The Latent Influence of Ideology on Partisan Media Consumption

A Preprint

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Abstract

We introduce a new, simple variance-parametric statistic—mean absolute uncertainty deviation (MAUD) and its scaled cousin, standardized mean absolute uncertainty deviation (SMAUD) uncertainty—for detecting initial evidence of model dependence. Using these descriptive statistics, generalized information matrix (GIM) tests, and leave-one-covariate-out (LOCO) inference, we reanalyze high-quality data and research designs on media diets from Guess (2021) and Tyler, Grimmer, & Iyengar (2021) and show that models of Americans' media consumption that incorporate measures of respondent *ideological proclivities* can be less model dependent, explain more variance than their ideology-less counterparts, and shrink kernel-based overlap coefficients over ideologically stratified distributions. Finally, we find that using URL section names as proxies for classification of news articles explain slightly less variance in partisan media consumption yet exhibit less model dependence compared to using a full logistic regression classifier, suggesting that the two methdologies may not be measuring the exact same quantity.

***K*eywords** media diets · motivated reasoning · political polarization · machine learning

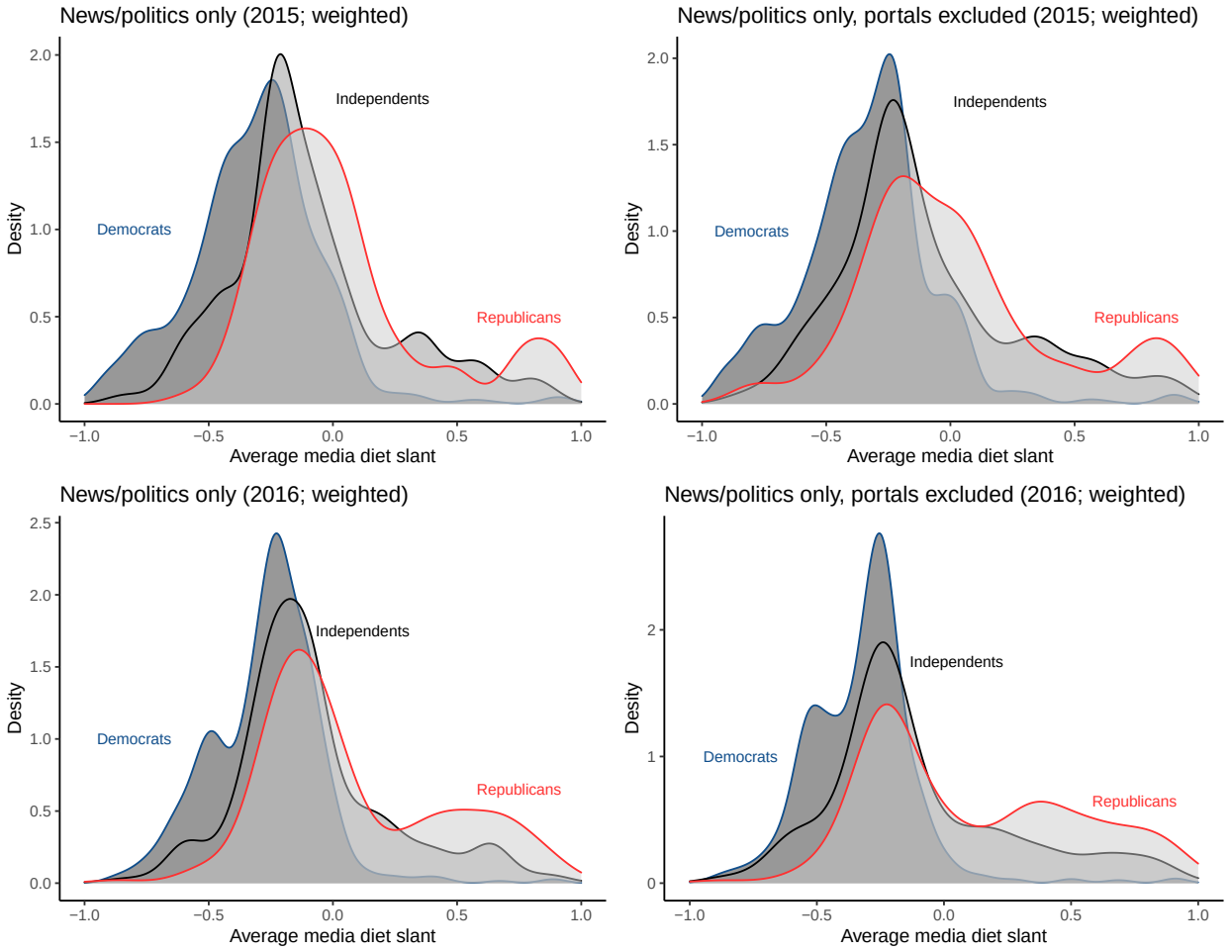
1 Introduction

2 Research Design and Data

2.1 Measuring Media Consumption and Computing Partisan Slants

Following Guess (2021), we use domain alignment scores from Bakshy et al. (2015) and a logistic regression-based news classifier to determine the average media consumption of each of the respondents who agreed to allow the Wakoopa search bar to track their web-browsing histories.

Figure 1. Americans' Online Media Diets by Partisanship



[TODO: Overlap coefficients. Guess (2021) and Inman and Bradley (1989)]

Table 1: **Overlap Coefficients for Americans' Partisan Media Diets**

	2015	2015 (no portals)	2016	2016 (no portals)	Δ_P	Δ_{NP}
Dem-Rep	0.629	0.596	0.478	0.429	-0.150	-0.167
