

Two-Sided Sensitivity Bias in Surveys: A List Experiment on Same-Sex Marriage in Argentina

Supplementary Materials

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A. Argentine public approval of same-sex marriage, March-April 2020

Latin American Public Opinion Project (LAPOP) (2010) fielded a nationally representative survey during the period of intense public debate about legalization of same-sex marriage in Argentina.

Descriptive statistics

Table A1: Same-sex marriage approval frequencies: Argentina March-April 2010

SSM Approval	N	Proportion	Valid proportion
1	296	0.210	0.219
2	51	0.036	0.038
3	48	0.034	0.036
4	37	0.026	0.027
5	112	0.079	0.083
6	77	0.055	0.057
7	106	0.075	0.078
8	128	0.091	0.095
9	74	0.052	0.055
10	423	0.300	0.313
NA	58	0.041	NA

Note:

1 = Strongly disapprove and 10 = Strongly approve of same-sex couples having the right to marry.

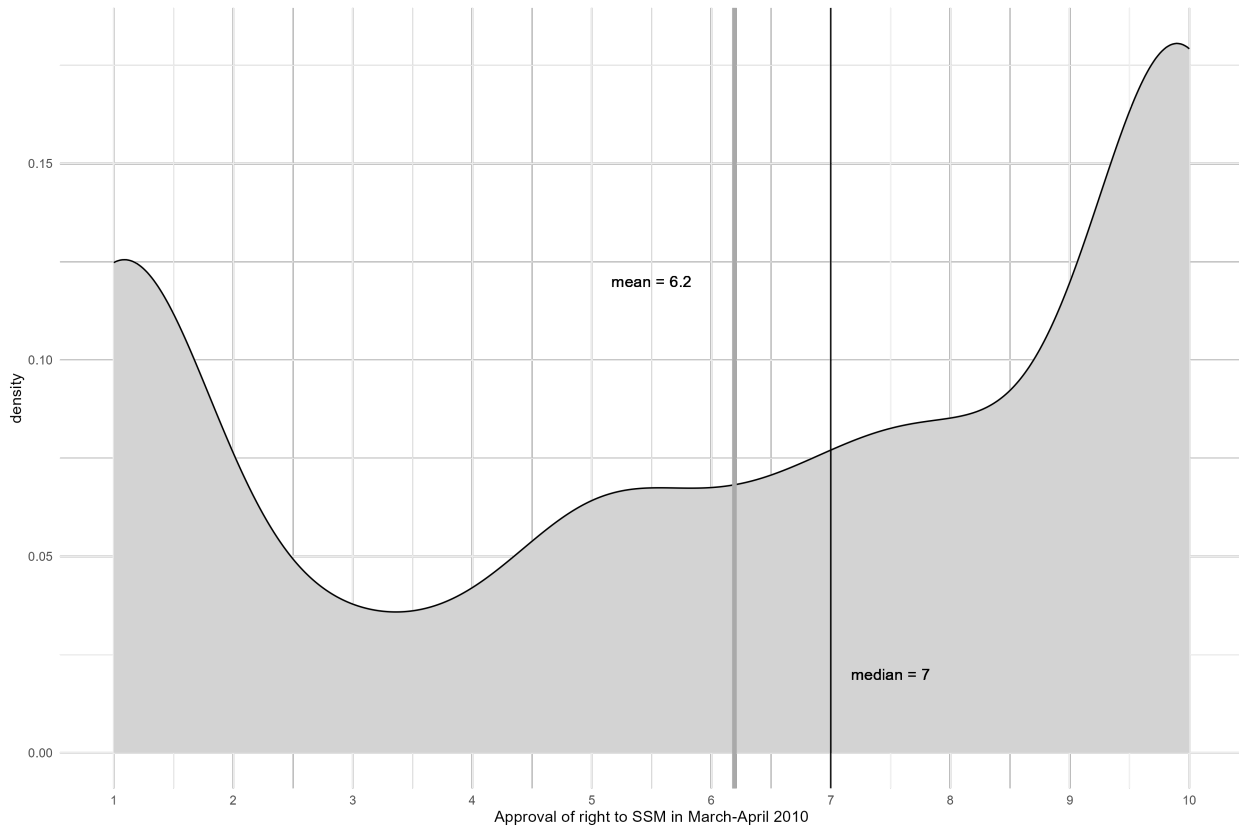


Figure A1: Approval of same-sex marriage in 2010

Table A2: AmericasBarometer Argentina, March-April 2010 sample frequencies

		N	%
Approve SSM	Disapprove	543	38.6
	Approve	806	57.3
Religion	Other	324	23.0
	Non-practicing Catholic	563	40.0
	Practicing Catholic	341	24.2
Sex	Evangelical	106	7.5
	Man	682	48.5
	Woman	725	51.5
Age	<= 50	1146	81.4
	> 50	261	18.6
Region	Elsewhere	1292	91.8
	BBAA	115	8.2
	Education	Primary	364
	Secondary	686	48.8
	Tertiary	357	25.4

