First Year Paper:

Iyengar, Sood and Lelkes (2012)

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1 Introduction

The question "Has the mass public polarized alongside elites?" has been the subject of an enormous amount of scholarly debate. This debate has been held largely in terms of ideology, with scholars leveraging competing evidence showing (Abramowitz, 2010) or not showing (Fiorina and Abrams, 2012) mass-level polarization. Iyengar, Sood and Lelkes (2012) argue that affect (one's emotional valence towards a stimulus) rather than ideology should be used to evaluate levels of mass polarization.

While the authors leverage a variety of publicly available observational datasets to demonstrate that Democrats and Republicans exhibit increasing animosity towards out-partisans in this paper, I replicate the findings of Iyengar, Sood and Lelkes (2012) as they relate to the effect of policy preferences and party identification on affective polarization, and extend the original work first by applying the authors models to more recent 2016 data alongside the replication and then by respecifying the models to a more appropriate functional form.

2 Summary of Iyengar, Sood and Lelkes (2012)

Affect, Not Ideology is an ambitious work; seeking to describe the historical trends of affective polarization and to establish a causal chain between hostile media, party-ID, and mass-level affective polarization. This analysis is done in service of the authors' central argument: that Americanist scholars of polarization should study the attitudes of voters towards members of the out-party, not just the ideological differences between opposing parties.

The vast majority of scholars have evaluated polarization in terms of divergent policy preferences between parties and their supporters and have produced contradictory results.

While virtually all agree that *elites* have become more polarized, some argue this elite polarization is in response to an increasingly polarized *public* (Abramowitz, 2010) and some argue against the notion of mass polarization altogether (Fiorina and Abrams, 2012; Fiorina, Abrams and Pope, 2005). Still other scholars have argued that observed polarization is not the result of increasingly extreme policy positions on the part of Democrats and Republicans, but the result of previously ideologically heterodox partisans sorting themselves into more appropriate parties (Levendusky, 2009).

Each of the works discussed in the previous paragraph share a common focus on partisans' *ideology*. Iyengar, Sood, and Lelkes identify this commonality and argue that, since most people have a limited conception of their own ideology (Converse, 1964), and tend to have conflicting (McClosky and Zaller, 1984) and ideologically incoherent views (Zaller et al., 1992, p. 76–96), ideological differences are not a suitable metric by which to gauge mass polarization. In the view of the authors, partisans' affect towards their opponents is a more consistent and substantively meaningful diagnostic of the degree of mass polarization.

To demonstrate this, the authors leverage several existing survey datasets and an advertising dataset[1]. The survey data are used first to describe the degree of affective polarization, and are then used in conjunction with the advertisement data to establish a causal link between exposure to hostile political media and affective polarization. Survey data from the United Kingdom is included in the descriptive portion of the research, intended by the authors to serve as a pseudo-control for country-level effects (Iyengar, Sood and Lelkes, 2012, p. 407), comparing a country with parties whose ideology is more salient (the U.K.) to the

[1] *ANES Cumulative Study, YouGov/Polimetrix 2008 Election Study*, a *YouGov 2011 multi-national study, Almond & Verba (1960), Blair Center Election Study*, an *AP Yahoo! News 2008* Election Study and the *Wisconsin Advertising Project*. The implications for validity in using survey data will be discussed in greater detail in section 3.

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In a series of regression analyses presented in the table below, the authors use data from the ANES to argue that cultural attitudes have no effect on affective polarization, while economic attitudes are only loosely related. Rather, they argue, the simple strength of one's partisan identification explains the degree to which they feel warmly towards their in-party and coldly towards the outparty. The dependent variable in these analyses is "net partisan affect" (NPA), the difference between a respondent's in-party and out-party feeling thermometers used to measure the degree to which a survey respondent feels warmly or coldly towards another group. My principal focus in this paper will be to replicate these results, extending the data to 2016 before critiquing and respecifying the model.