Dem-Ind	0.825	0.770	0.731	0.679	-0.094	-0.090
Rep-Ind	0.790	0.799	0.741	0.720	-0.048	-0.078

[TODO: we find, after computing overlap coefficients, that the overlap in partisan media diets has considerably considerately in 2016 compared to 2015, as evidenced by the negative coefficients on the change in portal and nonportal diet alignments from 2015 to 2016. It is unclear whether this is a sign of a significant change in news consumption between 2015 and 2016 or a statistical artefact induced by changes in the survey and observational samples between the two years. We will return to this question later in the paper. . .]

Table 2: **Determinants of Media Diet Slant**

	Average media diet slant (news/politics only)	
	2015	*2016*
	(1)	(2)
Age: 30-44	0.136**	0.062
	(0.034)	(0.035)
Age: 45-59	0.205**	0.123**
	(0.037)	(0.029)
Age: 60+	0.242**	0.203**
	(0.051)	(0.028)
Race: Black	0.010	−0.047
	(0.047)	(0.046)
Race: Hispanic	−0.017	0.110
	(0.054)	(0.066)
Race: White	−0.038	0.021
	(0.037)	(0.040)
Female	−0.022	−0.024
	(0.030)	(0.021)
Income level	−0.002	0.005
	(0.005)	(0.003)
High school	0.019	0.079
	(0.071)	(0.073)
Some college	−0.048	0.055
	(0.062)	(0.071)
College graduate	−0.026	0.017
	(0.068)	(0.071)
Postgraduate	−0.117	−0.006
	(0.076)	(0.072)
Democrat	−0.258**	−0.189**
	(0.060)	(0.044)
Independent	−0.074	−0.017
	(0.062)	(0.046)
Republican	0.040	0.127**
	(0.067)	(0.048)
Constant	−0.093	−0.283**
	(0.075)	(0.081)
N	861	1,903
Adjusted R^2	0.192	0.238

*p < .05; **p < .01; ***p < [.***]
OLS regressions with HC2 robust standard errors in parentheses; YouGov survey data with weights applied.

2.2 Model Dependence in Existing Models of Partisan Media Consumption

[TODO: introduce MAUD or SMAUD] [TODO: summary of GIM Test]

Table 3: **Evidence for Model Dependence in Main Consumption Determinants Models**

	MAUD	SMAUD	(GIM) Rule of Thumb	Test Statistic	*p*-value
2015	0.008	0.167	1.865	1479.103	0.032
2016	0.018	0.349	1.865	1495.154	0.032

2.3 Considering Ideology Reduces Model Dependence and Shrinks Overlap Coefficients

[TODO: history of partisan newspapers has largely been replaced]