Table A3: AmericasBarometer Argentina, March-April 2010 descriptive statistics

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
Left ideology	11	22	5.9	1.8	1.0	6.0	10.0
SSM approval	11	4	6.2	3.5	1.0	7.0	10.0
Democracy best	8	4	5.8	1.7	1.0	7.0	7.0

Model of SSM approval, Argentina, March-April 2010

Table A4: SSM approval logistic regression estimates: Argentina, March-April 2010

	Coefficients	Odds ratios
Evangelical	-1.392 (-1.979, -0.816)	0.249 (0.138, 0.442)
Practicing Catholic	-0.604 (-1.013, -0.200)	0.547 (0.363, 0.819)
Non-practicing Catholic	-0.482 (-0.853, -0.117)	0.618 (0.426, 0.889)
Woman	0.518 (0.241, 0.798)	1.679 (1.272, 2.222)
Age>50	-0.505 (-0.857, -0.151)	0.604 (0.424, 0.860)
Buenos Aires Metro	0.411 (-0.075, 0.922)	1.509 (0.928, 2.514)
Ed: Tertiary	0.635 (0.231, 1.042)	1.887 (1.260, 2.834)
Ed: Secondary	0.420 (0.055, 0.785)	1.522 (1.056, 2.193)
Democratic values (1-7)	0.149 (0.067, 0.231)	1.160 (1.069, 1.260)
Left ideology (1-10)	0.246 (0.164, 0.331)	1.279 (1.178, 1.392)
Intercept	-1.815 (-2.654, -0.991)	0.163 (0.070, 0.371)
Num.Obs.	994	994
AIC	1195.7	1195.7
BIC	1249.7	1249.7
Log.Lik.	-586.868	-586.868
RMSE	0.45	0.45

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^a 95 percent confidence intervals in parentheses.

B. 2015 APES study description

Original question wording

Ahora le voy a mostrar una lista donde figuran varias frases. Quisiera que me diga con CUANTAS está de acuerdo. Por favor, no me diga cuáles, sino solamente CUANTAS.

1. El gobierno nacional gasta demasiado en reducir la pobreza
2. La seguridad pública es un gran problema en nuestro país
3. El gobierno nacional ha eliminado la corrupción en nuestro país
4. El gobierno nacional debe reducir los impuestos a las empresas
5. *Las parejas del mismo sexo deben tener derecho a casarse*

English translation

Now, I will show you a list with several statements. Please tell me HOW MANY of them you agree with. I don't want to know which ones, just HOW MANY,

1. The national government spends too much in poverty reduction
2. Public safety is a major problem in our country
3. The national government has eliminated corruption in our country
4. The national government should lower taxes for businesses
- 5 *Same-sex couples should have the right to marry*

Descriptive statistics

Table B1: List experiment balance statistics

	Control	Treatment	Adj. diff.	Std. diff.	p-value
SSM (Direct)	0.557	0.552	-0.004	-0.009	0.895
Other+Non-prac Cath.+None	0.667	0.657	-0.011	-0.023	0.730
Prac. Catholics	0.192	0.196	0.003	0.009	0.899
Evangelical	0.140	0.148	0.008	0.021	0.747
Support for democracy	1.561	1.524	-0.037	-0.042	0.510
Woman	0.520	0.489	-0.031	-0.062	0.349
Under 25	0.229	0.226	-0.002	-0.006	0.931
26-35	0.210	0.193	-0.017	-0.043	0.527
36-45	0.176	0.230	0.054	0.136	0.044
46-55	0.133	0.120	-0.014	-0.042	0.530
56-65	0.145	0.137	-0.008	-0.023	0.735
Over 65	0.106	0.093	-0.013	-0.041	0.520
Left ideology	4.360	4.093	-0.266	-0.114	0.086
Buenos Aires	0.330	0.304	-0.026	-0.057	0.402
Ed: Secondary	0.466	0.483	0.017	0.033	0.619
Ed: Tertiary	0.276	0.230	-0.046	-0.109	0.116
Frame: Control	0.258	0.254	-0.004	-0.008	0.902
Frame: Values	0.253	0.215	-0.038	-0.090	0.176
Frame: Rights	0.222	0.287	0.065	0.150	0.025
Frame: Both	0.267	0.243	-0.023	-0.054	0.419

List experiment assumption checks (Blair and Imai 2012)

