

Replication

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Applied Statistics II

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Background of the Study: Research Question

- **Main question:** how do exclusionary attitudes among the Jewish majority predict discriminatory behaviour towards Palestinian citizens in Israel (PCI)
- Do exclusionary preferences stop individuals from cooperating with one another?
- Does the lack of cooperation therefore prevent societies from providing public goods?
- Authors also aim to understand how exclusionary attitudes are distinct from behaviors.

Background of the Study: Data

- **Data:**
- Uses lab-in-the-field data to study cooperation and exclusionary attitudes of Jewish people towards Palestinian Citizens of Israel (PCI)
- Measure cooperation (behaviours) with an economic decision making game
- Measure exclusionary attitudes with a social distance scale which asks participants to choose the degree of proximity that they would accept an outgroup member. Responses range from family relative to no relationship.

Background of the Study: Variables

- **Variables:**

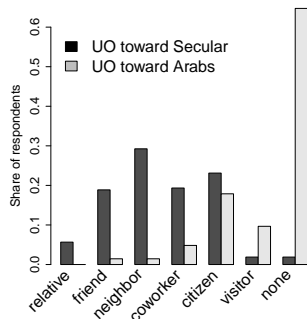
- arab_accept, arab_accept_character, arab_reject_binary - all variables corresponding to the level of exclusionary attitudes towards PCI, either in categorical form, continuous numeric, or binary. arab_accept levels are: relative - 1, friend - 2, neighbor - 3, coworker - 4, citizen - 5, visitor - 6, and none - 7
- age - continuous age variable
- foreign_born - binary variable, 1 corresponding to foreign born
- sex - binary variable, 1 corresponding to male
- left_right - ordinal variable, 1 meaning far left to 7 meaning far right
- religiosity - categorical data with levels anti, orthodox, secular, traditional, ultra-orthodox (treated as ordinal in the manuscript but treated as categorical dummies in all analysis)
- education - ordinal variable with levels graduate, high school, primary, and undergraduate
- income - ordinal with levels average, high, low, very high, very low
- ethnicity

Background of the Study: Hypotheses

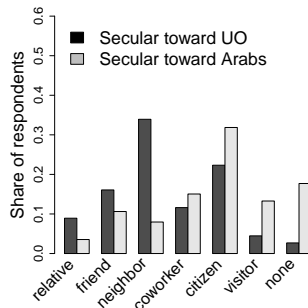
- Levels of exclusionary attitudes are high among the Jewish majority towards PCI
- These levels of exclusion are highest for lower-status Jews (low SES, uneducated, and the ultra-Orthodox population)
- Exclusionary attitudes are symbolic, meaning they are stable and affect other attitudes.
- Cooperation is informed/predicted by exclusionary attitudes preferences for exclusion. In other words, those with greater exclusionary attitudes towards PCI are also less likely to cooperate with PCI.
- The attitudes-behaviour connection is not moderated by other factors such as perceptions of Arabs' trustworthiness.

Their Models

Figure: Social Distance by Group



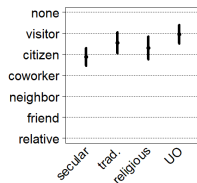
(a) Distance UO Arabs



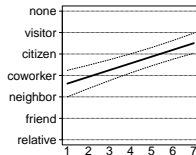
(b) Distance Secular Arabs

Their Models

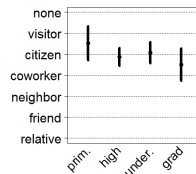
Figure: Religiosity, ideology, education, and social distance