Table 3. Effect of Policy Preferences on Net Partisan Affect, OLS Coefficients (standard errors in parentheses)

	1988		2004	
Predictors	Democrats	Republicans	Democrats	Republicans
Intercept	.23*	.04	.19*	.00
	(.05)	(.05)	(.08)	(.09)
Cultural attitudes	–.06	.04	.05	.04
	(.04)	(.04)	(.07)	(.06)
Economic attitudes	.20*	.12*	.19*	.19*
	(.05)	(.05)	(.07)	(.06)
Strong identifier	.18*	.17*	.26*	.22*
	(.02)	(.02)	(.02)	(.02)
Political interest	.05	.06*	.07*	.12*
	(.02)	(.03)	(.03)	(.03)
Gender: female	.01	–.02	.04	.02
	(.02)	(.02)	(.02)	(.02)
Race: White	–.04	.11*	.00	.01
	(.02)	(.04)	(.02)	(.03)
Region: South	–.03	.06*	.05*	.05*
	(.02)	(.02)	(.02)	(.02)
Education: high school	–.05*	.00	–.16*	.05
	(.02)	(.03)	(.06)	(.08)
Education: some college	–.02	.00	–.16*	.03
	(.03)	(.03)	(.06)	(.08)
Education: college or higher	–.09*	–.02	–.16*	.02
	(.04)	(.04)	(.07)	(.08)
N	830	954	592	485
Adjusted *R*-squared	.16	.17	.25	.27

NOTE.—* indicates that the 95-percent confidence interval does not contain zero. Confidence intervals were calculated using Rubin's (1987) multiple-imputation degrees-of-freedom estimate. All variables ranged between 0 and 1. Larger values on the cultural attitudes and economic attitudes variables indicate more liberal attitudes among Democrats and more conservative attitudes among Republicans.

Figure 1: ***The original results from Iyengar, Sood, and Lelkes (2012).*** *These results are the primary focus of this paper, and will be referenced throughout this piece.*

In short: Iyengar, Sood and Lelkes identify a shortcoming in the ongoing debate over the existence of mass-level polarization—that scholars have focused exclusively on partisans' ideology. Instead, they argue that analyses of ideology are insufficient means by which to evaluate mass polarization. The authors argue for a new conception of division: partisans'

affect towards their opponents. Iyengar et al. show that partisans are becoming increasingly divided from (and hostile towards) one another and posit that this division is the result of increasingly hostile media, rather than ideological differences between partisans. Therefore, ideological homogeneity between Democrats and Republicans is not sufficient evidence of a broader lack of polarization.

3 Replication

3.1 Role of Ideology in Affective Polarization

Ideology, the authors contend, plays a minimal role in driving out-party animus. This conclusion is reached through the application of a Two-Factor Structural Equation Model in which both respondents' cultural positions (gay rights, women's place, and abortion) and their economic positions (social security, healthcare, jobs, essential services) are allowed to affect one of three dependent feeling thermometer variables: in-party, out-party, and the difference of the two. Also included in the regression model are several covariates indicating political interest, whether a respondent is a strong partisan, gender, region (whether a respondent is a southerner), and education. While my replication forgoes the structural equation model used by the authors, both the author's model and my replication us an OLS model of the form:

$$\hat{NetPartisanAffect} = \alpha + \hat{\beta}_1 Culture + \hat{\beta}_2 Econ + \hat{\gamma}_3 StrongPartisan + \hat{\beta}_4 Interest + \gamma_5 Female + \hat{\gamma}_6 South + \hat{\gamma}_7 HighSchool + \hat{\gamma}_8 SomeCollege + \hat{\gamma}_9 Adv.Deg \quad (1)$$

where dummy variables are indicated by a gamma coefficient, to similar results, as shown in section 3.4.

