

Errata on Section 4 of “Multiple Testing with Covariate Adjustment in Experimental Economics”

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June 9, 2025

List et al. (2023, Section 4) we benchmark our procedure against the classical Bonferroni and Holm multiple testing procedures using data from Karlan and List (2007). In Tables 7-10, the Holm p -values were computed incorrectly, resulting in some of the p -values in the final column of these tables being too small. The Github code has been corrected, and the correct tables are provided below (changes highlighted in yellow).

Table 7: All Pairwise Comparisons across Multiple Treatments and a Control, no covariates

Comparison Groups	Coeff.	p -values				
		Unadjusted		Multiplicity Adjusted		
		Remark 3.2	Theorem 3.1	Remark 3.8	Bonferroni	Holm
1:1 vs Control	0.1228	0.2547	0.5790	0.4917	1.0000	1.0000
2:1 vs Control	0.2566	0.0273**	0.1210	0.1210	0.1640	0.1640
3:1 vs Control	0.1703	0.1130	0.3537	0.2537	0.6780	0.5650
2:1 vs 1:1	0.1338	0.3043	0.5597	0.5597	1.0000	1.0000
3:1 vs 1:1	0.0475	0.7127	0.7127	0.7127	1.0000	1.0000
3:1 vs 2:1	-0.0863	0.4947	0.7190	0.4947	1.0000	1.0000

** indicates that the corresponding p -value is less than 5%

Table 8: All Pairwise Comparisons across Multiple Treatments and a Control, with covariates

Comparison Groups	Coeff.	p -values				
		Unadjusted		Multiplicity Adjusted		
		Remark 3.2	Theorem 3.1	Remark 3.8	Bonferroni	Holm
1:1 vs Control	0.1289	0.2347	0.5473	0.4600	1.0000	0.9387
2:1 vs Control	0.2564	0.0277**	0.1233	0.1233	0.1660	0.1660
3:1 vs Control	0.1675	0.1140	0.3547	0.2557	0.6840	0.5700
2:1 vs 1:1	0.1275	0.3253	0.5877	0.5877	1.0000	0.9760
3:1 vs 1:1	0.0387	0.7647	0.7647	0.7647	1.0000	0.9760
3:1 vs 2:1	-0.0888	0.4743	0.7013	0.4743	1.0000	0.9760