(a) Religiosity



(b) Political Ideology



(c) Education

Their Models

Table 1

	<i>Dependent variable:</i>	
	Social Distance with PCI	
	(1)	(2)
Age	-0.003 (0.005)	-0.004 (0.005)
Foreign Born	-0.326* (0.197)	-0.246 (0.188)
Sex	-0.519*** (0.149)	-0.376*** (0.144)
Left-right	0.314*** (0.055)	0.270*** (0.052)
Secular	-0.425* (0.256)	-0.353 (0.246)
Traditional	0.236 (0.285)	0.287 (0.272)
Ultra Orthodox	0.650*** (0.241)	0.495** (0.232)
High-school	0.368 (0.337)	0.250 (0.321)
Primary-school	1.013** (0.466)	0.634 (0.458)
Undergrad	0.570* (0.340)	0.430 (0.325)
High income	-0.474* (0.270)	-0.384 (0.260)
Low income	-0.096 (0.216)	-0.180 (0.208)
Very high income	0.151 (0.402)	-0.108 (0.387)
Very low income	-0.002 (0.202)	0.048 (0.195)
Mixed	-0.358* (0.283)	-0.478* (0.269)
Other	0.232 (0.456)	-0.186 (0.438)
Sephardic	0.132 (0.163)	0.137 (0.157)
Muslim		0.931*** (0.296)
Never		1.480*** (0.259)
Week		0.469 (0.311)
Year		1.166*** (0.312)
Constant	3.846*** (0.556)	3.040*** (0.560)
Observations	375	372
R ²	0.289	0.370
Adjusted R ²	0.255	0.332
Residual Std. Error	1.345 (df = 357)	1.277 (df = 350)
F Statistic	8.537*** (df = 17; 357)	9.785*** (df = 21; 350)

Note:

*p<0.1; **p<0.05; ***p<0.01

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Table 2

	<i>Dependent variable:</i>			
	Cooperation with PCI (-1)			
	(1)	(2)	(3)	(4)
Social Distance (binary)	-0.820*** (0.243)	-0.631*** (0.306)	-0.639** (0.264)	-0.579* (0.319)
Age		-0.002 (0.008)		-0.002 (0.008)
Foreign Born		0.137 (0.318)		0.053 (0.325)
Sex		0.318 (0.245)		0.286 (0.251)
Left-right		-0.208** (0.093)		-0.198** (0.095)
Secular		-0.916** (0.411)		-1.097*** (0.424)
Traditional		-0.728 (0.459)		-0.919* (0.470)
Ultra Orthodox		-0.357 (0.386)		-0.501 (0.394)
High-school		0.826 (0.583)		0.974 (0.604)
Primary school		0.934 (0.773)		1.060 (0.792)
Undergrad		0.469 (0.590)		0.604 (0.613)
High		-0.085 (0.435)		-0.036 (0.441)
Low		-0.409 (0.348)		-0.430 (0.353)
Very high		0.158 (0.625)		0.086 (0.632)
Very low		-0.356 (0.323)		-0.326 (0.326)
Mixed		-0.135 (0.456)		-0.137 (0.460)
Other		0.593 (0.715)		0.998 (0.752)
Sephardic		-0.312 (0.267)		-0.262 (0.270)
Trust in Arabs			0.336* (0.291)	0.419 (0.341)
Constant	-0.045 (0.213)	1.035 (0.905)	-0.271 (0.249)	0.867 (0.942)
Observations	439	375	432	371
Log Likelihood	-274.275	-226.808	-268.588	-222.142
Akaike Inf. Crit.	552.549	491.617	543.176	484.285

Note:

*p<0.1; **p<0.05; ***p<0.01

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My Replication: Overview

- For my twist, I:
 - Checked the model-fit of the ordered multinomial regression using a parallel line assumption test and analysing the cutpoints of the model
 - Ran an unordered model on the complete outcome data as well as the binary exclusionary attitudes model
 - Checked the fit of the unordered models
 - Determined which model was most useful and if the authors were justified in using a linear model for categorical data

My Replication: Ordered Multinomial Tests

- What did the authors say?
- "Ordered logit regression provides substantively similar results." (p. 749).
- I ran their code included in the replication files along with my own code to ensure that the model was run properly

