2006; Becker and Scheufele 2009; Baunach 2012; Haider-Markel and Joslyn 2008; for similar findings in Sweden see Jakobsson, Kotsadam, and Jakobsson 2013). This is because those on the left tend to support civil rights and more inclusive policies. In contrast, conservatives are less likely to believe that homosexuality has genetic roots, which is consistent with their emphasis on personal responsibility and a tendency to blame those for situations beyond their control (Haider-Markel and Joslyn 2008).

Data and analytical strategy

Our analysis uses multiple public opinion surveys carried out in Argentina from 2010 through 2015 and proceeds in three distinct phases. First, we use AmericasBarometer surveys from 2010, 2012, and 2014 to provide preliminary support for the main hypotheses outlined above and to demonstrate stability in the factors that explain support for SSM since legalization of SSM. Second, we proceed to analyze a list (or item count technique) experiment included in the June 2015 of the Argentine Panel Election Study. We perform a multivariate analysis of the list responses, emphasizing the factors that explain support, how these compare to the AmericasBarometer models, and evidence of social desirability bias. Third, we extend the analysis of the list experiment to consider the effects of issue and question framing on response bias.

Estimates of support for SSM in Argentina in 2010, 2012, 2014

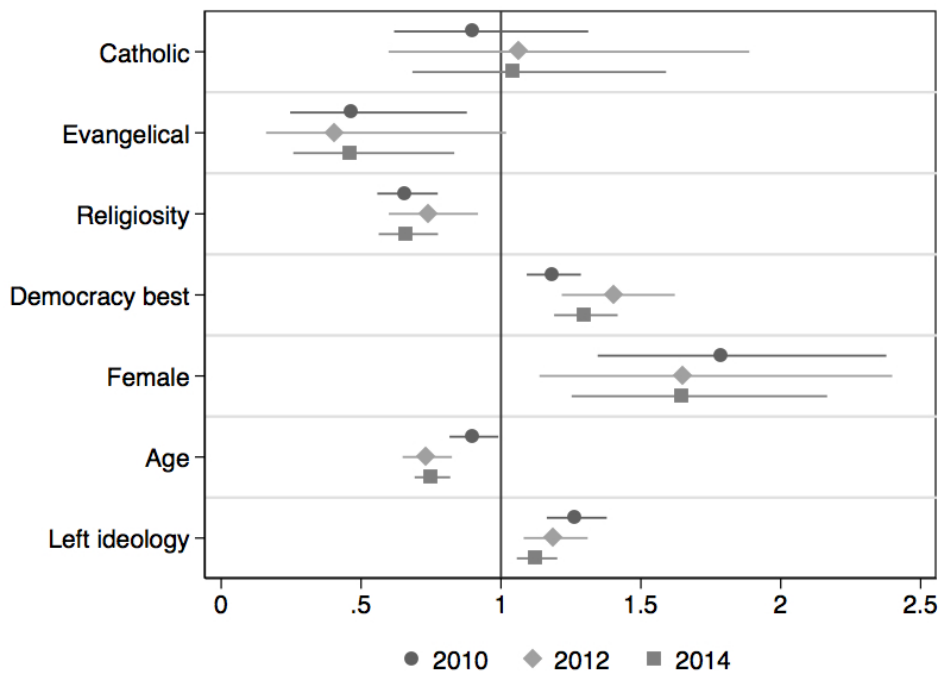
AmericasBarometers have been conducting public opinion surveys on nationally representative samples throughout Latin American since the mid-2000s and have included a question about approval of SSM on each wave of the survey program since 2010.² In particular, the surveys ask respondents to what extent they approve or disapprove that same-sex couples should have the right to marry. The responses are on a 10-point scale. In all waves, the responses to this question are highly polarized, with peaks at each extreme. Therefore, in the analyses that follow, we have coded the response into a dichotomous measure of support and estimate the models as logistic regressions for each wave of the survey.

We include indicators for each of the principal variables suggested by our understanding of the political framing and process of SSM legalization in Argentina and the existing literature on public attitudes toward SSM elsewhere. First, we include two indicators for those respondents that identify as either Catholic or any evangelical Christian denomination (e.g., Seventh Day Adventist, Church of Latter Day Saints). In Argentina, both Catholic and evangelical leaders publicly opposed the SSM legislation. The reference category includes a handful of respondents who reported another religions, a small number of atheists, and a larger group of non-religious believers in each wave. We also include a measure of subjective religiosity based on a question

² The surveys were in the field in March and April in 2010, March 3-April 4, in 2012, and February 28-March 22 in 2014. In all three waves, the sample is unweighted and the estimated margin of error is ± 2.5 (Latin American Public Opinion Project (LAPOP) 2010; Latin American Public Opinion Project (LAPOP) 2012; Latin American Public Opinion Project (LAPOP) 2014). In 2012, the question about support for same-sex marriage was asked of half of the sample chosen at random.

asking respondents how important religion is in their life, ranging from not at all to very important (1-4). To measure democratic commitment, we use a question asking respondents the extent that they agree that despite its problems, democracy is the best form of government on a scale from one to seven. Responses to this question are associated with democratic values and are frequently used to measure commitments to democracy (Córdova and Seligson 2009; Seligson 2007). Based on the public debates around SSM in Argentina at the time of legalization, we expect those with religious identities to be less supportive and those with strong democratic values to be more supportive. As control variables, we include indicators for gender, age, and ideology. Gender is equated with sex and coded as a dummy for female; women are expected to be more likely to support SSM. Age is collapsed into six age groups by decade, beginning with 18-25 (the reference category), 26-35, 36-45, 46-55, 56-65, and 66 and over. The probability of supporting SSM should decline with age. Finally, ideology is measured using a question asking respondents to place them on a ten-point scale from right (1) to left (10). Those who identify as more leftist are more likely to support SSM.