3.2 Survey Validity Issues

Surveys are notoriously vulnerable to issues of framing, priming, and response instability (Zaller et al., 1992, p. 53–75), which at best introduce noise in the data and at worst (or at the most interesting, depending on one's perspective) are illustrative of a broader problem with the measurement of public opinion—that many people are simply "Making it up as [they] go along", to borrow a phrase from Zaller. While these problems are not addressed by Iyengar, Sood and Lelkes *post facto*; surveys (including the ANES, from which much of these data are drawn) take steps to ameliorate some of the threat from other forms of response bias, often randomizing the order in which questions are asked so as to avoid priming respondents. Still, the larger problem of instability is a more fundamental problem, and one that is not addressed in the text.

A third validity concern of these data is the possibility that respondents have under reported their attachment to their party. As people generally express a preference for bipartisanship (Harbridge, Malhotra and Harrison, 2014), there is logical reason to believe respon-

dents' desire to appear less partisan could lead to Hawthorne effects or social-desirability bias, posing a potential threat to the construct validity of the findings (Shadish, Cook and Campbell, 2002, p. 73, Table 3.1 Item 8). Fortunately, if the results are the product of social desirability bias they should *underestimate* the degree of affective polarization. Thus the possibility of unaccounted for social desirability bias does not pose a major threat to the core findings of the paper.

3.3 Execution & Results

On the next page, I present the results of the replication of Iyengar, Sood, and Lelkes' original models. I estimate six models of the effect of covariates on net partisan affect. The first four models replicate Table 3 of Iyengar, Sood and Lelkes (2012) (fig. 1 of this paper), while models five and six apply the regression to both Democrats and Republicans in 2016. Aside from subsetting on party ID and year, the specification of each model is identical. All six are linear, OLS regressions.

Data for this extension are taken from the ANES cumulative data file, which has been asking respondents to report a partisan feeling thermometer since 1978. Rscripts from Iyengar, Sood and Lelkes's original paper were supplied by Gaurav Sood, to ensure that the variables used in my replication were the same used in the original piece. The bulk of the code used to wrangle the ANES data and conducted replication was written by myself in RStudio, making heavy use of the `tidyverse` and `stargazer` packages, as well as Gaurav Sood's own `goji` package [2].

Gender, Region, Race, and the education categories are each dummy variables included

[2] https://github.com/soodoku/goji

as Demographic controls. "Strong Partisan" is a dummy variable indicating that a respondent identifies as strongly Democratic or Republican, and "Political Knowledge" is an interviewer's assessment of the respondent's general political knowledge, averaged across a record made at the beginning and end of their interview on a five point scale. It has been coded so that high values indicate high levels of political knowledge.

For convenience, each variable has been rescaled to a range [0,1], as in the original paper. In other words, the coefficients presented in the table bellow indicate the change in Net Partisan Affect when moving from the lowest to highest possible value of each variable. The cultural and economic attitude items are both constructed from a variety of ANES questions which present respondents with an issue (such as whether social security should be expanded) and ask them to place their ideal point on a scale ranging from most to least conservative. These items were rescaled such that high values represented the ideological position most consistent with their party ID (e.g., a "1" would be a perfectly liberal response for a Democrat and a perfectly conservative response for a Republican). These responses were then averaged across the relevant issue areas.

This method of variable construction is likely problematic—it is not clear that these responses are truly quantitative. Even if responses to the same question are quantitative, it is not unlikely that a respondent views the statements "Social Security should be expanded", and "The government should provide health insurance" as being mathematically equivalent in terms of their ideological liberalism, but the measure used in this replication assumes so nonetheless.

This potentially dubious coding decision was made to replicate as closely as possible the measures used by Iyengar, Sood, and Lelkes, who use a structural equation model to estimate

the effects of economic and cultural attitudes on NPA. The authors' results are generally robust to my simplified model, the magnitude of effects observed varying only slightly. The core claims made by the authors; that strong partisan identification and to a lesser extent, economic attitudes, are driving polarization hold, with (minor) variation in the effects of demographic controls.