My Replication: Ordered Multinomial Tests

Table 3

	<i>Dependent variable:</i>	
	arab_acceptTEST	arab_accept
	(1)	(2)
age	-0.007 (0.007)	-0.007 (0.007)
foreign_born1	-0.426 (0.275)	-0.426 (0.275)
as.factor(as.character(religiosity))secular	-0.617* (0.360)	-0.617* (0.360)
as.factor(as.character(religiosity))trad	0.225 (0.409)	0.225 (0.409)
as.factor(as.character(religiosity))u_orthodox	0.849** (0.354)	0.849** (0.354)
sex1	-0.778*** (0.219)	-0.778*** (0.219)
as.factor(education)high	0.264 (0.485)	0.264 (0.485)
as.factor(education)primary	1.211* (0.702)	1.211* (0.702)
as.factor(education)undergrad	0.445 (0.490)	0.445 (0.490)
as.factor(income)high	-0.606 (0.372)	-0.606 (0.372)
as.factor(income)low	-0.018 (0.307)	-0.018 (0.307)
as.factor(income)v_high	0.010 (0.550)	0.010 (0.550)
as.factor(income)v_low	0.059 (0.290)	0.059 (0.290)
left_right	0.406*** (0.082)	0.406*** (0.082)
as.factor(ethnicity)mixed	-0.403 (0.404)	-0.403 (0.404)
as.factor(ethnicity)other	0.250 (0.612)	0.250 (0.612)
as.factor(ethnicity)sep	0.213 (0.240)	0.213 (0.240)
Observations	375	375

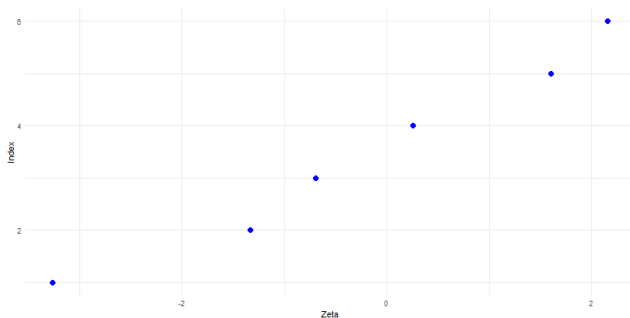
Note:

*p<0.1; **p<0.05; ***p<0.01

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My Replication: Ordered Multinomial Tests

- Then I plotted the intercepts:



My Replication: Ordered Multinomial Tests

- Long (1997) states that "in general, the results of the LRM only correspond to those of the ORM *if* the thresholds are all about the same distance apart. When this is not the case, the LRM can give very misleading results.
- This also serves as a first indication that the linear regression model might be giving skewed results.

My Replication: Ordered Multinomial Tests

- **Multinomial Model Results:**

- significant at the $p < 0.001$ level: sex/gender, and political ideology (left/right).
- significant at the $p < 0.05$ level: ultra-Orthodox religious identity (compared to orthodox as the reference category)
- significant at the $p < 0.01$ level: secular religious identity (compared to orthodox as the reference category), and primary education level (compared to grad).

My Replication: Ordered Multinomial Tests

- **OLS Results:**

- significant at the $p < 0.001$ level: sex/gender, political ideology (left/right), and ultra-Orthodox (compared to Orthodox).
- significant at the $p < 0.05$ level: primary educational level (compared to grad as reference category)
- significant at the $p < 0.01$ level: foreign born (compared to not foreign born as the reference category), secular religious identity (compared to orthodox as reference category), undergraduate educational level (compared to grad as reference category), and high income (compared to average as the reference category) and primary education level (compared to grad).