Figure 1: Support for SSM in Argentina in 2010, 2012, and 2014 (Odds ratios)



Note: Odds ratios from logistic regression estimates of support for SSM in 2010, 2012, and 2014 in Argentina (Latin American Public Opinion Project (LAPOP) 2010; Latin American Public Opinion Project (LAPOP) 2012; Latin American Public Opinion Project (LAPOP) 2014). Full model results in Appendix.

We estimated logistic regressions on each wave of the survey, and Figure 1 includes the estimates of the model of SSM support in 2010, 2012, and 2014 in Argentina. (A table of model results is in the Appendix.) This figure depicts the odds ratios for each independent variable, and therefore numbers greater than one represent increased odds, or a positive effect. The figure facilitates comparison of the confidence intervals across the three waves, which largely overlap for all the variables. The Pseudo R^2 s for these models are 0.104, 0.119, 0.123, respectively.

These estimates are largely consistent with our theoretical expectations. Evangelical Christians have about 54-59% lower odds than the non-religious of supporting SSM across all waves, though in 2012 this effect is larger but not statistically significant due to the smaller sample size that year (see footnote 1). Likewise, increased religiosity reduces the odds of a respondent supporting SSM by 26-34%. The results for Catholic respondents are less consistent or strong. In no wave is there evidence that Catholics are statistically significantly more or less likely to support SSM than those that are not religious and the direction of the effect varies over waves. To the extent that there is a pattern, Catholics are less likely to approve of SSM in 2010, just before the legalization and in the midst of the public debates, while in subsequent waves Catholics become more likely to support SSM, though not significantly so. Meanwhile, democratic values are strongly associated with a higher probability of supporting SSM across all waves. Increased agreement that democracy is the best form of government increases the odds of supporting SSM from about 18% to 40% depending on the survey wave. These results are mostly consistent with our expectations about the ways in which the national debate on SSM shaped public opinion.

The control variables are also consistent with our expectations based on the literature. The odds that women will support SSM are between 65% and 80% higher than those of men. Each additional decade of age reduces the odds of supporting SSM by about 10-26% across the three waves. As expected, higher levels of leftist ideology are statistically significantly associated with a reduction in the odds of supporting SSM. This effect has decreased from 26% higher odds of supporting SSM as left ideology increases in 2010 to about 13% higher odds in 2014. The declining role of ideology over time may signal some normalization of SSM, though it is only suggestive. Overall, these estimates serve two purposes. First, they provide a baseline for comparison when we analyze the survey experiments included in the 2015 APES. Second, they highlight stability over time in the factors that support SSM from the period just before legalization through 2014. This gives us greater confidence that our results for 2015 would be similar had we been able to do the study closer to the time of legalization.

Estimating models of support for SSM in 2015 using a list experiment

The consistency and stability of these estimates from 2010 through 2014 serve as a useful starting point for our examination of responses in the first wave of the Argentine Panel Election Study (APES) in June 2015 (Lupu et al. 2015). The first wave of the APES included a nationally representative sample of 1149 respondents. We begin with a list experiment we designed to examine potential social desirability bias regarding support for SSM (Diez and Dion 2015). A list experiment, also referred to as the item count technique, is an indirect method of asking questions that is designed to elicit more accurate measurements of opinions about sensitive issues (Mutz 2011, 27–31; Glynn 2013). Our list experiment appeared very early in the survey and before any other mention of SSM. Respondents were randomly divided into a control and treatment group, and each group was presented with a list of statements (see Appendix for sample statistics for each experimental group). Table 1 includes a list of the statements presented to each experimental group, and the statements were randomly rotated in order within the list. Respondents are then asked to report not which statements they agree with, but how many statements they agree with out of the list.

Table 1: Control and Treatment List Items

Control list	Treatment list
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<ol style="list-style-type: none"> 1. The government spends too much money to fight poverty. 2. Public security is a big problem in our country. 3. The government has eliminated public corruption in our country. 4. The government should reduce corporate taxes. 	<ol style="list-style-type: none"> 1. The government spends too much money to fight poverty. 2. Public security is a big problem in our country. 3. The government has eliminated public corruption in our country. 4. The government should reduce corporate taxes. 5. Same-sex couples should have the right to marry. (In Spanish: Las parejas del mismo sexo deben tener el derecho a casarse.)
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The effectiveness of the experiment and its improvements in measurement of agreement with a sensitive list item requires that the experimental design not violate key assumptions. For example, list experiments should enable respondents to provide information about their opinion on the sensitive item without directly revealing this information. This means that respondents should not be very likely to either agree or disagree with *all* the statements in either list, which would clearly reveal their (dis)agreement with each item. One suggestion for minimizing these *floor* or *ceiling* effects is to ensure that non-sensitive list items are likely to be negatively correlated (Glynn 2013). In our design, agreement with the statements “Public security is a big problem in our country” and “The government has eliminated public corruption in our country” are intended to evoke the opposite reaction among respondents, particularly because both public security and corruption are nearly continual concerns in Argentina. In addition, the two other items tap into concerns about government finances, particularly anti-poverty spending and corporate tax cuts, which are common campaign issues. A second assumption is that respondents are truthful in their response to the lists and do not respond to list items differently when the list includes the sensitive item (Blair and Imai 2012). We sought to not draw attention to the statement about SSM by including other social issues, such as crime and corruption, in addition to economic issues. Blair and Imai (2012) develop a statistical test with a null hypothesis that neither of these first two assumptions (no floor/ceiling effects and no liars). According to this test, our list experiment has no design effects.

