Online Appendix

A Scent of Strategy: Response Error in a List Experiment on Anti-Immigrant Sentiment

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Contents

1 Design of List Experiment

ICT Question (Q8)		Direct Question (Q9)
Some social groups may cause antipathy while others don't. Please indicate toward how many of the following groups you feel antipathy. It does not matter which ones, just how many.	**Control group** Compulsive gamblers Labor unionists Drug dealers Multimillionaires n= 974	Please tell me whether or not you feel antipathy toward the following groups Q9_3.- Immigrants n= 973
	Treatment group Compulsive gamblers Immigrants Labor unionists Drug dealers Multimillionaires n= 988	

Source: EASIE survey. Sample size indications are net of non-response.

Figure A1 Design of list experiment on anti-immigrant sentiment and social desirability bias

Choice of control items

Control items were selected by the research team based on some prior experience and two rounds of pretests (n=86 and n=220 respectively), which employed split questionnaires to assess two distinct list compositions each. The first pretest concerned the whole questionnaire, whereas the second one centered on the list experiment. We mainly focused on exploring options for the low-prevalence (the unemployed; overweight people; compulsive gamblers) and antagonist slots (animal-rights advocates & bull-fighting aficionados; labor unionists & multimillionaires), respectively. One list combined what turned out to be two very high-prevalence items (politicians and drug dealers), an unfortunate combination that was discarded. Except for the chosen option, the pretested lists all generated ICT DiMs inferior to the DQ-based AIS estimate; those including "overweight" or "unemployed" people even obtained negative DiMs.

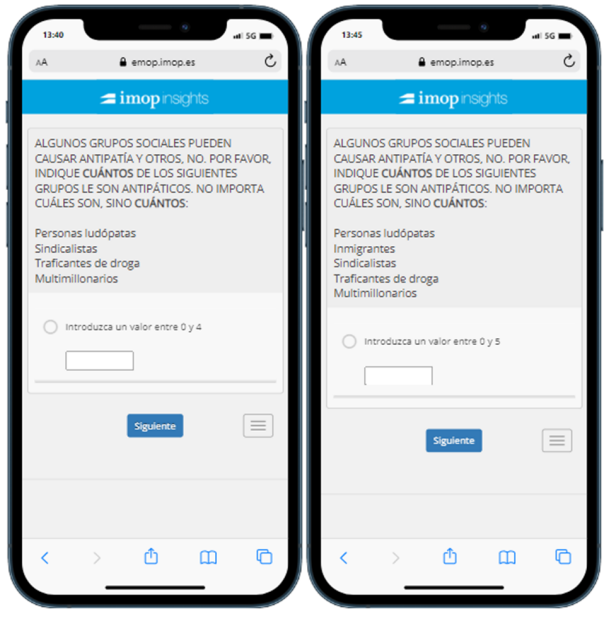


Figure A2 Screenshots of list-experiment implementation (Q8, control vs. treatment)