My Replication: Ordered Multinomial Tests

- **Conclusions**

- The linear model contains significance for the variables foreign born, undergraduate, and high income that the multinomial model does not show as significant
- I am going to assume that they consider this meets the standard for 'substantively similar results' to therefore use OLS as the primary model.
- Note: the significance levels of the multinomial model were confirmed with CIs for log-odds and odds ratios

My Replication: Ordered Multinomial Tests

- Next we can look at the results of the parallel line assumption test

Parallel Line Assumption

Table 6

	<i>Dependent variable:</i>						
	arab.acceptTEST == levels(arab.acceptTEST)[i]						
	(Relative)	(Friend)	(Neighbor)	(Coworker)	(Citizen)	(Visitor)	(None)
age	-0.031 (0.039)	-0.031* (0.019)	0.013 (0.020)	-0.008 (0.012)	0.033*** (0.009)	0.010 (0.013)	-0.021** (0.008)
foreign_born1	-18.790 (7,232.651)	1.953*** (0.736)	0.184 (0.713)	-0.500 (0.512)	0.088 (0.362)	-0.018 (0.479)	-0.356 (0.346)
as.factor(as.character(religiosity))secular	19.305 (9,884.922)	0.179 (0.980)	-0.756 (0.865)	-0.351 (0.536)	1.246** (0.574)	0.616 (0.638)	-1.145*** (0.431)
as.factor(as.character(religiosity))trad	18.834 (9,884.922)	-1.224 (1.226)	-0.871 (1.036)	-0.881 (0.712)	0.851 (0.619)	-0.072 (0.739)	0.185 (0.450)
as.factor(as.character(religiosity))u_orthodox	-0.118 (11,153.780)	-0.842 (1.102)	-2.310** (1.051)	-1.820*** (0.578)	0.734 (0.556)	0.085 (0.625)	0.649* (0.381)
sex1	0.349 (1.365)	1.135* (0.630)	-0.029 (0.613)	0.102 (0.393)	0.663** (0.291)	0.016 (0.365)	-0.865*** (0.255)
as.factor(education)high	18.275 (13,139.300)	-1.529 (0.940)	1.073 (1.332)	-0.881 (0.721)	0.810 (0.743)	15.536 (861.706)	-0.305 (0.581)
as.factor(education)primary	1.830 (19,616.320)	-17.209 (1,415.656)	-15.837 (3,812.976)	-1.165 (1.257)	0.800 (0.945)	14.892 (861.706)	0.618 (0.779)
as.factor(education)undergrad	-0.556 (14,362.630)	-3.270** (1.318)	1.078 (1.322)	-0.556 (0.725)	0.775 (0.747)	15.683 (861.706)	-0.207 (0.587)
as.factor(income)high	0.180 (1.742)	0.838 (1.056)	1.891 (1.175)	-0.385 (0.643)	-0.307 (0.491)	-0.046 (0.688)	-0.452 (0.490)
as.factor(income)low	-0.375 (1.586)	1.481 (0.962)	-15.752 (1,652.911)	-0.161 (0.531)	-0.148 (0.375)	-0.731 (0.597)	0.193 (0.364)
as.factor(income)v_high	-17.820 (16,584.300)	-0.230 (1.706)	-16.210 (4,497.914)	-1.130 (1.152)	0.497 (0.682)	0.499 (0.899)	-0.276 (0.695)
as.factor(income)v_low	0.230 (1.548)	0.740 (0.977)	1.808 (1.137)	-0.076 (0.506)	-0.928** (0.383)	0.345 (0.483)	0.180 (0.339)
left_right	-0.651 (0.449)	-0.759*** (0.216)	-0.580** (0.240)	-0.163 (0.140)	-0.039 (0.106)	0.334** (0.152)	0.279*** (0.095)
as.factor(ethnicity)mixed	1.456 (1.788)	1.301 (0.946)	-0.163 (0.983)	-1.118 (0.815)	0.701 (0.533)	-0.196 (0.820)	-0.495 (0.501)
as.factor(ethnicity)other	-17.986 (20,241.190)	0.024 (1.304)	0.944 (1.049)	-16.232 (1,205.275)	-14.705 (726.996)	1.234 (0.842)	0.225 (0.794)
as.factor(ethnicity)sep	0.500 (1.574)	0.650 (0.709)	-0.606 (0.773)	-0.837* (0.432)	0.032 (0.316)	0.172 (0.412)	0.217 (0.278)
Constant	-37.035 (16,442.410)	1.336 (1.849)	-1.921 (2.076)	1.242 (1.292)	-4.108*** (1.161)	-20.199 (861.707)	-0.216 (0.945)
Observations	375	375	375	375	375	375	375
Log Likelihood	-13.329	-51.361	-43.917	-107.725	-174.212	-116.887	-212.732
Akaike Inf. Crit.	62.658	138.721	123.835	251.451	384.425	260.775	461.966