Typically, the proportion of respondents who agree with the sensitive list item (i.e., support SSM) is equal to the difference in the average count of items in the control and treatment groups (Mutz 2011, 28). According to our list experiment, about 50.6% of respondents support SSM. This is much lower than the estimate based on a direct question in the 2014 AmericasBarometer, which was 59.0% (95% CI: 56.5%, 61.5%), suggesting that in aggregate, respondents may tend to overstate their support for SSM when asked directly. Perhaps of greater interest, however, is which characteristics are most associated with supporting SSM, according to the list experiment. To that end, we estimate a multivariate model developed by Imai (2011) and implemented in the List package for R (Blair and Imai 2015). Based on the main hypotheses in the literature and the results presented in Figure 1, we include indicators for Catholic and Evangelical respondents (reference category includes non-religious and other minority religions), subjective religiosity, agreement with the statement that democracy is the best form of government, age in decade increments, left ideology, and an indicator for female respondents. The only differences in measurement from those of the AmericasBarometer are that subjective

religiosity measures frequency of attendance at religious services (ranging from 1-7), not how important religion is in one’s life, though both measures have been used in previous studies of SSM with similar findings (Sherkat et al. 2011; Olson, Cadge, and Harrison 2006; Adamczyk and Pitt 2009; Andersen and Fetner 2008). Also, agreement with the statement that despite its problems, democracy is the best form of government only ranges from one to five, not one to seven as in the AmericasBarometer.

These results (Table 2, Model 1) are largely consistent with our expectations, though the deviations are informative. For example, Catholics appear much less likely to support SSM than we would have expected based on the AmericasBarometer direct question analysis, suggesting that Catholics may overstate their support when asked directly. At the same time, subjective religiosity appears to have no significant effect on agreeing with the sensitive item, or supporting SSM. Also, although we expected women to be more likely to support SSM, our analysis suggests that when women are asked about their support indirectly, as in our list experiment, they are much less likely to express support for SSM compared to men. This suggests that women may overstate their support when asked directly, or that men understate their support when asked directly, at least in comparison to women.

We are able to unpack these relationships further, paying particular attention to potential social desirability bias, by comparing the list analysis to a similar analysis of responses to a direct question about support for SSM asked of those in the list control group (Aronow et al. 2015). In our experiment, however, we added an additional wrinkle to the direct question. We manipulated the framing of the question across four experimental conditions, which were assigned randomly to respondents. A quarter of the sample was asked, “How much do you agree that same-sex couples should have the right to marry?” and responses ranged from strongly disagree to strongly agree on a five-point scale. Another quarter was asked the same question, preceded by the statement “Religious leaders say that marriage between same-sex couples violates religious values,” and another quarter preceded by “Leaders of the homosexual rights movement say that marriage between same-sex couples is a human right.” The final quarter of respondents received both frames, with the religious statement first. In some ways, these statements are very weak frames because they merely state a position of elites, without extensive anchoring with a vignette. Nonetheless, these statements reflect the two competing frames that were used by elites to discuss SSM in Argentina at the time of legalization (Díez 2015).

In order to examine social desirability bias, we first estimate a logistic regression using the direct question responses for the list control group only, including the same covariates used in the list analysis as well as a set of indicators for the different frames included with the direct question. (Model 2 in Table 2). Because these respondents only saw a list without mention of SSM, their responses to a direct question about support for SSM can be used to estimate a model that will provide some insights into which characteristics are associated with tendency to overstate or understate support for SSM. Because the distribution of responses is bi-modal and to mirror the list regression, we recode responses to the direct question such that those that “somewhat agree” and “strongly agree” are coded as supporting SSM and all others as not. Those two categories of response account for 51.9% and 53.43% of responses in the list control and treatment groups respectively. These percentages are similar to the overall estimate of support in the list experiment (50.6%).

Table 2: Estimated coefficients for list experiment and framed direct questions of support for SSM in 2015

	(1)	(2)	(3)	(4)
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	List	Direct question		
	Treatment group	Control group	Full sample	Full sample
Catholic	-9.454** (3.625)	0.182 (0.355)	0.200 (0.246)	0.205 (0.248)
Evangelical	-13.264* (5.219)	-0.489 (0.500)	-0.882* (0.348)	-0.884* (0.349)
Religiosity	0.588 (0.510)	-0.412*** (0.080)	-0.290*** (0.056)	-0.291*** (0.056)
Democracy best	1.790* (0.784)	0.131 (0.129)	0.132 (0.090)	0.137 (0.090)
Female	-4.121* (1.833)	0.625** (0.226)	0.630*** (0.154)	0.636*** (0.155)
Age (1-6)	-1.223* (0.551)	-0.224*** (0.067)	-0.236*** (0.047)	-0.237*** (0.047)
Left ideology	1.598** (0.543)	0.160** (0.050)	0.169*** (0.034)	0.170*** (0.034)
(Intercept)	0.964 (3.635)	0.112 (0.700)	-0.048 (0.494)	-0.194 (0.509)
Experimental conditions				
		-0.119 (0.301)	-0.161 (0.213)	-0.075 (0.295)
Religious frame		0.726* (0.320)	0.368 (0.210)	0.736* (0.316)
Human rights frame		0.008 (0.295)	-0.040 (0.208)	0.042 (0.292)
Both frames			-0.038 (0.149)	0.203 (0.296)
List treatment group				-0.166 (0.428)
Religious frame X List treatment				-0.658 (0.425)
Human rights frame X List treatment				-0.160 (0.416)
Both frames X List treatment				