** indicates that the corresponding p -value is less than 5%

Table 9: Multiple Outcomes, Subgroups, and Treatments, without covariates

Outcome	Subgroup	Comp. Groups	Coeff.	<i>p</i> -values			
				Unadjusted	Multiplicity Adjusted		
				Remark 3.2	Theorem 3.1	Bonferroni	Holm
Response Rate	Red County, Red State	1:1 vs Control	0.0098	0.0077***	0.2067	0.3680	0.2913
Response Rate	Red County, Red State	2:1 vs Control	0.0102	0.0040***	0.1187	0.1920	0.1600
Response Rate	Red County, Red State	3:1 vs Control	0.0123	0.0010***	0.0240**	0.0480**	0.0440**
Response Rate	Blue County, Red State	1:1 vs Control	0.0027	0.5523	1.0000	1.0000	1.0000
Response Rate	Blue County, Red State	2:1 vs Control	0.0098	0.0497**	0.7380	1.0000	1.0000
Response Rate	Blue County, Red State	3:1 vs Control	0.0123	0.0120**	0.2953	0.5760	0.4200
Response Rate	Red County, Blue State	1:1 vs Control	0.0010	0.7017	1.0000	1.0000	1.0000
Response Rate	Red County, Blue State	2:1 vs Control	0.0020	0.5033	1.0000	1.0000	1.0000
Response Rate	Red County, Blue State	3:1 vs Control	0.0042	0.1680	0.9730	1.0000	1.0000
Response Rate	Blue County, Blue State	1:1 vs Control	-0.0006	0.8803	1.0000	1.0000	1.0000
Response Rate	Blue County, Blue State	2:1 vs Control	0.0030	0.4793	1.0000	1.0000	1.0000
Response Rate	Blue County, Blue State	3:1 vs Control	-0.0021	0.5637	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Red State	1:1 vs Control	0.5128	0.0567*	0.7637	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Red State	2:1 vs Control	0.4567	0.0523*	0.7453	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Red State	3:1 vs Control	0.3606	0.0610*	0.7713	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Red State	1:1 vs Control	-0.0239	0.9393	0.9973	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Red State	2:1 vs Control	0.4894	0.1523	0.9633	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Red State	3:1 vs Control	0.6128	0.0910*	0.8783	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Blue State	1:1 vs Control	0.0215	0.8997	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Blue State	2:1 vs Control	0.1466	0.4393	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Blue State	3:1 vs Control	0.0616	0.7263	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Blue State	1:1 vs Control	-0.0811	0.7207	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Blue State	2:1 vs Control	0.0745	0.7557	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Blue State	3:1 vs Control	-0.1303	0.5297	1.0000	1.0000	1.0000
Dollars Given Incl. Match	Red County, Red State	1:1 vs Control	1.6793	0.0090***	0.2370	0.4320	0.3330
Dollars Given Incl. Match	Red County, Red State	2:1 vs Control	2.6773	0.0003***	0.0003***	0.0160**	0.0160**
Dollars Given Incl. Match	Red County, Red State	3:1 vs Control	3.4035	0.0003***	0.0003***	0.0160**	0.0150**
Dollars Given Incl. Match	Blue County, Red State	1:1 vs Control	0.7603	0.0937*	0.8787	1.0000	1.0000
Dollars Given Incl. Match	Blue County, Red State	2:1 vs Control	3.0846	0.0037***	0.1103	0.1760	0.1503
Dollars Given Incl. Match	Blue County, Red State	3:1 vs Control	4.8758	0.0070***	0.1940	0.3360	0.2730
Dollars Given Incl. Match	Red County, Blue State	1:1 vs Control	0.8424	0.0090***	0.2360	0.4320	0.3240
Dollars Given Incl. Match	Red County, Blue State	2:1 vs Control	2.0387	0.0003***	0.0003***	0.0160**	0.0157**
Dollars Given Incl. Match	Red County, Blue State	3:1 vs Control	2.6444	0.0003***	0.0003***	0.0160**	0.0153**
Dollars Given Incl. Match	Blue County, Blue State	1:1 vs Control	0.8164	0.0263**	0.5237	1.0000	0.8953
Dollars Given Incl. Match	Blue County, Blue State	2:1 vs Control	2.1807	0.0027***	0.0780*	0.1280	0.1120
Dollars Given Incl. Match	Blue County, Blue State	3:1 vs Control	2.4146	0.0013***	0.0347**	0.0640*	0.0573*
Amount Change	Red County, Red State	1:1 vs Control	1.9925	0.1050	0.9027	1.0000	1.0000
Amount Change	Red County, Red State	2:1 vs Control	0.1360	0.9070	1.0000	1.0000	1.0000
Amount Change	Red County, Red State	3:1 vs Control	0.4979	0.6983	1.0000	1.0000	1.0000
Amount Change	Blue County, Red State	1:1 vs Control	98.9408	0.4500	1.0000	1.0000	1.0000
Amount Change	Blue County, Red State	2:1 vs Control	101.0547	0.4500	1.0000	1.0000	1.0000
Amount Change	Blue County, Red State	3:1 vs Control	101.4029	0.4500	1.0000	1.0000	1.0000
Amount Change	Red County, Blue State	1:1 vs Control	-55.2064	0.4443	1.0000	1.0000	1.0000
Amount Change	Red County, Blue State	2:1 vs Control	0.1886	0.8600	1.0000	1.0000	1.0000
Amount Change	Red County, Blue State	3:1 vs Control	1.1256	0.2733	0.9970	1.0000	1.0000
Amount Change	Blue County, Blue State	1:1 vs Control	1.1837	0.3410	1.0000	1.0000	1.0000
Amount Change	Blue County, Blue State	2:1 vs Control	-0.0524	0.9717	0.9717	1.0000	1.0000
Amount Change	Blue County, Blue State	3:1 vs Control	0.4172	0.7333	1.0000	1.0000	1.0000

*, **, and *** indicate that the corresponding *p*-values are less than 10%, 5%, and 1%, respectively