Table 1: Original Models (Extended to 2016)

	Covariates of Net Partisan Affect					
	1988		2004		2016	
	Dems	Reps	Dems	Reps	Dems	Reps
	(1)	(2)	(3)	(4)	(5)	(6)
Cultural Attitudes	−0.05	0.04	0.05	0.04	0.04	0.07*
	(0.04)	(0.03)	(0.05)	(0.04)	(0.05)	(0.04)
Economic Attitudes	0.16***	0.18***	0.15**	0.18***	0.38***	0.08
	(0.05)	(0.05)	(0.06)	(0.06)	(0.07)	(0.06)
Strong Partisan	0.19***	0.18***	0.27***	0.24***	0.20***	0.28***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Political Knowledge	0.06	0.05	0.09*	0.11*	0.05	0.10*
	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
Gender: Female	0.01	−0.01	0.04	0.01	0.02	0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Region: South	−0.04*	0.06***	0.04*	0.05**	−0.03	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)
Race: White	−0.04**	−0.001	0.003	0.02	−0.04*	−0.02
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
High School	−0.05	−0.01	−0.17**	0.06	−0.02	0.18
	(0.03)	(0.04)	(0.07)	(0.09)	(0.07)	(0.17)
Some College	−0.04	−0.01	−0.16**	0.04	0.08	0.15
	(0.04)	(0.04)	(0.07)	(0.09)	(0.07)	(0.17)
College/Adv. Degree	−0.03	−0.02	−0.16**	0.02	0.07	0.12
	(0.04)	(0.04)	(0.07)	(0.09)	(0.07)	(0.17)
Constant	0.24***	0.13**	0.21**	0.01	−0.04	−0.05
	(0.06)	(0.05)	(0.09)	(0.09)	(0.08)	(0.17)
Observations	891	778	556	473	497	494
Adjusted R^2	0.14	0.16	0.25	0.26	0.24	0.29

Note: *p<0.1; **p<0.05; ***p<0.01

Looking to 2016, the effect of liberal economic attitudes increases Democrats' NPA substantially, while there is no meaningful effect for conservative attitudes in Republicans. For a Democrat, moving from the most conservative to the most liberal economic positions increases NPA by .38, more than a third of the possible range.

That the findings of Iyengar, Sood and Lelkes (2012) were so closely replicated despite forgoing the use of a structural equation model as used in the original paper indicates that their findings are robust beyond their choice of methodology. However, the use of net partisan affect, rather than simply out-party affect poses both theoretical and practical problems; both of which will be addressed in the following section.

4 Extension to Iyengar, Sood and Lelkes (2012)

By using the difference between respondents' in and out-party feeling thermometers rather than the each individual scoresIyengar, Sood, and Lelkes' measure of Net Partisan Affect, runs the risk of obscuring meaningful changes in both out-party and in-party feeling. An increase in NPA can be observed *either* when in-party feeling increases *or* when out-party feeling decreases (and vice-versa). Similarly, partisans could become more hostile towards their political opponents, while NPA remained constant. These unfortunate characteristics of the NPA measure are becoming more problematic as partisans' feelings towards their own party become less consistent. While the authors' assertion that in-party feeling thermometers have, *on average*, stayed quite warm is correct, the variation around that average has increased substantially.