* .05, ** .01, *** .001. Standard errors in parentheses. Model 1 estimated using list experiment regression as described in Imai (2011) and Blair and Imai (2012) and as executed using the List package (v8.0) for R (v3.2.0). Model 2 estimates a logistic regression of support for SSM for those respondents in the list treatment group and includes a set of indicators for the framing of the direct question. Model 3 uses the entire sample for the logistic regression analysis, including a set of indicators for the framing of the direct question as well as the list treatment condition. Model 4 is also on the full sample but includes a set of interaction terms between the two sets of experimental treatment conditions.

The analysis of the responses to the direct questions in the list control group provides some evidence consistent with a framing effect. For instance, among these respondents, for those who received the human rights framing, the odds of expressing support for SSM doubled (odds

ratio = 2.067) compared to those who received no question frame and the difference is statistically significant. Meanwhile, those who received the religious frame had about 11% lower odds of supporting SSM compared to those with no frame (odds ratio = 0.888), though the difference is not statistically significant. Likewise, there is no statistically significant difference between those who received both frames compared to those who received no frames. These findings suggest that frames can shift responses in predictable ways. At the same time, these shifts could just as easily be a reflection of social desirability bias as a framing effect. While it is possible that responses shift due to respondents being persuaded by a frame used in the survey, it is also equally possible that the respondent interprets the frame as a signal about the socially acceptable or desirable way to answer the question, and thus, shifts their response to the question to better align with the frame. If that is the case, then framing experiments are capturing social desirability bias as much as a framing effect. This is consistent with recent studies that suggest question wording has a significant impact in how US respondents express their support for SSM (Flores 2015).

Table 3: Responses to direct question about SSM by list and framing conditions

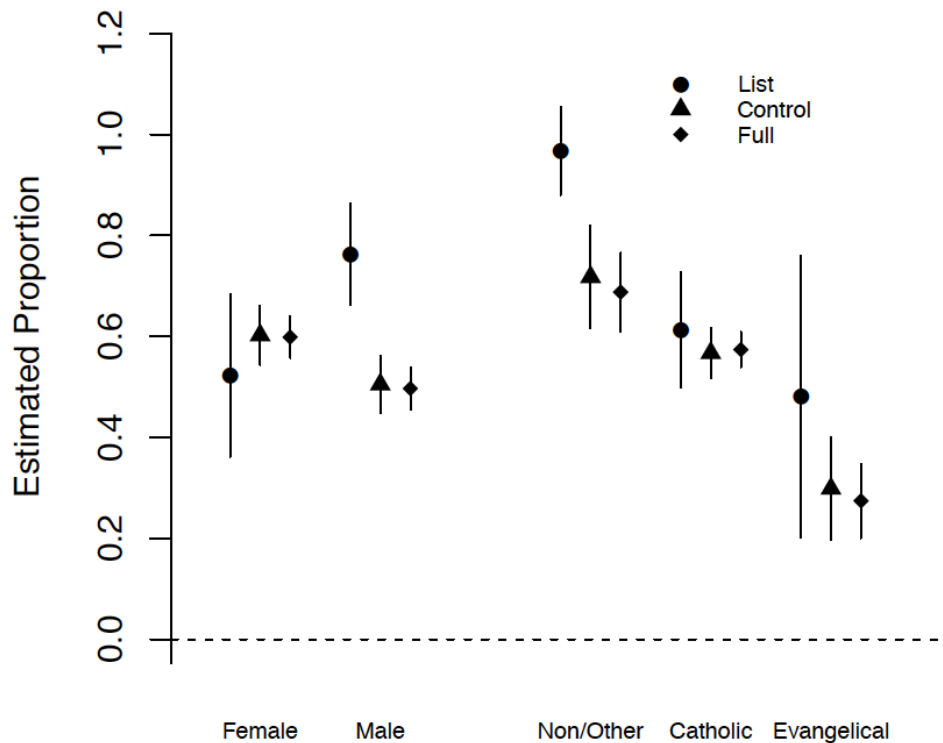
List control group						
Direct question framing	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree strongly	Total
No frame	38 26.2%	12 8.3%	24 16.6%	24 16.6%	47 32.4%	145 100%
Religious frame	45 31.0%	11 7.6%	16 11.0%	20 13.8%	53 36.6%	145 100%
Rights frame	27 22.1%	6 4.9%	11 9.0%	29 23.8%	49 40.2%	122 100%
Both frames	51 35.7%	8 5.6%	18 12.6%	22 15.4%	44 30.8%	143 100%
Total	161 29.0%	37 6.7%	69 12.4%	95 17.1%	193 34.8%	555 100%
List treatment group						
No frame	35 24.1%	8 5.5%	21 14.5%	19 13.1%	62 42.8%	145 100%
Religious frame	35 28.0%	14 11.2%	13 10.4%	25 20.0%	38 30.4%	125 100%
Rights frame	40 24.7%	7 4.3%	21 13.0%	29 17.9%	65 40.1%	162 100%
Both frames	52 34.2%	10 6.6%	16 10.5%	15 9.9%	59 38.8%	152 100%
Total	162 27.7%	39 6.7%	71 12.2%	88 15.1%	224 38.4%	584 100%

This direct question with different frames was also asked of those that received the list treatment, which also allows us to estimate whether being in the treatment condition for the list experiment leaked over into the direct question. The distribution of responses to these direct

questions is included in Table 3. In general, the distribution is similar to that in the AmericasBarometer, in that the distribution of responses tends to peak at the extremes and in the center. Superficially, the distributions of responses look similar across the list control and treatment groups.