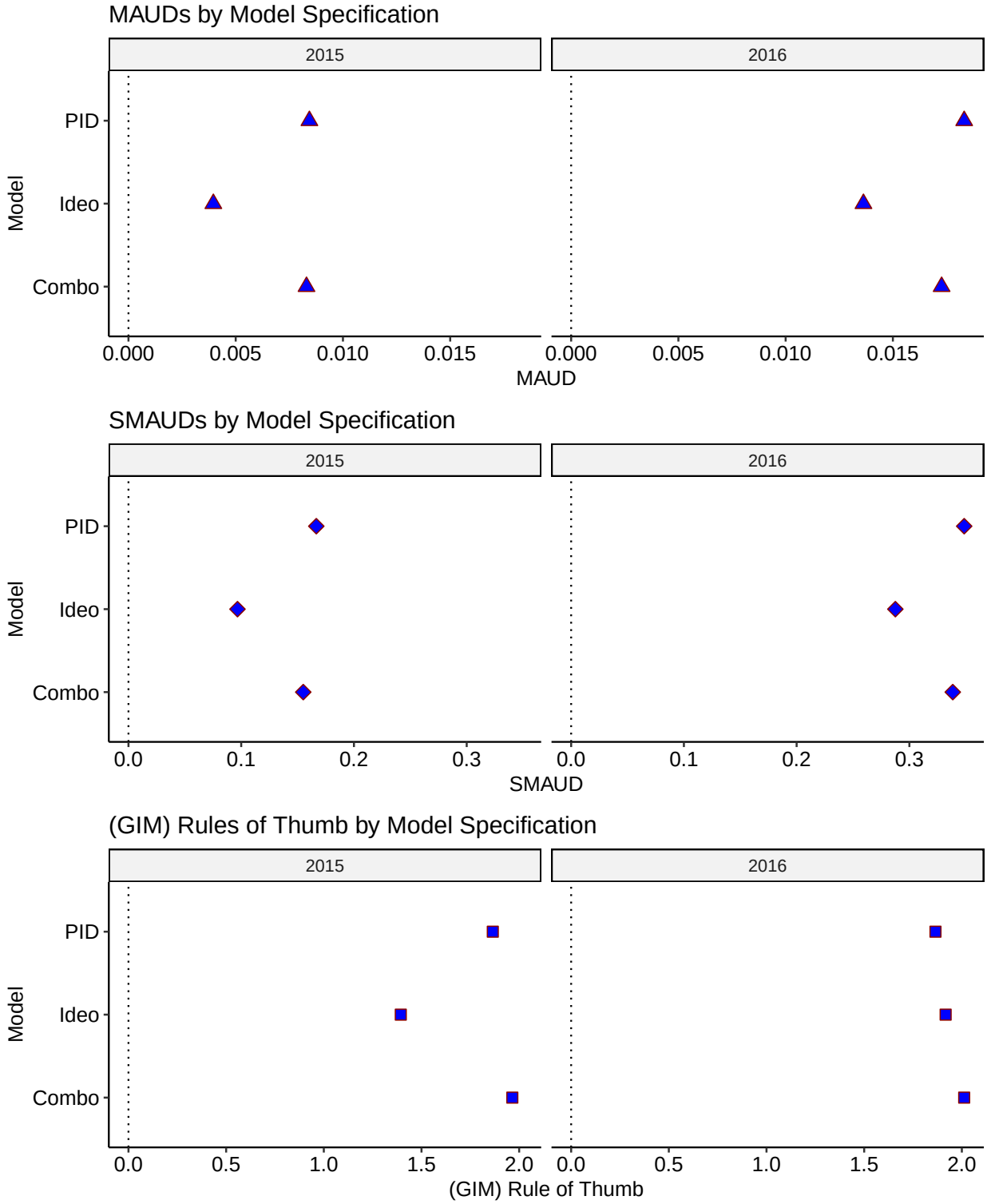
Table 4: **Determinants of Media Diet Slant (Including Ideology)**