Note:

*p<0.1; **p<0.05; ***p<0.01

Parallel Line Assumption

- We can see that the parallel line assumption **does not appear to hold**, as we have sign changes as we move along the acceptance categories
- In this case, we can run an unordered model to see if this is a better fit

My Replication: Unordered Multinomial - Log Odds

Table 7

	<i>Dependent variable:</i>					
	relative (1)	friend (2)	neighbor (3)	coworker (4)	citizen (5)	visitor (6)
age	-0.024 (0.041)	-0.019 (0.020)	0.017 (0.021)	0.003 (0.014)	0.036*** (0.011)	0.021 (0.014)
foreign_born1	-18.421*** (0.00000)	2.039** (0.792)	0.558 (0.769)	-0.178 (0.573)	0.367 (0.425)	0.188 (0.522)
sex1	1.153 (1.412)	1.802*** (0.668)	0.734 (0.650)	0.715* (0.429)	1.063*** (0.327)	0.455 (0.389)
left_right	-1.078** (0.489)	-1.063*** (0.243)	-0.881*** (0.270)	-0.422*** (0.162)	-0.242* (0.124)	0.130 (0.162)
as.factor(as.character(religiosity))secular	14.080*** (0.923)	0.718 (1.022)	-0.120 (0.938)	0.353 (0.604)	1.831*** (0.635)	1.310* (0.687)
as.factor(as.character(religiosity))trad	12.588*** (0.957)	-1.617 (1.255)	-1.271 (1.110)	-1.056 (0.763)	0.609 (0.660)	-0.126 (0.767)
as.factor(as.character(religiosity))u_orthodox	-7.714*** (0.000)	-1.521 (1.140)	-2.830*** (1.098)	-2.047*** (0.619)	0.330 (0.591)	-0.154 (0.652)
as.factor(education)high	10.577*** (1.182)	-1.171 (1.053)	1.032 (1.465)	-0.711 (0.801)	0.620 (0.825)	27.344*** (0.476)
as.factor(education)primary	-1.296*** (0.00000)	-46.280 (NA)	-23.232*** (0.000)	-1.662 (1.340)	0.129 (1.017)	26.348*** (0.894)
as.factor(education)undergrad	-8.259*** (0.00000)	-3.053** (1.407)	0.742 (1.460)	-0.581 (0.812)	0.518 (0.827)	27.443*** (0.482)
as.factor(income)high	1.071 (1.797)	1.510 (1.147)	2.335* (1.248)	0.296 (0.733)	0.207 (0.589)	0.291 (0.756)
as.factor(income)low	-0.103 (1.619)	1.492 (1.015)	-31.733*** (0.000)	-0.120 (0.584)	-0.163 (0.426)	-0.766 (0.629)
as.factor(income)vr_high	-11.807*** (0.00000)	-0.230 (1.822)	-17.987*** (0.00000)	-0.893 (1.263)	0.594 (0.800)	0.655 (0.987)
as.factor(income)vr_low	0.376 (1.592)	0.793 (1.024)	1.757 (1.176)	-0.062 (0.551)	-0.799* (0.426)	0.190 (0.514)
as.factor(ethnicity)mixed	1.622 (1.839)	1.688 (1.036)	0.118 (1.071)	-0.596 (0.890)	0.965 (0.624)	0.167 (0.871)
as.factor(ethnicity)other	-16.002*** (0.00000)	-0.723 (1.498)	0.054 (1.232)	-30.247*** (0.000)	-27.855*** (0.000)	0.822 (0.937)
as.factor(ethnicity)sep	0.132 (1.529)	0.337 (0.737)	-0.809 (0.804)	-0.887* (0.470)	-0.112 (0.353)	0.016 (0.435)
Constant	-21.131*** (1.182)	2.811 (2.054)	0.161 (2.326)	2.361 (1.477)	-2.519* (1.320)	-30.769*** (1.046)
Alaike Inf. Crit.	1,090.955	1,090.955	1,090.955	1,090.955	1,090.955	1,090.955