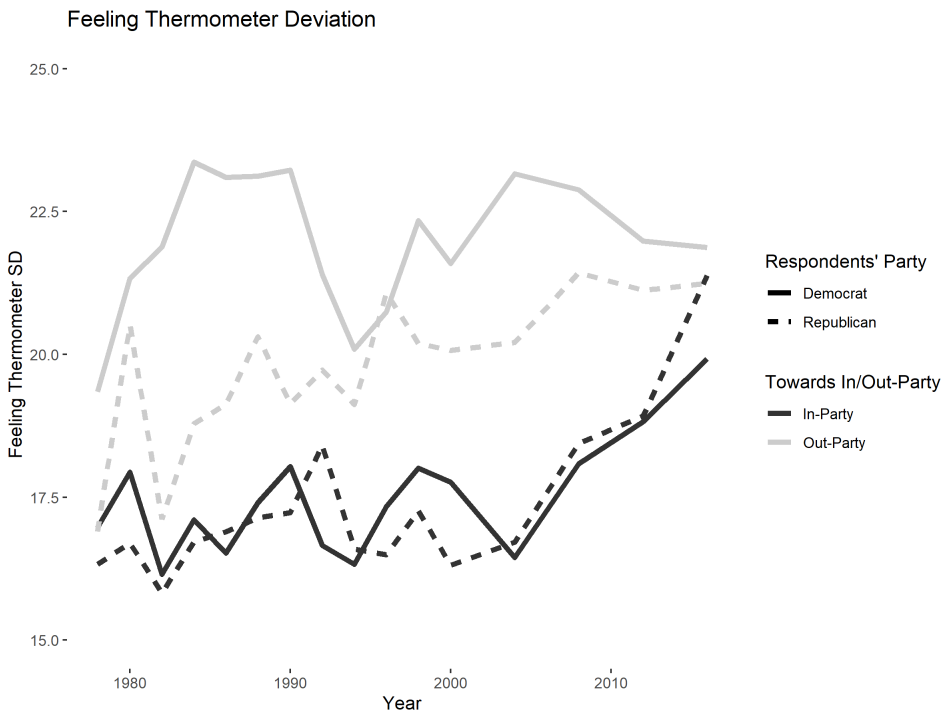

Figure 2: ***Standard Deviation of partisans' in party feeling thermometers as reported in the ANES, 1978–2016.*** *After several decades of minimal change, the variation in in-party feeling thermometer ratings increased substantially between 2004 and 2016. This change is robust to both the Fligner-Killeen and Levene's tests of homogeneity of variance.*

Since 2004, partisans' feelings towards their own party have become less cohesive. This trend is less meaningful in regards to out-party feeling thermometers. While the variance of out-party scores is similar in size to that of the in-party, out-party feeling thermometers have historically had high variance, particularly among Democrats.

Factions in both parties have received a great deal of attention in recent years. Groups like the Tea Party and alt-right in the Republican Party and progressives and socialists in the Democratic party have presented substantial challenges to their party's status-quo, often acting in opposition to their party's elites. Recent scholarship too has shown that affective divisions in the parties are both salient and predictive of other traits in partisans (Wronski et al., 2018; Bankert, forthcoming). When the dependent variable in studies of polarization

includes by default feelings towards the in-party, it becomes impossible to study how the effects of in-party feelings themselves have changed over time, or even to determine if they have any effect at all.

I hypothesize that, as partisans have become less consistent in their feelings towards their party there in-party feeling thermometers will be inconsistently related to their feelings towards the out-party. This hypothesis suggests that contemporary conceptions of political polarization, which presuppose that those who feel most warmly toward their co-partisans will on average feel most coldly toward the opposition are subtly incorrect—it is not necessarily that partisans are warm towards their party and cold to the other. They are perfectly capable of being cold towards both groups.

Further, I hypothesize that by controlling for in-party warmth, the modeled effect of cultural and economic attitudes will be more significant. When NPA is used as the dependent variable, the attitudes respondents who feel outside the ideological bounds of their party may cause them to report colder thermometers for both their in-party and out-party, which would not be detected by the NPA measure.

4.1 Data & Methodology

By and large, the variables included in this extension are identical to those of the replication, with three major exceptions. Rather than a dependent variable calculated as the difference between in and out-party thermometers, I regress the model solely on out-party feeling, therefore, negative coefficients indicate that an increase in the variable causes the average respondent to dislike members of the out-party. In addition to the change of dependent

variable, I include the in-party feeling thermometer as a covariate. Finally, I remove the dummy variable "Strong Partisan" from the analysis to avoid overcontrol bias. The inclusion of that variable would block a path from warmth toward the in-party, causing the model to underestimate the effect of warmth towards the in-party on warmth towards the out-party. The equation for the models in this extension is:

$$\hat{Outparty Warmth} = \alpha + \hat{\beta}_1 Culture + \hat{\beta}_2 Econ + \hat{\beta}_3 Inparty Warmth + \hat{\beta}_4 Interest + \gamma_5 Female + \hat{\gamma}_6 South + \hat{\gamma}_7 HighSchool + \hat{\gamma}_8 SomeCollege + \hat{\gamma}_9 Adv.Deg. \quad (2)$$

each variable is coded to be between [0, 1] following the same guidelines as the replication.