In order to assess the amount of social desirability bias between the list experiment and the direct questions, we follow the strategy recommended by Blair and Imai (2012). In particular, we calculate the estimated (or predicted) proportion of respondents who support SSM based on the model of both the list experiment (Table 1, Model 1) and an analysis of support within the list control group (Table 2, Model 2). Because we also asked the direct question of the treatment group in the list experiment, we also estimate a logistic regression on the full sample including indicators for the list condition (Table 2, Model 3) and with an interaction between the list and framing conditions (Table 2, Model 4). Figure 2 illustrates the differences in the predicted proportion of respondents who support SSM by gender and religion across Models 1-3 in Table 2. These particular covariates were chosen for examination because the coefficients (in terms of size, direction, and significance) vary across the three specifications, suggesting that the greatest amount of social desirability bias exists across these categories.

Figure 2: Estimated support for SSM across model specifications by gender and religion



NOTE: Estimated proportion supporting SSM is based on Models 1-3 in Table 2. Confidence intervals are based on Monte Carlo simulations following Blair and Imai (2012), Figure 3.

With regard to gender, the results in Figure 2 suggest that women tend to overstate and men tend to understate their support for SSM when asked directly. Particularly surprising is the much higher predicted level of support for SSM among men predicted by the list experiment. First, this indicates that men actually support SSM more than women when they are asked

indirectly. Second, it also suggests that men may feel social pressure to underreport their support for SSM when asked directly. This is not surprising given that throughout Latin America, heterosexual men have stronger negative opinions about and hostility toward homosexuality (Lancaster 1992; Parker 1999).

The results by religion also provide some confirmation of expectations as well as surprises. According to the estimated proportion supporting SSM in the list experiment, those who do not have a religious identity (or who identify with one of a handful of small minority religions) have a very high probability of supporting SSM. Catholics, by far the largest response group, have an expected probability of supporting SSM lower than the non-religious but higher than that of evangelical Christians, the second most common religious identity in Argentina. This pattern is largely consistent with other results of direct questions about support for SSM in the United States and elsewhere (Adamczyk and Pitt 2009; Olson, Cadge, and Harrison 2006). At the same time, non-religious respondents tend to significantly understate their support for SSM when asked directly compared to indirectly, which is consistent with social pressures to express more conservative positions with regard to SSM, even if one’s not particularly religious. In contrast, there is very little difference between the indirect response and direct responses for either Catholics or evangelical Christians though in the latter case the lack of significant difference is largely due to wide confidence intervals around the list predictions.

Finally, Figure 2 also provides some sense of whether the responses vary on the direct question depending on whether a respondent was in the list treatment group. Specifically, the estimated proportion supporting SSM is very similar across all covariates for the model that includes just the list control group (Table 2, Model 2) and the same model estimated on the full sample, with an indicator for the list treatment (Table 2, Model 3). This provides some evidence that respondents who were in the list treatment group did not answer the direct question significantly differently than those who did not see the treatment list. As a further check, Model 4 in Table 2 includes a set of interactions between the two experimental conditions, and none of these have a statistically significant effect on support for SSM.

One possible exception appears to be the effect of the human rights frame condition in the direct question, both for the list control and list treatment groups. The human rights frame appears to have a significant positive effect on support, both in Model 2 and Model 4. Likewise, in Model 4, the effect of the interaction between the list treatment and the human rights treatment is substantively large (though not statistically significant), effectively erasing the positive effect of the human rights frame for those who received the list treatment. However, closer inspection of the data reveals that something else is at work. Again, it is possible to estimate the ‘true’ proportion of respondents who agree with the sensitive item in the list experiment by subtracting the mean response (i.e., number of statements they agree with) in the control group from the mean response in the treatment group. In Table 4, this calculation is done according to the frame condition of the direct question. We would expect the estimate of support to be similar across all the different frames, since the respondents are randomly assigned to both sets of experimental conditions. The list experiment comes fairly early in the survey and before any other questions about SSM, and so it should not be affected by later questions. Despite this design, the list estimate of support is much lower (40%) than the estimates in the other groups (51-55%).