Table B2: Design effect test

Test	est.	s.e.
$\text{pi}(Y_{_i}(0) = 0, Z_{_i} = 1)$	0.040	0.012
$\text{pi}(Y_{_i}(0) = 1, Z_{_i} = 1)$	0.232	0.027
$\text{pi}(Y_{_i}(0) = 2, Z_{_i} = 1)$	0.185	0.023
$\text{pi}(Y_{_i}(0) = 3, Z_{_i} = 1)$	0.050	0.011
$\text{pi}(Y_{_i}(0) = 4, Z_{_i} = 1)$	0.003	0.002
$\text{pi}(Y_{_i}(0) = 0, Z_{_i} = 0)$	0.021	0.006
$\text{pi}(Y_{_i}(0) = 1, Z_{_i} = 0)$	0.184	0.020
$\text{pi}(Y_{_i}(0) = 2, Z_{_i} = 0)$	0.212	0.028
$\text{pi}(Y_{_i}(0) = 3, Z_{_i} = 0)$	0.061	0.017
$\text{pi}(Y_{_i}(0) = 4, Z_{_i} = 0)$	0.012	0.006

Note:

Bonferroni-corrected test against the null hypothesis of no design effect $p = 1$.

C. Result tables

Table C1: Main list estimates

Estimation	Estimate	Lower	Upper
List	0.509	0.411	0.608
Direct	0.525	0.468	0.581
List adj. predicted	0.529	0.414	0.644
Direct adj. predicted	0.559	0.523	0.595

Table C2: List and direct estimates by gender and religious identity

Variable	Group	Estimation	Estimate	Lower	Upper
Gender	Man	Direct (No framing)	0.557	0.481	0.633
Gender	Man	List	0.433	0.298	0.569
Gender	Man	Direct adjusted	0.628	0.577	0.677
Gender	Man	List adjusted	0.439	0.266	0.612
Gender	Woman	Direct (No framing)	0.486	0.401	0.570
Gender	Woman	List	0.590	0.447	0.733
Gender	Woman	Direct adjusted	0.492	0.441	0.543
Gender	Woman	List adjusted	0.616	0.454	0.779
Religion	Catholic +Other	Direct (No framing)	0.587	0.526	0.649
Religion	Catholic +Other	List	0.514	0.407	0.621
Religion	Catholic +Other	Direct adjusted	0.614	0.576	0.650
Religion	Catholic +Other	List adjusted	0.508	0.386	0.630
Religion	Evangelical	Direct (No framing)	0.214	0.085	0.344
Religion	Evangelical	List	0.504	0.221	0.787
Religion	Evangelical	Direct adjusted	0.264	0.191	0.353
Religion	Evangelical	List adjusted	0.678	0.251	1.105

Table C3: SSM approval regression estimates

	Adjusted direct (logit)	Adjusted list (OLS)
Intercept	0.232 (0.370)	0.299 (0.288)
Sensitive item group	-0.001 (0.149)	
Frame: both	0.054 (0.207)	0.019 (0.175)
Frame: rights	0.481 (0.210)	-0.131 (0.162)
Frame: values	-0.062 (0.211)	-0.021 (0.170)
Left ideology (1-10)	0.148 (0.034)	0.080 (0.028)
Democratic values (1-7)	-0.124 (0.090)	-0.139 (0.067)
Buenos Aires Metro	0.545 (0.168)	-0.002 (0.124)
Woman	-0.522 (0.151)	0.182 (0.117)
Practicing Catholic	-0.515 (0.191)	-0.155 (0.158)
Evangelical	-1.640 (0.232)	0.064 (0.187)
Num.Obs.	902	902
AIC	1107.6	
BIC	1194.1	
Log.Lik.	-535.804	
F	7.588	
RMSE	0.45	
Residual.Std..Error		0.85

