Reanalysis and Errata for Esarey, Salmon, and Barrilleaux, "Social Insurance and Income Redistribution in a Laboratory Experiment"

Justin Esarey
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ERRATA

There is an error in the reporting of the "Disaster Assistance" variable: the article indicates that it is coded such that higher values of Disaster Assistance correspond to *less* support for assisting disaster victims with public aid, but it is actually coded so that higher values correspond to *more* support for assisting disaster victims with public aid. Given its marginal positive relationship with Vote choice in the 20% risk treatment for Vote 2 (see below) and empirical correlation/conceptual similarity to the Conservatism variable, this leads us to consider an alternative analysis dropping the Disaster Assistance variable in a later section (see below).

Footnote 13 indicates that our results under two alternative measures of Conservatism, an additive index of all the components of the Conservatism measure and an additive index of just the party identification and ideology questions, give results substantively identical results to our main model. For the additive index with all components of Conservatism, this is correct (the marginal effect of Conservatism is negative and statistically significant for both votes in an NLS model with clustered standard errors). However, for index with just the ideology and party ID components, this is only true for the first vote decision.

Footnote 15 indicates that an interaction term between Unemployment and the 80% Risk Treatment was statistically significant at the .05 level in a regression on the second vote decision, but the total effect of unemployment attitudes was still statistically insignificant in all treatments. This is incorrect for our NLS models; it is not statistically significant under clustered or vanilla standard errors. Under clustered standard errors, none of the interactions between Unemployment or Disaster Assistance and the key treatment are statistically significant when entered separately into the model (replacing the Conservatism interactions). Under vanilla standard errors, Disaster Assistance*20% has a p-value of 0.069 in the second vote choice, but its effect on vote is statistically insignificant (90% CI = [-.018, .279], p=0.142).

Table 1 lists the incorrect R-squared; when using the nl command, Stata apparently does not report the correct R-squared unless the "hasconstant" option is specified. The correct R-squared values are .1328 (for Vote 1) and .1819 (for Vote 2).

REANALYSIS: NON CLUSTERED SEs

Several recent works (Green and Vavreck 2008, Angrist and Pischke 2008, Arceneaux and Nickerson 2009) have argued that, despite their regular use in the literature, clustered standard errors understate uncertainty in coefficient estimates when the number of clusters is small. Consequently, we ran our primary analysis (Table 1 in the original paper) with three alternative standard error calculations methods: our non-linear least squares model with clustering on 12 experimental sessions, standard (vanilla) standard errors, and the HC3 variant of robust standard errors. We also ran a panel model with two observations each (Votes 1 and 2) for 132 subjects, then clustered standard errors on subject (instead of experimental session). We then calculated the main effect of interest—the change in subjects' vote associated with Conservatism changing from its 25th to 75th percentile in the moderate (20%) risk treatment—for each of these models (Figure 1 in the original paper). The results are reported in Table 1.

Table 1: Predicted Change in Vote, Conservatism Moves from 25th to 75th Percentile

	Vote 1				Vote 2			
	effect	95% CI		p-val	effect	95% CI		p-val
NLS, Clustered SE	-.0939	[-.145,	-.042]	>.001	-.169	[-.213,	-.122]	>.001
NLS, Vanilla SE	-.0938	[-.235,	.045]	.200	-.169	[-.322,	-.013]	.042
NLS, HC3 SE	-.0934	[-.239,	.055]	.221	-.169	[-.346	.009]	.060
	Votes 1 and 2							
Panel NLS, Cluster on Subject	-.129	[.261,	.002]	.054				

Predicted differences were calculated via simulation using the model in Table 1 of Esarey, Salmon, and Barrilleaux, using three alternative calculations of the standard error and an alternative panel model.

As the table shows, uncertainty in the estimate substantially increases under the alternative models. While Conservatism is associated with lower vote choices, the relationship is not statistically significant at conventional levels in the first vote choice for the alternative models. The relationship is statistically significant in the second vote choice under all models, though the uncertainty in the estimate is greater in the alternatives compared to the clustered SEs. It is also statistically significant under the panel model with 132 clusters (on subject). Thus, although Conservatism is associated with lower vote choices, particularly in the second vote, there is considerably more uncertainty in the estimate than clustered standard errors would indicate.

In addition, a supplementary analysis (in footnote 17) showed that Conservatism and Distance from Earnings Average predicts changes in vote (Vote 2 – Vote 1). However, this finding is not robust to alternative calculations of the standard error (statistical significance is dramatically reduced under any alternative calculation of the standard error). In addition, the R-squared is only 0.051: very little variance is explained. Thus, strengthening of the relationship between these variables and voting behavior probably does not come from subjects moving from more moderate to more extreme votes.

We also recalculated the two other effects highlighted in the paper, the effect of the treatment (probability of a random loss of income) and earnings on voting behavior, for alternative calculations of the standard error. Table 2 shows the change in vote associated with changing the probability of a random loss of 80% of income for the three different standard error calculations. Though the effects are more uncertain under the vanilla or HC3 standard errors, generally speaking hypothesis tests are largely unchanged. A small increase in vote choice between the 0% risk and 20% risk treatments becomes statistically insignificant, but the general conclusion holds: increases in risk of a random loss tend to increase demand for income redistribution.