	Average media diet slant (news/politics only)					
	2015 (PID)	*2015* (Ideo)	*2015* (Combined)	*2016* (PID)	*2016* (Ideo)	*2016* (Combined)
	(1)	(2)	(3)	(4)	(5)	(6)
Age: 30-44	0.136**	0.080*	0.088**	0.062	0.007	0.020
	(0.034)	(0.033)	(0.033)	(0.035)	(0.033)	(0.034)
Age: 45-59	0.205**	0.126**	0.136**	0.123**	0.068**	0.079**
	(0.037)	(0.035)	(0.035)	(0.029)	(0.026)	(0.027)
Age: 60+	0.242**	0.149**	0.159**	0.203**	0.120**	0.139**
	(0.051)	(0.044)	(0.044)	(0.028)	(0.027)	(0.028)
Race: Black	0.010	−0.044	−0.020	−0.047	−0.056	−0.031
	(0.047)	(0.043)	(0.044)	(0.046)	(0.052)	(0.050)
Race: Hispanic	−0.017	−0.063	−0.061	0.110	0.121*	0.114
	(0.054)	(0.046)	(0.048)	(0.066)	(0.061)	(0.062)
Race: White	−0.038	−0.091**	−0.085*	0.021	0.047	0.033
	(0.037)	(0.032)	(0.034)	(0.040)	(0.039)	(0.040)
Female	−0.022	−0.009	−0.006	−0.024	−0.006	−0.004
	(0.030)	(0.027)	(0.026)	(0.021)	(0.021)	(0.021)
Income level	−0.002	−0.002	−0.002	0.005	0.005	0.004
	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)
High school	0.019	0.038	0.035	0.079	0.006	0.034
	(0.071)	(0.067)	(0.070)	(0.073)	(0.061)	(0.066)
Some college	−0.048	−0.031	−0.030	0.055	−0.013	0.011
	(0.062)	(0.063)	(0.067)	(0.071)	(0.059)	(0.064)
College graduate	−0.026	−0.005	−0.002	0.017	−0.020	−0.007
	(0.068)	(0.071)	(0.072)	(0.071)	(0.061)	(0.065)
Postgraduate	−0.117	−0.061	−0.057	−0.006	−0.050	−0.025
	(0.076)	(0.075)	(0.077)	(0.072)	(0.062)	(0.066)
Democrat	−0.258**		−0.106	−0.189**		−0.124*
	(0.060)		(0.059)	(0.044)		(0.050)
Independent	−0.074		−0.020	−0.017		−0.024
	(0.062)		(0.060)	(0.046)		(0.050)
Republican	0.040		−0.013	0.127**		0.027
	(0.067)		(0.070)	(0.048)		(0.054)
Conservative		0.213**	0.214**		0.213**	0.183**
		(0.055)	(0.068)		(0.044)	(0.055)
Liberal		−0.110*	−0.053		−0.127**	−0.061
		(0.047)	(0.060)		(0.043)	(0.050)
Moderate		−0.043	−0.019		0.008	0.027
		(0.042)	(0.055)		(0.038)	(0.046)
Very conservative		0.303**	0.297**		0.308**	0.266**
		(0.057)	(0.063)		(0.059)	(0.065)
Very liberal		−0.208**	−0.144*		−0.165**	−0.099*
		(0.048)	(0.060)		(0.040)	(0.048)
Constant	−0.093	−0.144*	−0.136*	−0.283**	−0.288**	−0.276**
	(0.075)	(0.059)	(0.066)	(0.081)	(0.074)	(0.077)
Party ID	✓		✓	✓		✓
Ideology		✓	✓		✓	✓
N	861	861	861	1,903	1,903	1,903
Adjusted R^2	0.192	0.291	0.299	0.238	0.281	0.302

*p < .05; **p < .01; ***p < [.***]
OLS regressions with HC2 robust standard errors in parentheses; YouGov survey data with weights applied.

[TODO: Interpretation/explanation of big regression table.]