Table 4: List and direct estimates of support by question frame

	List estimate of support	Observed support	5% limit	95% limit	Estimate of positive response bias
Supporting SSM					

No frame (n=293)	51.55%	52.03%	46.24%	57.82%	0.48%
Religious frame (n=271)	53.03%	49.72%	43.72%	55.73%	-3.31%
Human rights frame (n=288)	40.13%	60.42%	54.69%	66.16%	20.30%
Both frames (n=297)	55.30%	46.73%	41.00%	52.46%	-8.58%

Overall, however, the results of the list experiment suggest that some response biases are at work in Argentina. First, our list experiment suggests that direct questions leads to slightly higher levels of support than we see through indirect questions. Second, when asked directly, women, who are expected to identify with socially disadvantaged groups, are likely to overstate their support for SSM, while men, who are expected to be less tolerant, tend to underreport their support. Third, more secular respondents are likely to significantly understate their support for SSM, which is not surprising since 70% of Argentines subjectively report religion being somewhat or very important in their lives. Interestingly, Catholics and evangelical Christians tend to modestly understate their support for SSM. But in a national context in which the public is nearly equally divided on this issue, perhaps it is not surprising that at the margin, some Catholics and evangelical Christians as well as secular individuals moderate their reported support for SSM toward their perception of the socially desirable position. In the next section, we can explore this further by considering variations across the direct question frames by gender and religious identity.

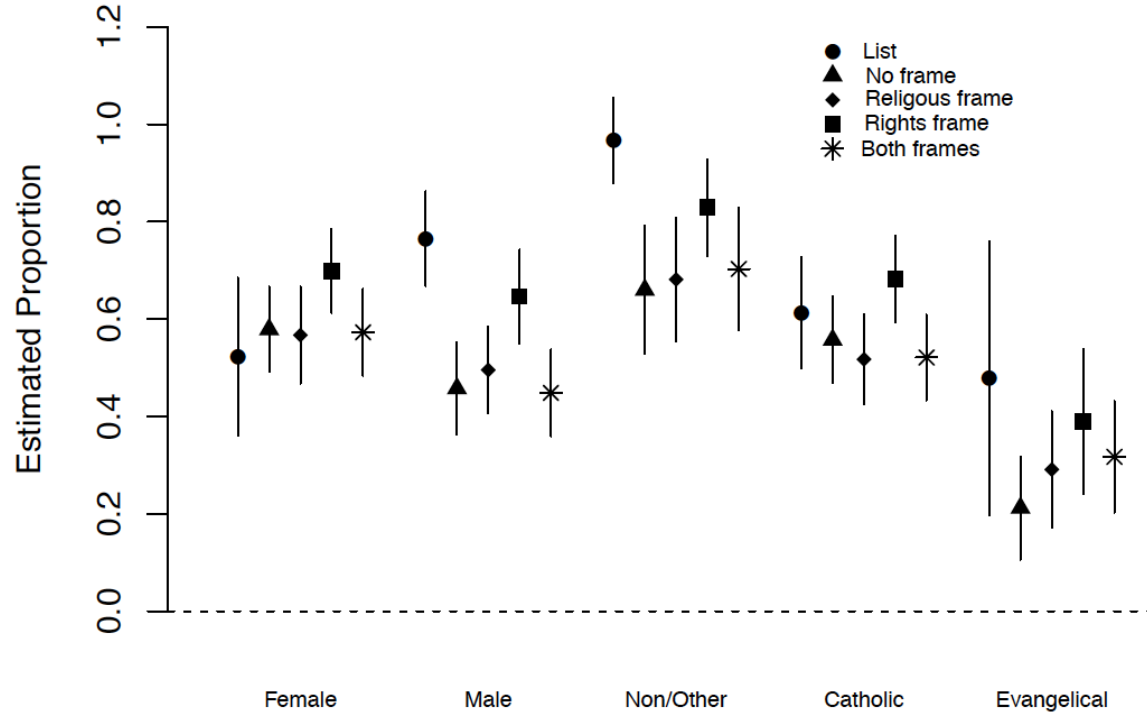
Direct question framing and response effects by gender and religion

Because we combined the list experiment with manipulation of the frames on the direct question, we can use this design to compare the estimates of support produced by the list experiment (Model 1, Table 2) to the responses to the direct question among those that did not get the list treatment (i.e., the list control group, Model 2, Table 2). Because there were four conditions for the framing of the direct question, we can estimate the predicted level of support for SSM for each of the question frames in the control group and compare them to the prediction based on the list. This difference gives us some indication of the strength and direction of the framing effect and is plotted in Figure 3.

Interestingly, when women receive the direct question framed as an issue of human rights, they are significantly more likely to support SSM, than when the direct question is asked with other frames, and this positive response also exceeds the list estimate. This indicates that women are much more likely to say they support SSM when they are prompted with a reminder that the LGTB community frames the issue as one of rights. Similarly, men are also significantly more likely to say they support SSM when the direct question includes the human rights frame, though this level of support is still lower than that estimated by the list. What can be made of these results? In Argentina, and elsewhere, women are expected to support SSM due to their disadvantaged position in society, while men are expected to denounce homosexuality and SSM. In Argentina, these social expectations appear to cause women in general to overstate and men to understate their support. When asked directly without a frame, with a religious frame, or with both frames, men and women respond as society dictates: women express higher levels of support. However, when the question is framed as a rights issue, both men and women increase their statements of support, either because they feel expected to do so (women) or because they feel free to do so (men). In a region where traditional male and female gender roles remain quite strong, perhaps this finding is not surprising. It does suggest that in societies with strong

traditional gender norms, men and women may be either less likely to reveal their true preference on SSM or may be more sensitive to question framing.

Figure 3: Estimated support for SSM across list and direct question frames by gender and religion



NOTE: Estimated proportion supporting SSM is based on Models 1 and 2 in Table 2. Confidence intervals are based on Monte Carlo simulations following Blair and Imai (2012), Figure 3.