Table 10: Multiple Outcomes, Subgroups, and Treatments, with covariates

Outcome	Subgroup	Comp. Groups	Coeff.	<i>p</i> -values			
				Unadjusted	Multiplicity Adjusted		
				Remark 3.2	Theorem 3.1	Bonferroni	Holm
Response Rate	Red County, Red State	1:1 vs Control	0.0100	0.0053***	0.1563	0.2560	0.2133
Response Rate	Red County, Red State	2:1 vs Control	0.0100	0.0060***	0.1710	0.2880	0.2340
Response Rate	Red County, Red State	3:1 vs Control	0.0122	0.0013***	0.0373**	0.0640*	0.0587*
Response Rate	Blue County, Red State	1:1 vs Control	0.0029	0.5213	1.0000	1.0000	1.0000
Response Rate	Blue County, Red State	2:1 vs Control	0.0100	0.0460**	0.7107	1.0000	1.0000
Response Rate	Blue County, Red State	3:1 vs Control	0.0124	0.0127**	0.3107	0.6080	0.4433
Response Rate	Red County, Blue State	1:1 vs Control	0.0010	0.7003	1.0000	1.0000	1.0000
Response Rate	Red County, Blue State	2:1 vs Control	0.0022	0.4473	1.0000	1.0000	1.0000
Response Rate	Red County, Blue State	3:1 vs Control	0.0044	0.1570	0.9683	1.0000	1.0000
Response Rate	Blue County, Blue State	1:1 vs Control	-0.0002	0.9413	0.9413	1.0000	1.0000
Response Rate	Blue County, Blue State	2:1 vs Control	0.0031	0.4533	1.0000	1.0000	1.0000
Response Rate	Blue County, Blue State	3:1 vs Control	-0.0025	0.5067	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Red State	1:1 vs Control	0.5161	0.0580*	0.7733	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Red State	2:1 vs Control	0.4328	0.0610*	0.7763	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Red State	3:1 vs Control	0.3504	0.0713*	0.8167	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Red State	1:1 vs Control	-0.0314	0.9090	0.9940	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Red State	2:1 vs Control	0.4814	0.1570	0.9713	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Red State	3:1 vs Control	0.6199	0.0980*	0.8953	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Blue State	1:1 vs Control	0.0254	0.8820	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Blue State	2:1 vs Control	0.1582	0.4023	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Red County, Blue State	3:1 vs Control	0.0725	0.6840	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Blue State	1:1 vs Control	-0.0630	0.7757	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Blue State	2:1 vs Control	0.0958	0.6943	1.0000	1.0000	1.0000
Dollars Given Not Incl. Match	Blue County, Blue State	3:1 vs Control	-0.1381	0.4987	1.0000	1.0000	1.0000
Dollars Given Incl. Match	Red County, Red State	1:1 vs Control	1.6947	0.0090***	0.2347	0.4320	0.3240
Dollars Given Incl. Match	Red County, Red State	2:1 vs Control	2.6234	0.0003***	0.0003***	0.0160**	0.0157**
Dollars Given Incl. Match	Red County, Red State	3:1 vs Control	3.3892	0.0003***	0.0003***	0.0160**	0.0150**
Dollars Given Incl. Match	Blue County, Red State	1:1 vs Control	0.7470	0.0997*	0.8913	1.0000	1.0000
Dollars Given Incl. Match	Blue County, Red State	2:1 vs Control	3.0635	0.0040***	0.1207	0.1920	0.1640
Dollars Given Incl. Match	Blue County, Red State	3:1 vs Control	4.9089	0.0073***	0.1973	0.3520	0.2787
Dollars Given Incl. Match	Red County, Blue State	1:1 vs Control	0.8465	0.0087***	0.2287	0.4160	0.3207
Dollars Given Incl. Match	Red County, Blue State	2:1 vs Control	2.0659	0.0003***	0.0003***	0.0160**	0.0153**
Dollars Given Incl. Match	Red County, Blue State	3:1 vs Control	2.6770	0.0003***	0.0003***	0.0160**	0.0160**
Dollars Given Incl. Match	Blue County, Blue State	1:1 vs Control	0.8458	0.0233**	0.4790	1.0000	0.7933
Dollars Given Incl. Match	Blue County, Blue State	2:1 vs Control	2.2308	0.0030***	0.0880*	0.1440	0.1260
Dollars Given Incl. Match	Blue County, Blue State	3:1 vs Control	2.3627	0.0013***	0.0363**	0.0640*	0.0573*
Amount Change	Red County, Red State	1:1 vs Control	1.8142	0.1507	0.9697	1.0000	1.0000
Amount Change	Red County, Red State	2:1 vs Control	0.1638	0.8867	0.9987	1.0000	1.0000
Amount Change	Red County, Red State	3:1 vs Control	0.8336	0.5157	1.0000	1.0000	1.0000
Amount Change	Blue County, Red State	1:1 vs Control	118.4810	0.4420	1.0000	1.0000	1.0000
Amount Change	Blue County, Red State	2:1 vs Control	120.4633	0.4390	1.0000	1.0000	1.0000
Amount Change	Blue County, Red State	3:1 vs Control	120.3892	0.4397	1.0000	1.0000	1.0000
Amount Change	Red County, Blue State	1:1 vs Control	-55.7933	0.4443	1.0000	1.0000	1.0000
Amount Change	Red County, Blue State	2:1 vs Control	0.2775	0.8023	1.0000	1.0000	1.0000
Amount Change	Red County, Blue State	3:1 vs Control	1.3375	0.1883	0.9810	1.0000	1.0000
Amount Change	Blue County, Blue State	1:1 vs Control	0.8334	0.5060	1.0000	1.0000	1.0000
Amount Change	Blue County, Blue State	2:1 vs Control	-0.2961	0.8370	1.0000	1.0000	1.0000
Amount Change	Blue County, Blue State	3:1 vs Control	0.2720	0.8263	1.0000	1.0000	1.0000

*, **, and *** indicate that the corresponding *p*-values are less than 10%, 5%, and 1%, respectively

References

- KARLAN, D. and LIST, J. A. (2007). Does Price Matter in Charitable Giving? Evidence from a Large-Scale Natural Field Experiment. *American Economic Review*, **97** 1774–1793.
- LIST, J. A., SHAIKH, A. M. and VAYALINKAL, A. (2023). Multiple testing with covariate adjustment in experimental economics. *Journal of Applied Econometrics*, **38** 920–939.