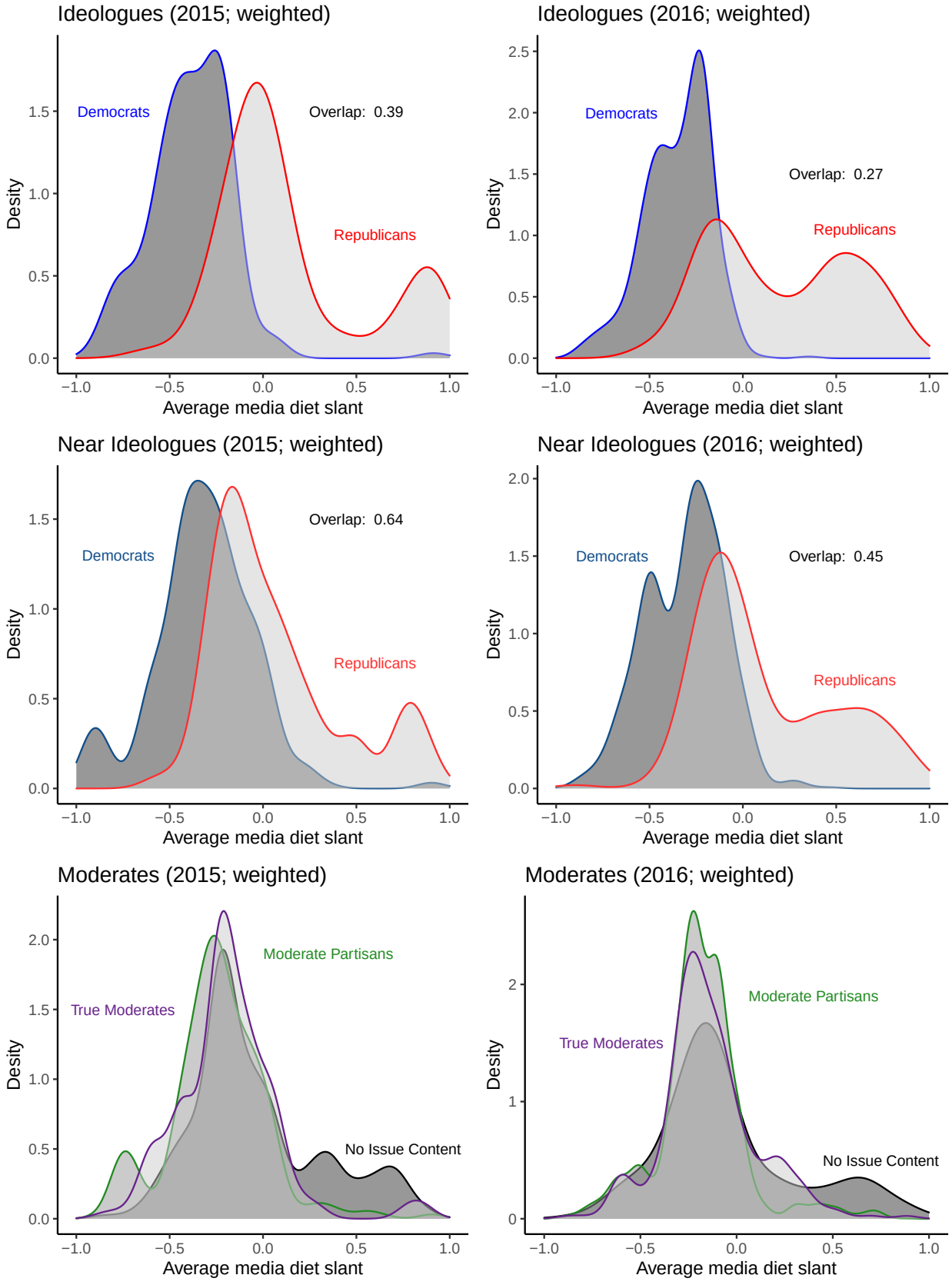
Figure 2. Inclusion of Ideology Reduces Model Dependence



[Following Converse (1964), we stratify individuals into political ideologues, near ideologues, and true moderates.]

[Hump for "no issue content"... a right-wing "shy trump voter" affecting the low-information/education/cognitive ability voters?]