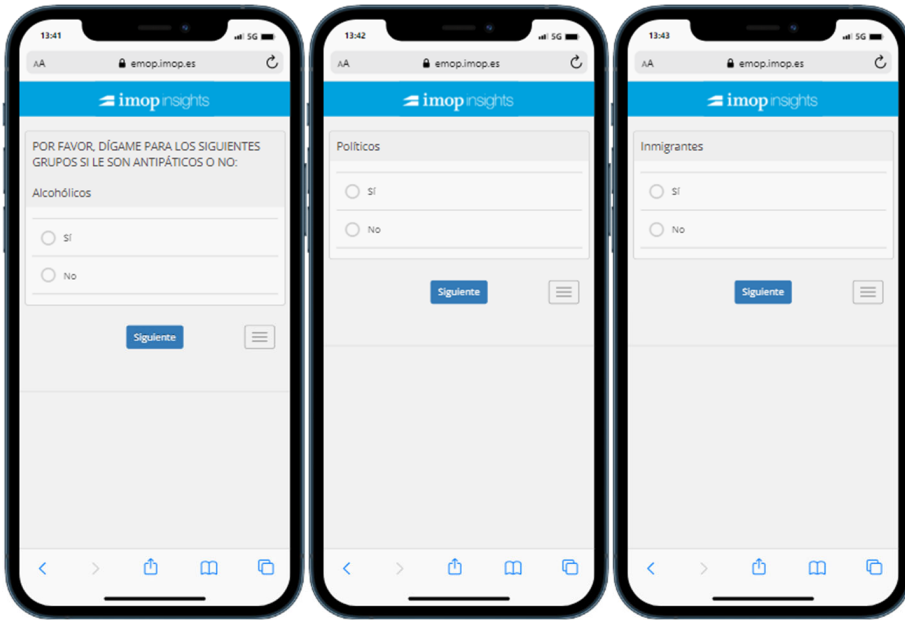


Figure A3 Screenshots of direct AIS gauge (Q9)

2 Description of Survey

The list experiment was embedded in a survey on immigration attitudes fielded in Spain in October of 2020 by the polling firm IMOP Insights on behalf of the Spanish Research Council's Institute for Advanced Social Studies (IESA-CSIC) in the framework of the EASIE study, a government-funded research project. The target population (universe) was defined as Spanish citizens born and residing in Spain and at least 18 years of age. Second-generation immigrants account for just 2.5% of the obtained sample; since the experiment's raw scores do not change significantly when in- or excluding these respondents (see Figures A4 and A5), and given ICT's notorious problem of variance, we prefer to work with the slightly larger dataset.

The survey's main mode of administration was computer-assisted web interviewing (CAWI); to address coverage bias associated with Internet usage, a complementary subsample of interviewer-administered telephone interviews (CATI) for people aged 45 years or more was implemented. To discard any mode effects, our paper refers exclusively to the CAWI data. However, as the complete dataset is accessible in a public repository (Rinken et al., 2023), we also provide information on the CATI subsample here. Quotas for sex, age group, and questionnaire mode were set on the basis of the Spanish Statistical Institute's demographic sta-

tistics (population register data) and internet penetration estimates (survey on internet use) as shown in Table A1.

Table A1 Theoretical sample

		Population	%	Sample	CATI	CAWI
Men	18-29	2,315,838	7.1	163		163
	30-44	3,957,237	12.2	279		279
	45-59	4,549,202	14.0	320	33	287
	60+	5,002,922	15.4	352	79	273
Women	18-29	2,187,849	6.7	154		154
	30-44	3,782,699	11.6	266		266
	45-59	4,517,732	13.9	318	28	290
	60+	6,214,421	19.1	438	232	206
Total		32,527,900		2,290	372	1,918

Sources: Instituto Nacional de Estadística (INE), Padrón de Habitantes, 2019; INE, Encuesta sobre equipamiento y uso de tecnologías de información y comunicación en los hogares, 2019.

The CAWI sample was administered via EMOP, an online panel run by IMOP that recruits panelists among participants in random digit dial surveys. Invitations were sent to a random selected sample of panelists that complied with eligibility criteria and quotas. Panelists are offered small monetary incentives for completing questionnaires; to avoid professionalization the panel provider limits survey invitations to a maximum of two per month. This strategy appears to be successful: 70% of panelists have been in the panel for two years or less and up to 40% donate their incentive to NGOs. People with primary or secondary education were over-represented among contacted panelists in expectation of lower response rates; despite this precaution, people with tertiary education are over-represented in the obtained sample. Up to four reminders were sent subsequent to initial invitation; completed questionnaires were obtained from 42.75% of contacted panelists. Since the sample was not fully probability-based, and because extrapolation to population parameters is not our concern here, we abstain from computing sampling error and refer to unweighted data throughout in this paper.

Table A2 Obtained sample

		Sample	%	CATI	CAWI
Men	18-29	173	7.4	0	173
	30-44	307	13.1	5	302
	45-59	348	14.8	47	301
	60+	309	13.2	67	242
Women	18-29	162	6.9	0	162
	30-44	289	12.3	0	289
	45-59	371	15.8	44	327
	60+	385	16.4	216	169
		2,344		379	1,965

For its part, the CATI sample was implemented to a combination of mobile and landline phones. Landline participants were selected in two steps, random selection of households based on landline listings, and subsequent quota-based selection of individuals. Mobile lines were randomly generated from the ranges assigned by the Spanish phone regulator (CNMC) to each mobile operator, automatically discarding inactive lines. Selected numbers not contacted at the first attempt were called two more times on average. The obtained sample is shown in Table A2.