Turning to religious identity, again the direct question with a human rights framing stands out relative to the other framing conditions. When the direct question is framed as a religious issue, the response is similar to when it has no frame or both frames. This suggests that the religious framing of the question does not significantly shift responses compared to no frame or both frames. In contrast, the human rights frame significantly boosts a positive response to the direct question compared to the other frames for both the non-religious and Catholics. However, a gap remains between this observed increase in support when the question is framed as a rights issue and the list estimates, particularly for non-religious. The non-religious are estimated to support SSM at a much higher rate according to the list experiment. Though the human rights frame results in more Catholics expressing support for SSM, it is not much more than the estimate from the list. Furthermore, it bears repeating that the non-religious always appear to underestimate their support when asked directly, regardless of the frame. Together, these results suggest that some social desirability bias or framing effects create incentives for non-religious Argentines to understate their support, while Catholics only shift their responses when the issue is framed as a rights issue and evangelical Christians' responses do not significantly respond to any frames.

Discussion and conclusion

Though a handful of studies have examined response bias and issues of framing related to SSM in the United States (e.g., Brewer 2003a; Brewer 2003b; Powell 2013; Lax, Phillips, and Stollwerk 2014; McCabe and Heerwig 2012), these issues have not been examined in Latin America. Since Argentina was one of the first nations in the world and the first in Latin America to legalize SSM, it provides a unique opportunity to study how the framing of the policy is associated with different form of response bias. This is particularly useful because the Argentine public appears to be divided on this issue. Furthermore, Argentines tend to express high levels of religiosity but also a strong commitment to the protection of human rights following the brutal repression of the Dirty War. Our findings suggest that in such a context, responses to direct questions about support for SSM may be biased. That bias is somewhat mitigated when respondents are reminded that LGTB activists have framed the issue as one of human rights. Future work should seek to better understand these framing and response biases in other contexts as the push for LGTB rights extends beyond advanced industrialized contexts. Such understanding may help activists in particular understand how to better frame their appeals for the expansion of LGTB rights on this issue and others.

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Appendix
Support for same-sex marriage in Argentina, 2010-2014

	(1) 2010	(1) Odds ratio	(2) 2012	(2) Odds ratio	(3) 2014	(3) Odds ratio
Catholic	-0.105 (0.192)	0.900	0.061 (0.293)	1.063	0.042 (0.215)	1.042
Evangelical	-0.765* (0.324)	0.465	-0.906 (0.472)	0.404	-0.769* (0.299)	0.463
Religiosity (1-4)	-0.420*** (0.083)	0.657	-0.299** (0.109)	0.742	-0.415*** (0.081)	0.660
Democracy best (1-7)	0.170*** (0.042)	1.185	0.340*** (0.073)	1.405	0.261*** (0.045)	1.298
Female	0.581*** (0.145)	1.789	0.502** (0.190)	1.652	0.499*** (0.140)	1.647
Age (1-6)	-0.106* (0.049)	0.899	-0.313*** (0.061)	0.731	-0.284*** (0.043)	0.752
Left ideology (1-10)	0.236*** (0.043)	1.266	0.174*** (0.049)	1.190	0.119*** (0.033)	1.127
Constant	-0.549 (0.438)	0.577	-1.132* (0.562)	0.322	0.285 (0.420)	1.330
Observations	978		553		1,079	
Pseudo R2	0.104		0.119		0.123	
Log likelihood	-576.0		-334.0		-627.7	
Log likelihood (null)	-642.9		-379.0		-715.5	

Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Authors' calculations using AmericasBarometer surveys (Latin American Public Opinion Project (LAPOP) 2010; Latin American Public Opinion Project (LAPOP) 2012; Latin American Public Opinion Project (LAPOP) 2014).

Descriptive statistics for list experiment treatment and control samples

Variable	List cond.	Mean	Standard error	5th %tile	95th %tile	N
Female	Control	0.52	0.02	0.48	0.56	559
	Treat.	0.54	0.02	0.50	0.58	590
	Total	0.53	0.01	0.50	0.56	1149
Age (1-6)	Control	3.15	0.07	3.01	3.29	559
	Treat.	3.16	0.07	3.03	3.29	590
	Total	3.15	0.05	3.06	3.25	1149
Education (1-3)	Control	1.92	0.03	1.86	1.98	558
	Treat.	1.91	0.03	1.85	1.97	588
	Total	1.91	0.02	1.87	1.96	1146
Single	Control	0.31	0.02	0.27	0.35	558
	Treat.	0.36	0.02	0.32	0.40	586
	Total	0.33	0.01	0.31	0.36	1144
Employed	Control	0.52	0.02	0.47	0.56	557
	Treat.	0.50	0.02	0.46	0.54	587
	Total	0.51	0.01	0.48	0.54	1144
Unemployed (looking for work)	Control	0.09	0.01	0.06	0.11	557
	Treat.	0.08	0.01	0.06	0.11	587
	Total	0.08	0.01	0.07	0.10	1144
Catholic	Control	0.71	0.02	0.67	0.75	555
	Treat.	0.71	0.02	0.67	0.74	584
	Total	0.71	0.01	0.68	0.73	1139
Evangelical	Control	0.15	0.02	0.12	0.18	555
	Treat.	0.15	0.01	0.12	0.18	584
	Total	0.15	0.01	0.13	0.17	1139
Religiosity (1-6)	Control	2.31	0.07	2.17	2.45	557
	Treat.	2.35	0.07	2.21	2.48	586
	Total	2.33	0.05	2.23	2.43	1143
Subjective wealth	Control	4.48	0.07	4.35	4.61	556
	Treat.	4.40	0.07	4.26	4.53	587
	Total	4.44	0.05	4.34	4.53	1143
Travel abroad in last year	Control	0.09	0.01	0.06	0.11	554
	Treat.	0.10	0.01	0.07	0.12	584
	Total	0.09	0.01	0.08	0.11	1138
Democratic values (1-5)	Control	4.41	0.04	4.33	4.48	549
	Treat.	4.48	0.04	4.41	4.55	585
	Total	4.44	0.03	4.39	4.49	1134
Political discussion	Control	0.55	0.02	0.51	0.60	555
	Treat.	0.54	0.02	0.50	0.58	586