Figure 3. Americans' Media Diets by Ideological Type

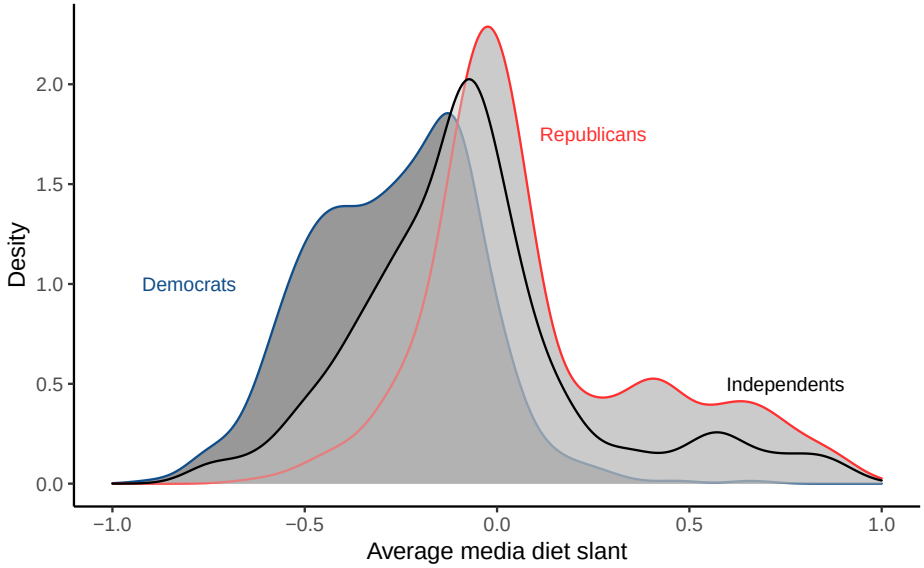


[Cross-tables of class proportion.] [2015: Rep Ideologue Dem Ideologue Rep Near Ideologue Dem Near Ideologue True Moderate 7.112 8.980 9.124 11.638 13.649 Moderate Partisan No issue content 18.032 31.466] [2016: Rep Ideologue Dem Ideologue Rep Near Ideologue True Moderate Dem Near Ideologue 9.116 11.704 11.943 12.898 14.968 Moderate Partisan No issue content 16.799 22.572]

[ALL GIM Tests return same p-value, 0.03225806, and seemingly arbitrary test statistic magnitudes, which may requite further investigation.]

2.4 URL Section Name Proxies Perform Slightly Better than Logistic Classification of News Alignment

Figure 4. Americans' Online Media Diets (URL Proxy)



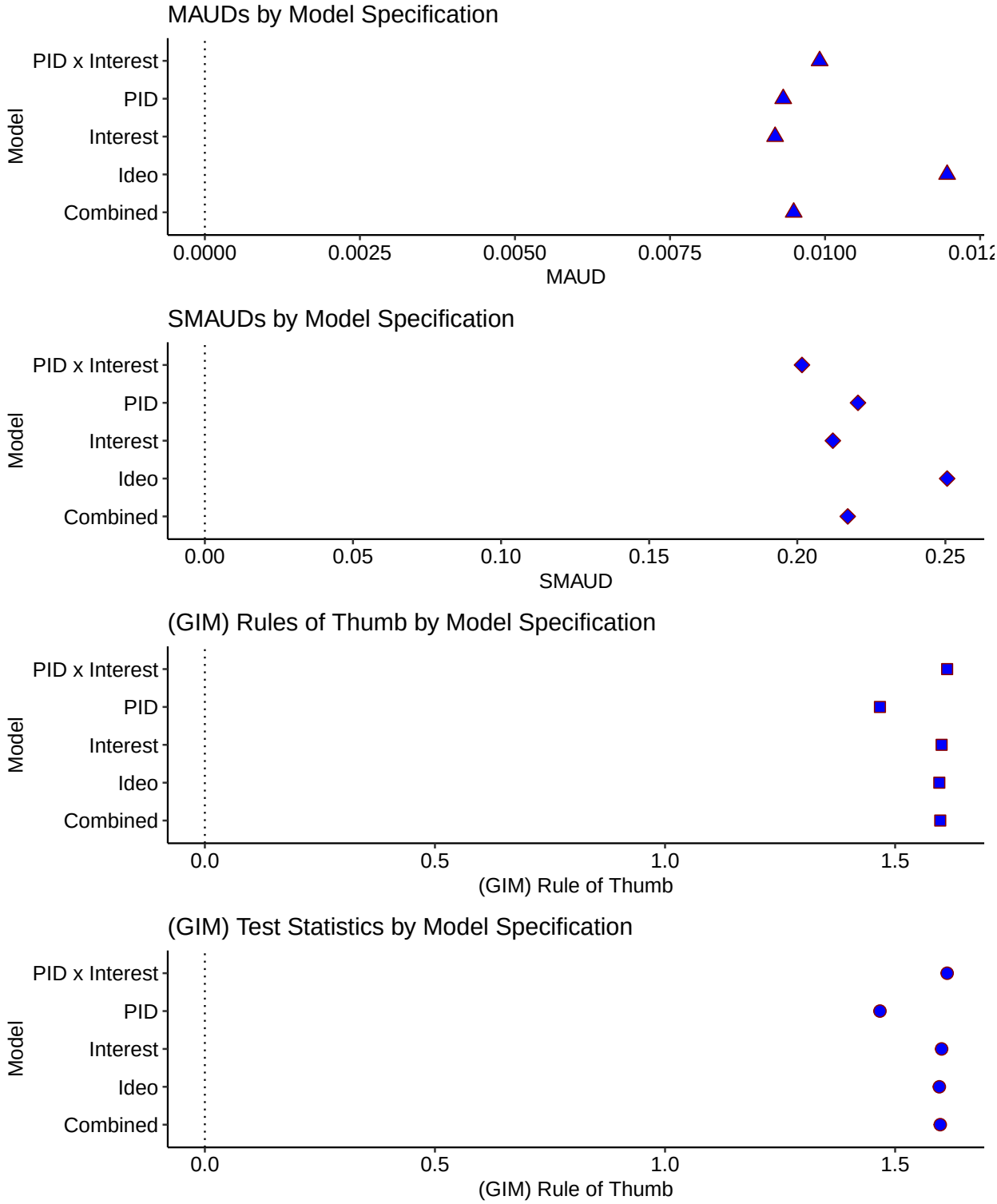
[Writeup overlap coefficients, interpretation, KS tests and bootstrapped KS tests manually.]