Table 3 shows the change in vote associated with moving from earning $1 less than the session average to earning $1 more than the session average. In this case, the alternative SEs seem to support the finding that pre-loss earnings have the greatest influence on preferences for redistribution when there is no risk of a random loss of income (that is, higher earners favor less redistribution). Indeed, the relationship that exists in the 80% risk treatment becomes statistically insignificant under the alternative standard errors.

In conclusion, clustering on 12 experimental sessions may understate the variability in our empirical estimates of effect. Fortunately, the qualitative conclusions of the paper largely hold.

Table 2: Predicted Change in Vote, Change in Probability of Random Loss

	Vote 1			Vote 2		
	effect	95% CI		effect	95% CI	
0% to 20%						
NLS, Clustered SE	.078	[.024,	.135]	.023	[-.061,	.113]
NLS, Vanilla SE	.077	[-.058,	.206]	.021	[-.137,	.170]
NLS, HC3 SE	.077	[-.054,	.207]	.021	[-.133,	.173]
0% to 80%						
NLS, Clustered SE	.166	[.051,	.282]	.190	[.067,	.309]
NLS, Vanilla SE	.163	[.029,	.296]	.188	[.031,	.340]
NLS, HC3 SE	.163	[.023,	301]	.188	[.031,	.336]
20% to 80%						
NLS, Clustered SE	.087	[-.019,	.193]	.167	[.048,	.284]
NLS, Vanilla SE	.085	[-.044,	.209]	.167	[.022,	.302]
NLS, HC3 SE	.085	[-.055,	.217]	.167	[.008,	.313]

Predicted differences were calculated via simulation using the model in Table 1 of Esarey, Salmon, and Barrilleaux, using three alternative calculations of the standard error.

Table 3: Predicted Change in Vote, Distance from Earning Average Moves from $-1 to $1

	Vote 1			Vote 2		
	effect	95% CI		effect	95% CI	
0% Risk						
NLS, Clustered SE	-.525	[-.898,	.109]	-.678	[-.943,	-.135]
NLS, Vanilla SE	-.531	[-.869,	-.006]	-.693	[-.911,	-.315]
NLS, HC3 SE	-.524	[-.901,	.076]	-.679	[-.937,	-.191]
20% Risk						
NLS, Clustered SE	-.034	[-.436,	.357]	.023	[-.333,	.384]
NLS, Vanilla SE	-.032	[-.412,	.354]	.018	[-.322,	.356]
NLS, HC3 SE	-.032	[-.450,	.389]	.020	[-.426,	.473]
80% Risk						
NLS, Clustered SE	-.285	[-.485,	-.056]	-.143	[-.287,	.005]
NLS, Vanilla SE	-.283	[-.586,	.062]	-.139	[-.464,	.209]
NLS, HC3 SE	-.281	[-.617,	.119]	-.137	[-.527,	.288]

Predicted differences were calculated via simulation using the model in Table 1 of Esarey, Salmon, and Barrilleaux, using three alternative calculations of the standard error.

REANALYSIS: DROP DISASTER ASSISTANCE + UNEMPLOYMENT

Given collinearity between the Disaster Assistance, Unemployment, and Conservatism variables, and that all three are theoretically similar (since each apparently measures a subject's willingness to assist the victims of chance), perhaps it's best to simply drop the Disaster Assistance and Unemployment variables and allow Conservatism to serve as the sole measure. We repeat the analysis of Table 1 in our paper using only Conservatism and non-clustered standard errors. (With clustered standard errors, results are very close to the original model with clustered SEs.)

Table 1: Logistic Model, Votes 1 and 2

	Vote 1			Vote 2		
	beta	SE	p	beta	SE	p
Distance from Average	-1.58	.745	0.036	-1.896	.651	0.004
Conservatism	.0954	.135	0.482	.1567	.153	0.308
20% Risk Treatment	.371	.299	0.216	.135	.345	0.696
80% Risk Treatment	.713	.295	0.017	.731	.333	0.030
Distance*20%	1.52	.865	0.082	1.84	.757	0.017
Distance*80%	.983	.842	0.245	1.58	.755	0.038
Conservatism*20%	-.307	.202	0.131	-.446	.233	0.059
Conservatism*80%	-.125	.194	0.521	-.192	.216	0.371
Risk Preference	.0565	.0635	0.375	.0541	.0712	0.449
Constant	-1.01	.341	0.004	-.883	.385	0.024

Logistic model estimated using nl in Stata 10.1. Vote 1: $n = 132$, $R^2 = .127$. Vote 2: $n = 132$, $R^2 = .167$. All p-values are two-tailed.

For this model, as Conservatism changes from its 25th to 75th percentile, Vote 1 decreases by 9.95 percentage points (95% CI = [-.234, .037], p = 0.152). Vote 2 decreases by 13.1 percentage points (95% CI = [-.282, .026], p = 0.10), which is statistically significant at conventional (0.05) levels in a one-tailed test. In a panel clustered non-linear model, where both votes are modeled and clustering is performed on 132 subjects, Vote decreases by 11.6 percentage points (95% CI = [-.244, .0122], p = 0.08), which is statistically significant at conventional (0.05) levels in a one-tailed test. Again, the qualitative results of the paper hold, but with somewhat less certainty than before.

WORKS CITED

Angrist, Joshua D. and Jorn-Steffen Pischke. 2008. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

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