Note:

*p<0.1; **p<0.05; ***p<0.01

My Replication: Unordered Multinomial- Odds Ratio

Table 8

	<i>Dependent variable:</i>					
	relative (1)	friend (2)	neighbor (3)	coworker (4)	citizen (5)	visitor (6)
(Intercept)	6.651812e-10	16.62011	1.174264	10.6033	0.08055344	4.337311e-14
age	0.9766339	0.9813665	1.0170968	1.0027272	1.0362798	1.0211608
foreign_born1	9.993412e-09	7.680720	1.746663	0.8367114	1.442817	1.206234
sex1	3.167965	6.061605	2.082368	2.044595	2.895577	1.576944
left_right	0.3402059	0.3454747	0.4144849	0.6555768	0.7852415	1.1388934
as.factor(as.character(religiosity))secular	1.302773e+06	2.051171	0.8867322	1.42354	6.238936	3.700946
as.factor(as.character(religiosity))trad	2.929564e+05	0.1985388	0.2804708	0.3477121	1.837836	0.8815897
as.factor(as.character(religiosity))u.orthodox	0.000446421	0.2185649	0.05903657	0.1291617	1.390973	0.8576777
as.factor(education)high	39234.80	0.3101697	2.807297	0.4909893	1.858677	75069310000
as.factor(education)primary	0.2736024	7.959215e-21	8.13683e-11	0.1896932	1.137379	2.771624e+11
as.factor(education)undergrad	0.0002588371	0.04723659	2.100926	0.5594632	1.678288	8.285699e+11
as.factor(income)high	2.919292	4.528083	10.32993	1.34446	1.229912	1.337493
as.factor(income)low	0.9019111	4.446884	1.654761e-14	0.886939	0.8492521	0.4649023
as.factor(income)v_high	7.451886e-06	0.7944283	1.542646e-08	0.4094867	1.81096	1.92551
as.factor(income)v_low	1.4566613	2.2092725	5.7967432	0.9400315	0.4495974	1.2089442
as.factor(ethnicity)mixed	5.06502	5.408902	1.125156	0.550868	2.624276	1.181947
as.factor(ethnicity)other	1.123243e-07	0.4855062	1.055101	7.309264e-14	7.992025e-13	2.275707
as.factor(ethnicity)sep	1.1416274	1.4000588	0.4451049	0.4117924	0.8942012	1.0161241

Note:

*p<0.1; **p<0.05; ***p<0.01

My Replication: Unordered Multinomial - Prediction Table

Table 9: Prediction Accuracy

Actual Outcomes	Predictions							Sum
	none	relative	friend	neighbor	coworker	citizen	visitor	
citizen	40.00	0.00	2.00	1.00	2.00	38.00	0.00	83.00
coworker	19.00	0.00	2.00	1.00	7.00	8.00	0.00	37.00
friend	5.00	0.00	8.00	1.00	1.00	3.00	1.00	19.00
neighbor	5.00	0.00	0.00	4.00	1.00	5.00	0.00	15.00
none	157.00	0.00	2.00	1.00	3.00	13.00	1.00	177.00
relative	1.00	1.00	1.00	0.00	0.00	1.00	0.00	4.00
visitor	26.00	0.00	0.00	1.00	2.00	10.00	1.00	40.00
Sum	253.00	1.00	15.00	9.00	16.00	78.00	3.00	375.00