Table 5: **Determinants of Media Diet Slant (Using URL Section Proxies)**

	Average media diet slant (news/politics only)				
	(PID)	(Ideo)	(Combined)	(Interest)	(Party x Interest)
	(1)	(2)	(3)	(4)	(5)
Age: 30-44	0.101**	0.083*	0.090*	0.090*	0.068**
	(0.035)	(0.037)	(0.035)	(0.035)	(0.025)
Age: 45-59	0.122**	0.082*	0.103**	0.104**	0.086**
	(0.034)	(0.036)	(0.035)	(0.036)	(0.025)
Age: 60+	0.177**	0.149**	0.161**	0.162**	0.144**
	(0.035)	(0.037)	(0.036)	(0.037)	(0.025)
Race: White	0.011	0.038	0.017	0.016	0.010
	(0.038)	(0.038)	(0.038)	(0.038)	(0.032)
Race: Black	0.095*	0.093*	0.105*	0.105*	0.104**
	(0.040)	(0.045)	(0.041)	(0.041)	(0.038)
Race: Hispanic	0.053	0.059	0.057	0.056	0.047
	(0.054)	(0.059)	(0.054)	(0.054)	(0.043)
Female	−0.043*	−0.053*	−0.043*	−0.043*	−0.040*
	(0.021)	(0.022)	(0.021)	(0.022)	(0.016)
Income level	0.002	0.002	0.002	0.002	0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
High school	−0.129*	−0.156*	−0.142*	−0.142*	−0.130**
	(0.065)	(0.075)	(0.069)	(0.069)	(0.049)
Some college	−0.149*	−0.163*	−0.159*	−0.159*	−0.148**
	(0.062)	(0.070)	(0.065)	(0.065)	(0.048)
College graduate	−0.149*	−0.167*	−0.153*	−0.153*	−0.142**
	(0.064)	(0.074)	(0.067)	(0.067)	(0.050)
Postgraduate	−0.188**	−0.198**	−0.184**	−0.184**	−0.181**
	(0.066)	(0.075)	(0.069)	(0.070)	(0.052)
Democrat	−0.138**		−0.101**	−0.101**	−0.199**
	(0.035)		(0.038)	(0.038)	(0.032)
Republican	0.116**		0.076	0.076	0.055
	(0.035)		(0.042)	(0.042)	(0.033)
Conservative		0.173**	0.098	0.098	0.059
		(0.041)	(0.051)	(0.051)	(0.052)
Liberal		−0.078	−0.020	−0.020	−0.035
		(0.040)	(0.043)	(0.043)	(0.054)
Moderate		0.047	0.047	0.047	0.025
		(0.039)	(0.040)	(0.041)	(0.050)
Very conservative		0.262**	0.163**	0.164**	0.117*
		(0.049)	(0.058)	(0.060)	(0.060)
Very liberal		−0.120*	−0.060	−0.059	−0.061
		(0.047)	(0.050)	(0.051)	(0.059)
Political Interest				−0.002	0.140**
				(0.022)	(0.044)
Democrat x Interest					0.240**
					(0.049)
Republican x Interest					0.069
					(0.050)
Constant	−0.060	−0.124	−0.099	−0.098	−0.150
	(0.079)	(0.084)	(0.083)	(0.084)	(0.078)
Party ID	✓		✓	✓	✓
Ideology		✓	✓	✓	✓
Political Interest				✓	✓
N	920	924	920	920	920
Adjusted R^2	0.245	0.220	0.265	0.264	0.290

*p < .05; **p < .01; ***p < [.***]
OLS regressions with HC2 robust standard errors in parentheses; YouGov survey data with weights applied.