Average questionnaire duration was 13.6 minutes for CAWI and 19.7 minutes for CATI. While not used in this paper, a "weight" variable is available in the dataset to improve the sample's adjustment to the target population by iterative (rake) calibration regarding age group, sex, education level, size of municipality of residence, and geographical area (NUTS-1). When chosen, weighting is performed independently for each of the list experiment's conditions (treatment vs. control in Q8).

3 Question Wording, Response Options, and Coding

NOTES: We refer to the questionnaire's CAWI version here. "Don't know" (DK) and "No answer" (NA) were displayed on-screen only when a respondent tried to move to the next question without marking a score. Initial questions relevant for eligibility are labelled "F", other questions "Q", and response options "RO". Reference categories of model predictors are highlighted in bold.

Sex (F1), age (F2) and education level (F6) were obtained from the panel's database; sex and education were coded as categorical variables (**men**, women; up until Primary, Secondary, **Tertiary**), whereas age maintained as continuous.

Anti-immigrant sentiment, list experiment (Q8): "Some social groups may cause antipathy while others don't. Please indicate toward how many of the following groups you feel antipathy. It does not matter which ones, just how many." Control list: compulsive gamblers, trade unionists, drug dealers, multimillionaires. Treatment list: compulsive gamblers, immigrants, trade unionists, drug dealers, multimillionaires. RO control: 0, 1, 2, 3,4, DK/NA. RO treatment: 0, 1, 2, 3, 4, 5, DK/NA.

Anti-immigrant sentiment, direct question (Q9) (filtered – control group only): "Please tell me whether or not you feel antipathy toward the following groups… (Q9_3) Immigrants". RO: **yes**, no, DK/NA.

Social class (Q46): "To which social class would you say you belong?" RO: Upper, upper-middle, middle, lower-middle, low, DK/NA. Recoding: **Upper+upper-middle**, middle, lower-middle +low.

Labour status (Q47): "Which is your occupational status at this time?" RO and recoding: Paid employment, self-employed (Employed), temporary redundancy, unemployed (Unemployed), student, pensioner, permanent incapacity, unpaid domestic work (**Inactive**), DK/NA.

Ideology (Q49): "In politics, people sometimes refer to 'left' and 'right'. Where would you place yourself on a scale from 0 to 10 where '0' means 'completely leftist' and '10' means 'completely rightist'?" RO: 0-10 scale, DK/NA. Recoding (cf. Figure 1): 0-4 (leftist), 5-10 (centrist or rightist).

4 Complementary Results

4.1 Tables

Table A3 Covariate balance (unweighted)

		Treatment	Control	Difference
Sex				
	Male	0.51	0.53	0.02
	Female	0.49	0.47	-0.02
Age				
	18-29	0.19+	0.16	-0.03
	30-45	0.31	0.30	-0.01
	46-60	0.31	0.34	0.03
	61+	0.20	0.22	0.01
Education				
	Up to primary	0.15	0.15	0.00
	Secondary	0.40	0.42	0.02
	Tertiary	0.45	0.43	-0.02
Labor status				
	Employed	0.57	0.58	0.01
	Unemployed	0.14	0.14	0.00
	Inactive	0.30	0.28	-0.02
Ideology (self-identification)				
	Left (0-4)	0.51	0.48	-0.03
	Center-Right (5-10)	0.49	0.52	0.03
Social class (self-identification)				
	Upper/ Upper-Middle	0.10	0.09	0.00
	Middle	0.63	0.61	-0.02
	Low/ Lower-middle	0.27	0.29	0.02

Source: EASIE survey (n=1,965); n=974 (control), n=988 (treatment). + $p < 0.1$

Table A4 Estimated respondent types for the AIS-SDB list experiment

y value	$\hat{\pi}y0$	SE	$\hat{\pi}y1$	SE
0	3.54	0.59	0.87	0.88
1	19.67	1.51	- 2.22	1.90
2	37.75	2.05	5.17	2.19
3	22.06	1.87	3.81	1.42
4	4.59	1.15	4.76	0.68
Total	87.61		12.39	