My Replication: Unordered Multinomial - Conclusions

- The model tends to overpredict the "none" outcome and underpredict the visitor outcome.
- The results of the unordered multinomial regression are very messy and hard to interpret due to the number of outcomes possible and the amount of predictors used in the model.
- Instead - run model with outcome as a binary variable, which the authors do in their second model of cooperation.
- The outcome variable is instead - everyone who said they would accept a PCI as a coworker or closer as low exclusionary preference and all other options as high exclusionary preference

My Replication: Binary Logistic Regression - Log Odds

Table 10

	Dependent variable:
	arab_reject_binary
age	0.014 (0.010)
foreign_born1	-0.227 (0.392)
sex1	-0.565* (0.320)
left_right	0.588*** (0.124)
as.factor(as.character(religiosity))secular	0.500 (0.468)
as.factor(as.character(religiosity))trad	1.169** (0.577)
as.factor(as.character(religiosity))u_orthodox	2.173*** (0.512)
as.factor(education)high	1.082* (0.617)
as.factor(education)primary	2.606** (1.261)
as.factor(education)undergrad	1.383** (0.639)
as.factor(income)high	-0.778 (0.526)
as.factor(income)low	-0.308 (0.466)
as.factor(income)v_high	1.227 (0.988)
as.factor(income)v_low	-0.535 (0.437)
as.factor(ethnicity)mixed	0.191 (0.545)
as.factor(ethnicity)other	0.676 (0.857)
as.factor(ethnicity)sep	0.544 (0.362)
Constant	-3.922*** (1.152)
Akaike Inf. Crit.	329.296

Note:

*p<0.1; **p<0.05; ***p<0.01



My Replication: Binary Logistic Regression - Odds Ratios

Table 11

	ORUnordBin
(Intercept)	0.02
age	1.01
foreign_born1	0.80
sex1	0.57
left_right	1.80
as.factor(as.character(religiosity))secular	1.65
as.factor(as.character(religiosity))trad	3.22
as.factor(as.character(religiosity))u_orthodox	8.78
as.factor(education)high	2.95
as.factor(education)primary	13.54
as.factor(education)undergrad	3.99
as.factor(income)high	0.46
as.factor(income)low	0.73
as.factor(income)v_high	3.41
as.factor(income)v_low	0.59
as.factor(ethnicity)mixed	1.21
as.factor(ethnicity)other	1.97
as.factor(ethnicity)sep	1.72

My Replication: Binary Logistic Regression - Predictions

Table 12

	0	1	Sum
0	27.00	48.00	75.00
1	14.00	286.00	300.00
Sum	41.00	334.00	375.00

My Replication: Binary Logistic Regression - Conclusions

- These results make significantly more sense and are easier to interpret.
- This prediction table implies that the model correctly predicts exclusionary attitudes relatively well (286/300) but not non-exclusionary attitudes (27/75).

My Replication: Conclusions

- The authors found that "In this article, we have shown that social distance, a measure of exclusionary preferences, is strongly predictive of cooperation in a public goods game" (p. 753).
- The authors also state "Political ideology, education, and religiosity all appear to be strongly related to social distance, with more right-wing, more religious, and less-educated subjects expressing more exclusionary preferences" (p. 749).
- My results indicate that the conclusion that the 'results are substantively similar' is partially justified. Based on the conclusions drawn by the authors about which factors are significant in their overall analysis, the results are justified.

My Replication: Conclusions

- Overall, it seems as though all of the models I tested seem to be relatively good at predicting a lack of acceptance towards PCI.
- Each model has its own setback: the OLS model such that the outcome variable is not continuous in nature and the cut points of the ordinal model imply that this model might be skewed; the ordinal model does not pass the parallel line assumption test; and the unordered model produces strangely high odds ratios and has quite poor predictive power.
- Overall: the scale from which the major conclusions were drawn from might be skewed, leading to abnormal results. This is supported by Weinfurt and Moghaddam (2001), who state the difficulties of using the social closeness scale as an ordinal measure in various cultural contexts

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