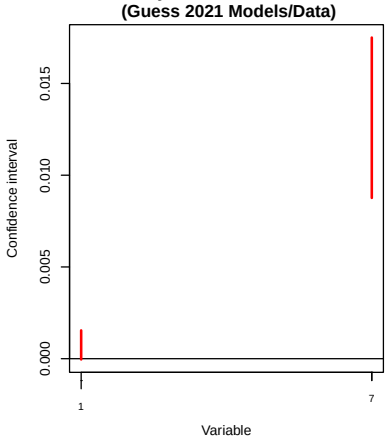
Figure 5. Model Dependence by Specification (URL Proxies)



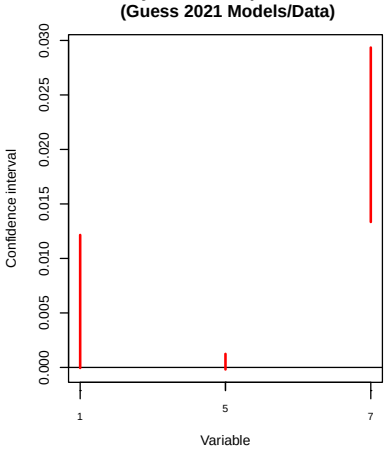
[TODO: Results do not replicate those of Guess (2021). Either classification strategies are measuring fundamentally different concepts or there is so much heterogeneity in individual news preferences that different samples generate significantly different results, and thus future studies of individual need extremely large n (i.e., perhaps around 10,000 or more randomly sampled respondents).]

2.5 Let's Get LOCO: What's Driving These Disparities in Results?

Figure 6.
LOCO Analysis from Lasso + CV Model (Guess 2021 Models/Data)



LOCO Analysis from Stepwise + CV Model (Guess 2021 Models/Data)



LOCO Analysis from Random Forest Model (Guess 2021 Models/Data)

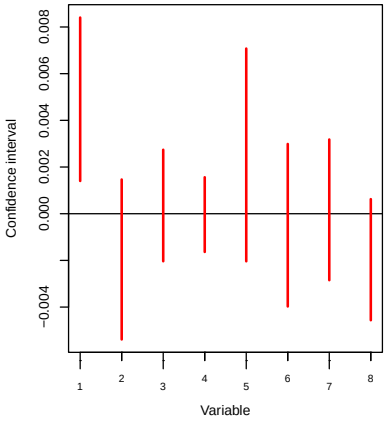
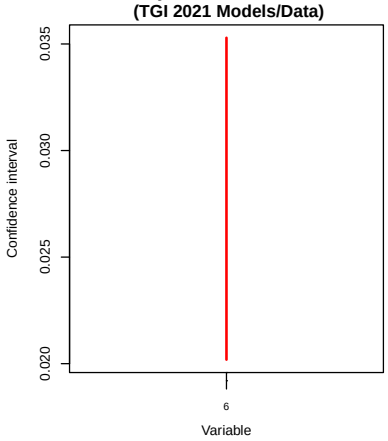
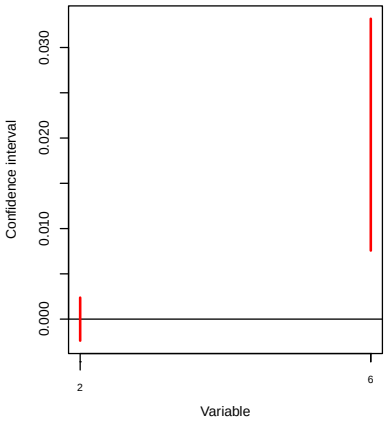


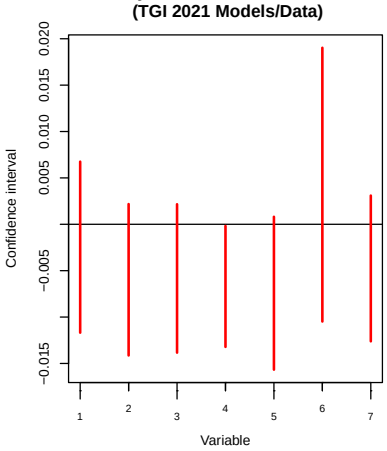
Figure 7.
LOCO Analysis from Lasso + CV Model (TGI 2021 Models/Data)



LOCO Analysis from Stepwise + CV Model (TGI 2021 Models/Data)



LOCO Analysis from Random Forest Model (TGI 2021 Models/Data)



[LOCO: Leave-One-Covariate-Out Inference]

3 Discussion and Conclusion