Source: EASIE survey (n=1,965); n=974 (control), n=988 (treatment). Bonferroni-corrected p-value for sensitive item: 0.2425942

Table A5 Predictors of indirect (ICT) and direct (DQ) measures of anti-immigrant sentiment

	ICT				DQ	
	NLS		ML			
Sensitive Item	Est.	S.E.	Est.	S.E.	Est.	S.E.
(Intercept)	-6.413	2.708	-3.022	1.001	-4.880**	0.653
Age	-0.019	0.028	0.000	0.016	0.015*	0.007
Sex Female	-0.069	0.749	0.046	0.371	0.166	0.194
Ideology	0.837**	0.286	0.241**	0.072	0.376**	0.042
Education Low	-0.774	1.559	0.624	0.572	0.788**	0.272
Education Medium	1.887*	0.936	1.171**	0.440	0.376	0.216
Labor status Employed	1.089	1.061	0.223	0.441	0.248	0.232
Labor status Unemployed	-0.607	1.593	0.263	0.546	0.541	0.318
Class Upper/Upper-Middle	-1.386	1.622	-0.756	0.849	-0.513	0.401
Class Middle	-0.023	0.959	-0.035	0.378	-0.186	0.225
	NLS		ML			
Control items	Est.	S.E.	Est.	S.E.		
(Intercept)	-0.096	0.160	-0.160	0.137		
Age	0.006**	0.002	0.004*	0.002		
Sex Female	0.003	0.064	0.015	0.054		
Ideology	-0.004	0.013	0.016	0.011		
Education Low	0.124	0.105	0.139	0.083		
Education Medium	0.074	0.069	0.069	0.060		
Labor status Employed	-0.096	0.073	-0.116	0.063		
Labor status Unemployed	0.040	0.114	-0.029	0.088		
Class Upper/Upper-Middle	0.142	0.124	0.081	0.102		
Class Middle	-0.005	0.075	0.018	0.061		

Source: EASIE survey (n=1,965); n=974 (control), n=988 (treatment). * $p < 0.05$; ** $p < 0.01$. Abbreviations: ICT=Item-count technique; DQ=direct question; NLS=nonlinear least squares; ML=maximum likelihood

Table A6 ICT time-stamps by experimental group and respondent ideology

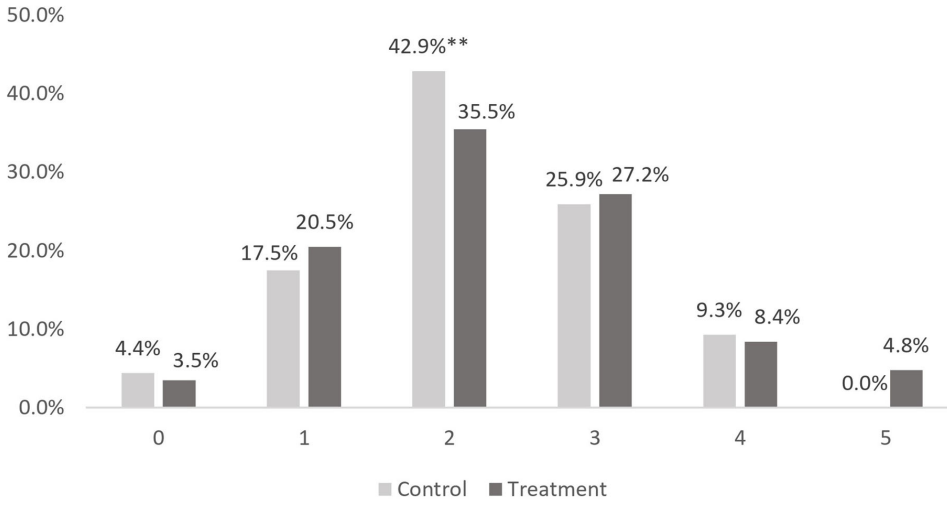
Ideology	Control	Treatment	Difference
Left (0-4)	38.585	43.454	4.9
Center-Right (5-10)	37.971	42.672	4.7

Source: EASIE survey (n=1,965); n=974 (control), n=988 (treatment). Notes: Response times are indicated in seconds. Categories of political ideology were derived from self-ratings on a 0-10 scale where '0' means 'completely leftist' and '10' means 'completely rightist'.