	Total	0.55	0.01	0.52	0.58	1141
Left ideology (1-10)	Control	4.38	0.11	4.17	4.59	450
	Treat.	4.11	0.11	3.90	4.33	461
	Total	4.24	0.08	4.09	4.40	911
Knowledge of same-sex marriage year	Control	0.19	0.02	0.16	0.23	555
	Treat.	0.21	0.02	0.18	0.25	586
	Total	0.20	0.01	0.18	0.23	1141
Contact with LGBT	Control	0.18	0.02	0.15	0.21	557
	Treat.	0.13	0.01	0.11	0.16	588
	Total	0.16	0.01	0.14	0.18	1145
Contact with same- sex marriage	Control	0.03	0.01	0.02	0.05	557
	Treat.	0.04	0.01	0.02	0.06	588
	Total	0.04	0.01	0.03	0.05	1145
No known contact with LGBT	Control	0.78	0.02	0.75	0.82	557
	Treat.	0.82	0.02	0.79	0.86	588
	Total	0.81	0.01	0.78	0.83	1145

Descriptive statistics by frame condition

Variable	List cond.	Mean	Standard error	5th %tile	95th %tile	N
Female	Control	0.52	0.02	0.48	0.56	559
	Treat.	0.54	0.02	0.50	0.58	590
	Total	0.53	0.01	0.50	0.56	1149
Age (1-6)	Control	3.15	0.07	3.01	3.29	559
	Treat.	3.16	0.07	3.03	3.29	590
	Total	3.15	0.05	3.06	3.25	1149
Education (1-3)	Control	1.92	0.03	1.86	1.98	558
	Treat.	1.91	0.03	1.85	1.97	588
	Total	1.91	0.02	1.87	1.96	1146
Single	Control	0.31	0.02	0.27	0.35	558
	Treat.	0.36	0.02	0.32	0.40	586
	Total	0.33	0.01	0.31	0.36	1144
Employed	Control	0.52	0.02	0.47	0.56	557
	Treat.	0.50	0.02	0.46	0.54	587
	Total	0.51	0.01	0.48	0.54	1144
Unemployed (looking for work)	Control	0.09	0.01	0.06	0.11	557
	Treat.	0.08	0.01	0.06	0.11	587
	Total	0.08	0.01	0.07	0.10	1144
Catholic	Control	0.71	0.02	0.67	0.75	555
	Treat.	0.71	0.02	0.67	0.74	584
	Total	0.71	0.01	0.68	0.73	1139
Evangelical	Control	0.15	0.02	0.12	0.18	555
	Treat.	0.15	0.01	0.12	0.18	584
	Total	0.15	0.01	0.13	0.17	1139
Religiosity (1-6)	Control	2.31	0.07	2.17	2.45	557
	Treat.	2.35	0.07	2.21	2.48	586
	Total	2.33	0.05	2.23	2.43	1143
Subjective wealth	Control	4.48	0.07	4.35	4.61	556
	Treat.	4.40	0.07	4.26	4.53	587
	Total	4.44	0.05	4.34	4.53	1143
Travel abroad in last year	Control	0.09	0.01	0.06	0.11	554
	Treat.	0.10	0.01	0.07	0.12	584
	Total	0.09	0.01	0.08	0.11	1138
Democratic values (1-5)	Control	4.41	0.04	4.33	4.48	549
	Treat.	4.48	0.04	4.41	4.55	585
	Total	4.44	0.03	4.39	4.49	1134
Political discussion	Control	0.55	0.02	0.51	0.60	555
	Treat.	0.54	0.02	0.50	0.58	586

	Total	0.55	0.01	0.52	0.58	1141
Left ideology (1-10)	Control	4.38	0.11	4.17	4.59	450
	Treat.	4.11	0.11	3.90	4.33	461
	Total	4.24	0.08	4.09	4.40	911
Knowledge of same-sex marriage year	Control	0.19	0.02	0.16	0.23	555
	Treat.	0.21	0.02	0.18	0.25	586
	Total	0.20	0.01	0.18	0.23	1141
Contact with LGBT	Control	0.18	0.02	0.15	0.21	557
	Treat.	0.13	0.01	0.11	0.16	588
	Total	0.16	0.01	0.14	0.18	1145
Contact with same- sex marriage	Control	0.03	0.01	0.02	0.05	557
	Treat.	0.04	0.01	0.02	0.06	588
	Total	0.04	0.01	0.03	0.05	1145
No known contact with LGBT	Control	0.78	0.02	0.75	0.82	557
	Treat.	0.82	0.02	0.79	0.86	588
	Total	0.81	0.01	0.78	0.83	1145