4.2 Results

My first hypothesis, that the effect of warmth towards one's in-party should be less in 2016 than in 1988 or 2004 is largely supported by these results. While Democrats do see a significant effect of in-party affect in 2016, the magnitude of this effect is fairly small compared to previews years, and Republicans experienced no effect at all.

Additionally, cultural and economic attitudes are more frequently shown to have an effect on out-party thermometers when controlling for in-party feelings than in the replication model. This offers some support to my second hypothesis, but it should be noted that the magnitude of these effects are fairly small (and in the case of Democrats in 2016, decreased between the replication and extension models). Nonetheless, these results indicate that the forces

Table 2: Original Models Using Outparty Affect as DV

	Covariates of Out Party Affect					
	1988		2004		2016	
	Dems	Reps	Dems	Reps	Dems	Reps
	(1)	(2)	(3)	(4)	(5)	(6)
Cultural Attitudes	0.01	−0.07**	−0.11**	−0.05	−0.09**	−0.11***
	(0.03)	(0.03)	(0.05)	(0.04)	(0.04)	(0.03)
Economic Attitudes	−0.19***	−0.19***	−0.21***	−0.27***	−0.30***	−0.29***
	(0.04)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)
In-Party Warmth	−0.19***	−0.10**	−0.18***	−0.24***	−0.10**	−0.06
	(0.05)	(0.04)	(0.06)	(0.05)	(0.05)	(0.04)
Political Knowledge	−0.001	−0.03	−0.16***	−0.04	−0.12***	−0.20***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
Gender: Female	0.01	−0.01	−0.03	−0.02	0.001	−0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Region: South	0.04**	−0.04**	−0.002	0.02	0.05**	−0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Race: White	−0.01	−0.03	−0.05**	−0.02	0.01	−0.06**
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)
High School	0.002	−0.04	0.13**	−0.14**	−0.02	0.01
	(0.03)	(0.03)	(0.06)	(0.07)	(0.06)	(0.14)
Some College	−0.01	−0.06*	0.10	−0.12*	−0.08	0.04
	(0.03)	(0.04)	(0.06)	(0.07)	(0.06)	(0.14)
College/Adv. Degree	−0.03	−0.07*	0.07	−0.13*	−0.11*	0.05
	(0.03)	(0.04)	(0.06)	(0.07)	(0.06)	(0.14)
Constant	0.73***	0.78***	0.80***	0.93***	0.82***	0.70***
	(0.06)	(0.05)	(0.09)	(0.08)	(0.08)	(0.14)
Observations	891	778	556	473	497	494
Adjusted R^2	0.05	0.07	0.12	0.14	0.17	0.19

Note: *p<0.1; **p<0.05; ***p<0.01

driving partisan hostility may not be as simple partisan identity and economic opinions, clearly important though these variables are.

5 Conclusion

The main lesson of this study to scholars of political polarization should be the importance of clearly conceptualizing what is substantively important about polarization, and understanding the methodological trade-offs that occur when too much is built in to our dependent-variable models of polarization. The tacit (or explicit) assumption that in-party feelings are necessarily high when out-party feelings are low should be put to rest.

Given that partisans feelings towards their own party are not necessarily predictive of their feeling toward the opposing party, political scientists should carefully consider what substantive questions they are interested in asking when justifying a choice of dependent variable, recognizing that choice can limit the number of questions which can be asked, and obscure potential insights.

If scholars' interest in affective polarization is truly in the distance between partisans' assessments of themselves and their opponents, a measure like net partisan affective is appropriate. If, however, the researcher's interest is in the absolute political hostility or animus *implied* by that distance, they should simply use partisan's direct feelings towards their enemies. There is no reason for those in the latter camp to run the risk of overcomplicating an analysis or confounding an interesting result by including in their measure a variable unrelated to their interests.

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