Table A7 Possible deflation motives in list experiment on anti-immigrant sentiment

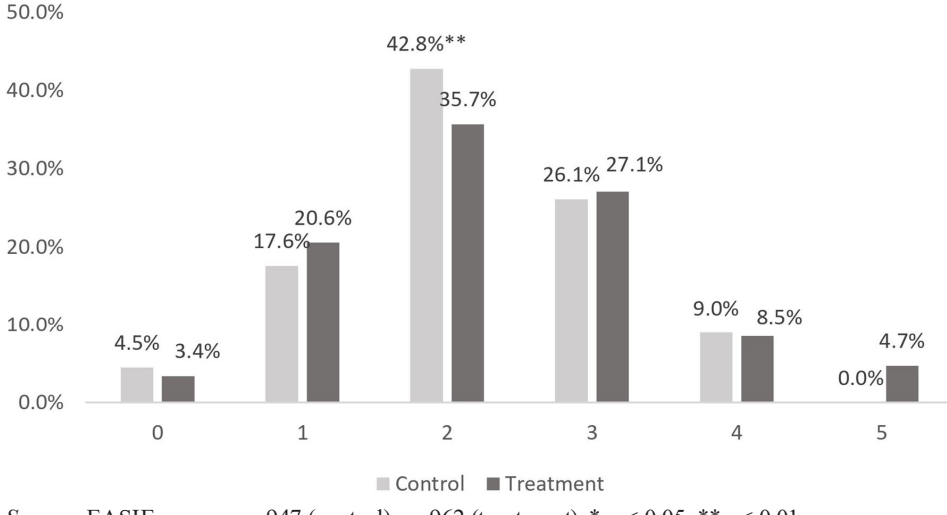
		AUDIENCE	
		OTHER	SELF
RELATION WITH NORM	ADHERENCE	Untarnished reputation	Burnished self-image
	DEFIANCE	Political correctness	Ideological consonance

4.2 Figures



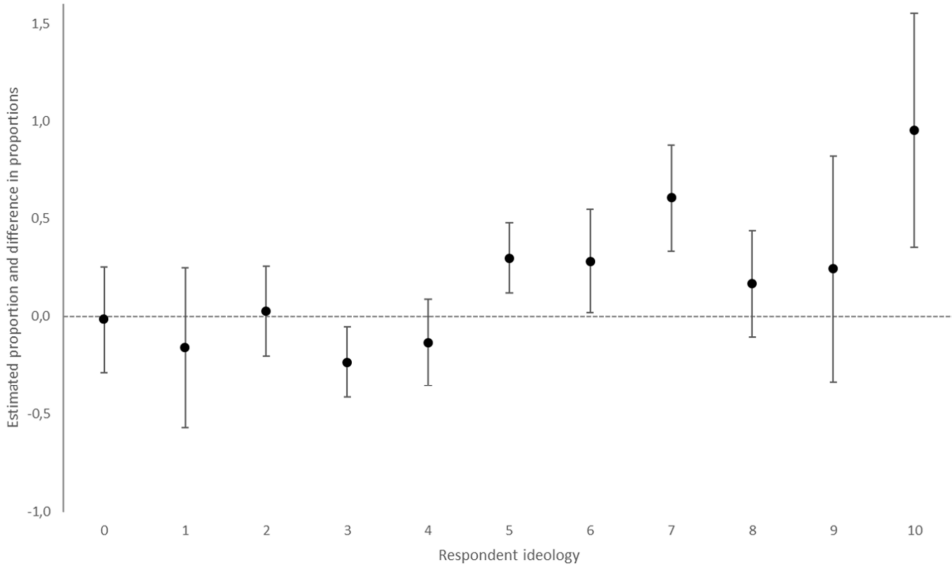
Source: EASIE survey; n=974 (control), n=988 (treatment). * p < 0.05; ** p< 0.01.

