

gologit2: Generalized Logistic Regression/ Partial Proportional Odds Models for Ordinal Dependent Variables

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. use "http://www.nd.edu/~rwilliam/gologit2/ordwarm2.dta"
(77 & 89 General Social Survey)
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. * Proportional Odds/ ologit model
. ologit warm yr89 male white age ed prst
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Ordered logistic regression                Number of obs   =       2293
                                           LR chi2(6)      =       301.72
                                           Prob > chi2     =       0.0000
Log likelihood = -2844.9123                Pseudo R2      =       0.0504
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warm	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
yr89	.5239025	.0798988	6.56	0.000	.3673037	.6805013
male	-.7332997	.0784827	-9.34	0.000	-.8871229	-.5794766
white	-.3911595	.1183808	-3.30	0.001	-.6231815	-.1591374
age	-.0216655	.0024683	-8.78	0.000	-.0265032	-.0168278
ed	.0671728	.015975	4.20	0.000	.0358624	.0984831
prst	.0060727	.0032929	1.84	0.065	-.0003813	.0125267
/cut1	-2.465362	.2389126			-2.933622	-1.997102
/cut2	-.630904	.2333155			-1.088194	-.173614
/cut3	1.261854	.2340179			.8031873	1.720521

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. * Brant test shows assumptions of ologit are violated
. brant, detail
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Estimated coefficients from j-1 binary regressions

	y>1	y>2	y>3
yr89	.9647422	.56540626	.31907316
male	-.30536425	-.69054232	-1.0837888
white	-.55265759	-.31427081	-.39299842
age	-.0164704	-.02533448	-.01859051
ed	.10479624	.05285265	.05755466
prst	-.00141118	.00953216	.00553043
_cons	1.8584045	.73032873	-1.0245168

Brant Test of Parallel Regression Assumption

Variable	chi2	p>chi2	df
All	49.18	0.000	12
yr89	13.01	0.001	2
male	22.24	0.000	2
white	1.27	0.531	2
age	7.38	0.025	2
ed	4.31	0.116	2
prst	4.33	0.115	2

A significant test statistic provides evidence that the parallel regression assumption has been violated.


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. * gologit2 - the autofit option causes gologit2 to identify and estimate a
. * partial proportional odds model that fits the data. The gamma option also
. * causes it to print out the alternative Peterson/Harrell parameterization.

. gologit2 warm yr89 male white age ed prst, autofit gamma lrforce store(gologit2)

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Testing parallel lines assumption using the .05 level of significance...

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Step 1: white meets the pl assumption (P Value = 0.7136)
Step 2: ed meets the pl assumption (P Value = 0.1589)
Step 3: prst meets the pl assumption (P Value = 0.2046)
Step 4: age meets the pl assumption (P Value = 0.0743)
Step 5: The following variables do not meet the pl assumption:
       yr89 (P Value = 0.00093)
       male (P Value = 0.00002)

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Generalized Ordered Logit Estimates                               Number of obs   =       2293
                                                                LR chi2(10)     =       338.30
                                                                Prob > chi2     =       0.0000
Log likelihood = -2826.6182                                     Pseudo R2      =       0.0565

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( 1) [SD]white - [D]white = 0
( 2) [SD]ed - [D]ed = 0
( 3) [SD]prst - [D]prst = 0
( 4) [SD]age - [D]age = 0
( 5) [D]white - [A]white = 0
( 6) [D]ed - [A]ed = 0
( 7) [D]prst - [A]prst = 0
( 8) [D]age - [A]age = 0

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	warm	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	

SD							
	yr89	.98368	.1530091	6.43	0.000	.6837876	1.283572
	male	-.3328209	.1275129	-2.61	0.009	-.5827417	-.0829002
	white	-.3832583	.1184635	-3.24	0.001	-.6154424	-.1510742
	age	-.0216325	.0024751	-8.74	0.000	-.0264835	-.0167814
	ed	.0670703	.0161311	4.16	0.000	.0354539	.0986866
	prst	.0059146	.0033158	1.78	0.074	-.0005843	.0124135
	_cons	2.12173	.2467146	8.60	0.000	1.638178	2.605282

D							
	yr89	.534369	.0913937	5.85	0.000	.3552406	.7134974
	male	-.6932772	.0885898	-7.83	0.000	-.8669099	-.5196444
	white	-.3832583	.1184635	-3.24	0.001	-.6154424	-.1510742
	age	-.0216325	.0024751	-8.74	0.000	-.0264835	-.0167814
	ed	.0670703	.0161311	4.16	0.000	.0354539	.0986866
	prst	.0059146	.0033158	1.78	0.074	-.0005843	.0124135
	_cons	.6021625	.2358361	2.55	0.011	.1399323	1.064393

A							
	yr89	.3258098	.1125481	2.89	0.004	.1052197	.5464
	male	-1.097615	.1214597	-9.04	0.000	-1.335671	-.8595579
	white	-.3832583	.1184635	-3.24	0.001	-.6154424	-.1510742
	age	-.0216325	.0024751	-8.74	0.000	-.0264835	-.0167814
	ed	.0670703	.0161311	4.16	0.000	.0354539	.0986866
	prst	.0059146	.0033158	1.78	0.074	-.0005843	.0124135
	_cons	-1.048137	.2393568	-4.38	0.000	-1.517268	-.5790061