Standard errors in parentheses

D. Additional analyses

Adjusted estimates by disaggregated religion, age, and location

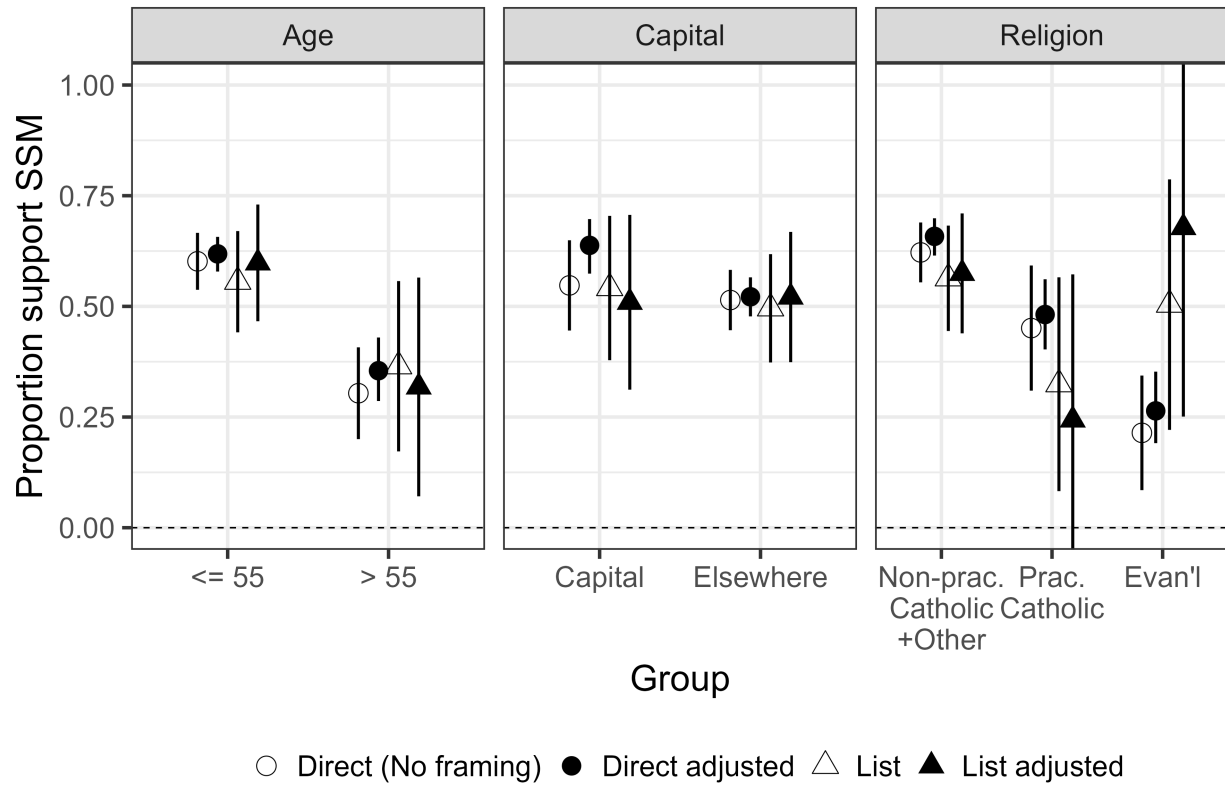


Figure D1: Estimates disaggregated by religion, age, and location.

Differences between adjusted estimates

Table D1: Testing for difference between direct adjusted and list adjusted estimates

Group	Direct adjusted			List adjusted			Difference			N
	Estimate	Lower	Upper	Estimate	Lower	Upper	Estimate	Lower	Upper	
All	0.559	0.523	0.595	0.529	0.414	0.644	0.030	-0.086	0.146	902
Man	0.628	0.577	0.677	0.439	0.266	0.612	0.189	0.019	0.360	447
Woman	0.492	0.441	0.543	0.616	0.454	0.779	-0.125	-0.284	0.034	455
Catholic + other	0.614	0.576	0.650	0.508	0.386	0.630	0.106	-0.015	0.227	772
Catholic non-religious + other	0.658	0.615	0.699	0.575	0.439	0.710	0.084	-0.058	0.225	597
Evangelical	0.264	0.191	0.353	0.678	0.251	1.105	-0.414	-0.825	-0.003	130
Age <= 55	0.619	0.579	0.657	0.598	0.466	0.730	0.020	-0.119	0.160	685
Age > 55	0.355	0.286	0.430	0.318	0.071	0.565	0.037	-0.208	0.281	217
Capital	0.638	0.574	0.697	0.509	0.312	0.707	0.129	-0.064	0.322	286
Elsewhere	0.522	0.477	0.566	0.521	0.374	0.668	0.001	-0.146	0.148	616

Note:

95 percent confidence intervals for differences computed based on 1,000 bootstrapped samples for each group

Framing experiment

Table D2: Framing experiment results

	(1)
Intercept (no frame)	0.525*** (0.028)
SSM against moral values	-0.017 (0.041)
SSM is a human right	0.095* (0.041)
Both frames	-0.044 (0.040)
Num.Obs.	1188
R2	0.011
R2 Adj.	0.009
AIC	1716.1
BIC	1741.5
Log.Lik.	-853.049
F	4.427
RMSE	0.50

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Standard errors in parentheses

References

- Blair, Graeme, and Kosuke Imai. 2012. "Statistical Analysis of List Experiments." *Political Analysis* 20 (1): 47–77.
- Latin American Public Opinion Project (LAPOP). 2010. "The AmericasBarometer - Argentina." Nashville, TN: Vanderbilt University. www.LapopSurveys.org.