Figure A4 Item scores in list experiment on anti-immigrant sentiment (unweighted)



Source: EASIE survey; n=947 (control), n=962 (treatment). * p < 0.05; ** p< 0.01.

Figure A5 Item scores in list experiment on anti-immigrant sentiment excluding second-generation respondents (unweighted)



Source: EASIE survey (n=1,947). Political ideology is measured as self-rating on 0-10 scale where '0' means 'completely leftist' and '10' 'completely rightist'. Bars represent 90% confidence intervals.

Figure A6 DiM estimates for each point of ideology scale (unweighted)

5 Programming Code (R-LIST)

Estimates of AIS (ICT vs. DQ) and SDB (Table 1)

```
install.packages("foreign")
install.packages("list")
install.packages("plotrix")
install.packages("dplyr")
library(foreign)
library(list)
library(dplyr)
library(plotrix)
easie<-read.spss("[path]/EASIE_fichero.sav",to.data.frame=TRUE,use.value.
labels = FALSE)
easie$trab<-easie$p47rec_4+easie$p47rec_5
easie2<-subset(easie,Tipo==3)
easielist<-subset(easie2,is.na(p8tot)==FALSE)
summary <- easielist %>% group_by(tipotrat) %>% summarise(across(p8tot,list
(mean,std.error)))
print(summary)
fit.list <- ictreg(p8tot ~1, data = easielist,treat = "tipotrat", J=4, method = "lm")
easiesens<-subset(easielist,P93<3)
easiesens$y<-2-easiesens$P93
fit.sens <- glm(y ~ 1, data = easiesens, family = binomial("logit"))
avg.pred.social.desirability <- predict(fit.list, direct.glm = fit.sens, se.fit =
TRUE,avg=TRUE)
print(avg.pred.social.desirability)
```

Estimates of AIS (ICT vs. DQ) and SDB by political ideology (Figure 2)

```
easiesens.izq<-subset(easiesens,IDEOLOGIA2G==1)

easielist.izq<-subset(easielist,IDEOLOGIA2G==1)

fit.sens.izq <- glm(y ~ 1, data = easiesens.izq, family = binomial("logit"))

fit.list.izq <- ictreg(p8tot ~ 1, data = easielist.izq, treat = "tipotrat", J=4, method = "lm")

avg.pred.social.desirability.izq9 <- predict(fit.list.izq, direct.glm = fit.sens.izq, se.fit = TRUE,level=0.9)

print(avg.pred.social.desirability.izq9)

easiesens.der<-subset(easiesens,IDEOLOGIA2G==2)

easielist.der<-subset(easielist,IDEOLOGIA2G==2)

fit.sens.der <- glm(y ~ 1, data = easiesens.der, family = binomial("logit"))

fit.list.der <- ictreg(p8tot ~ 1, data = easielist.der, treat = "tipotrat", J=4, method = "lm")

avg.pred.social.desirability.der9 <- predict(fit.list.der, direct.glm = fit.sens.der, se.fit = TRUE,level=0.9)

print(avg.pred.social.desirability.der9)
```

Predictors of indirect (ICT) and direct AIS measures (Table A5)

```
easielist2<-subset(easielist,p46rec_12==0)

easielist2<-subset(easie,is.na(P49)==FALSE)

fit.list.nls <- ictreg(p8tot ~ EDAD + SEXO + P49+ F6rec_1+F6rec_2+trab+p47rec_6+ p46rec_9+p46rec_10, data = easielist2, treat = "tipotrat", J=4, method = "nls")

summary(fit.list.nls,se.fit=TRUE)

fit.list.ml <- ictreg(p8tot ~ EDAD + SEXO + P49+ F6rec_1+F6rec_2+trab+p47rec_6+ p46rec_9+p46rec_10, data = easielist2, treat = "tipotrat", J=4, method = "ml")

summary(fit.list.ml,se.fit=TRUE)

easiesens2<-subset(easielist2,P93<3)

easiesens2$y<-2-easiesens2$P93

fit.sens <- glm(y ~ EDAD + SEXO + P49+ F6rec_1+F6rec_2+trab+p47rec_6+ p46rec_9+p46rec_10, data = easiesens2, family = binomial("logit"))

summary(fit.sens,se.fit=TRUE)
```