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Ideological Polarisation in Attitudes to Racial Demographic Change in the United States: Evidence from the American Trends Panel

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Abstract

In recent decades, the notion of 'Demographic Replacement' has propelled the rise of several modern racial 'identitarian' ideological groups and even been cited as a major motive in multiple terrorist attacks on US soil. While much research has been done on these most radical groups, there has been little rigorous quantitative exploration of the ideological underpinnings of attitudes towards racial demographic change in the broader white U.S. mass public. This paper aims to integrate polarisation measures with theories of ideology and insights from group threat theory in order to explore ideology with the same level of methodological nuance that has been afforded to inter-group contact and information provision in the study of attitudes to demographic change. It also introduces a new graphical and mathematical framework for analyzing attitude polarization with ordinal public opinion data.

The paper's main results are twofold. Firstly, that perception of racial demographic change's perceived impact on symbolic customs and values is particularly ideologically polarizing relative to other evaluations of its impact. Secondly, that symbolic (self-reported ideological identity), operational (battery of issue scores), and demographic variables strongly predict all evaluations of racial demographic change over and above overt racial prejudice, level of inter-group contact, and education.

Keywords: Racial Demographic Change, Public Opinion, Ideology, Polarisation, Methodology.

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Contents

Chapter 1

Introduction and Literature Review

1.1 Immigration and Demographic Change in the USA

1.1.1 The Quantitative Study of Immigration Attitudes

By 2045, the USA is expected to reach a self-identified non-white population above 50% (Mitchell, 2019). This transformation of the USA into an increasingly cosmopolitan and racially diverse nation has been met with both fervent praise and strong nativist backlash (Sobolewska & Ford, 2020). There is a vast quantitative multidisciplinary literature that analyses attitudes to immigration and demographic change as an outcome of interest, and this dissertation's approach – at least on the outcome variable side - is informed by four theoretical distinctions in particular.

The first is between the concepts of immigration generally and racial demographic change specifically. While immigration is very much linked to the demographic transformations set to occur (indeed, the change is largely driven by immigration patterns rather than, for example, difference birth rates) it is not synonymous with it (Wong, 2017). The literature on immigration still provides very useful theoretical and empirical context and, as I will argue in the following section, the specific framing of the issue of racial demographic change – that of the 'majority-minority' future USA – is particularly worth its own study (Craig, Rucker, & Richeson, 2018a).

The second is the difference between opposition driven by perceived threats to the *individual* versus to the *group*. An important and consistent finding across the last few decades is that economic self-interest has little to no empirical link with attitudes to immigration at the individual or the policy level (Chandler & mei Tsai, 2001; Sniderman, Hagendoorn, & Prior, 2004; Solodoch, 2021; Wong, 2017). Overall, it is the 'competitive threat' or 'group threat' perspective that tends to find the most empirical support (Berg, 2015). 'Group Threat Theory' specifically 'conceptualises group status threats as threats to the political and/or economic power of the in-group' (Craig, Rucker, & Richeson, 2018b, p.1).

The third is the distinction between *realistic* and *symbolic* threats (Rios, Sosa, & Osborn, 2018). The former refers to things such as competition for housing and employment while the latter refers to more abstract ideas of morals and values (McLaren & Johnson, 2007).

The fourth regards how group threats are analysed in an immigration context. Authors such as Meltzer (2021) and McLaren and Johnson (2007) include general immigration attitudes as a dependent variable and then 'sociotropic' variables about immigration as an independent variable, with the dominant finding being that symbolic cultural threats drive general negative attitudes. This paper does not explicitly test *for* group threat theory as a causal chain from perceived group threats to general negative evaluations, but its theoretical and empirical insight that symbolic sociotropic group threats are particularly salient informs the group-based and sociotropic focus.

1.1.2 Demographic Change and The 'Majority-Minority' Framing

The 'majority-minority' framing is worth its own study for several reasons. Firstly, modern discourse from anti-immigration political actors utilises this or similar framing extremely frequently; narratives of 'demographic replacement' that white Americans will become 'minorities in their own countries' (Craig et al., 2018a). Furthermore, explicitly framing the discussion around a binary shift from numerical dominance to non-dominance explicitly frames the idea as an 'us vs them' threat to group position and to group status over and above the concept of 'immigration' (Craig et al., 2018a, 2018b). In other words, this particular framing of demographic change is an example that encapsulates perceived group threats even more directly and explicitly. Even exposure to *information* that the USA will become majority-minority 'evokes the expression of greater explicit and implicit racial bias', on the evaluative bias scale - the very reminder of this macro-change to the nation therefore influencing racial attitudes for the worse (Brown, Rucker, & Richeson, 2022; Craig et al., 2018b).

Additionally, discussion that evokes fears of demographic replacement or the movement to a majority-minority nation have increased considerably in recent years (Craig et al., 2018a; Obaidi, Kunst, Ozer, & Kimel, 2022). What was not long ago on the fringes of discourse is now considerably more public.

Finally, among a small number of radicalised individuals, the fear associated with this demographic change has created a pattern of direct hate crimes and terrorist attacks in the USA and the broader western world (Obaidi et al., 2022). Whether the actions of a smaller number are skewing the perceived strength of public opinion or whether this issue is deeply polarised on ideological grounds in the general mass public is worth exploring. For example, despite the merits of race-based affirmative action in universities being a hot-button issue in the USA debated in elite and legal circles there is a broad consensus between both liberals and conservatives that race should not be a factor in admissions (Mitchell, 2019).

Of course, in reality the boundary between 'majority' and 'minority' is entirely arbitrary. There is no observable difference between a USA that is 49.9% white versus 50.1% white. Indeed, several states and thousands of cities in America are already majority non-white and many have been for centuries (Frey, 2021). To acknowledge the importance of this framing as a researcher is not at all to endorse the idea of it as some physically tangible tipping point; only to acknowledge it as something practically meaningful for political discourse and for the collective mental conceptualisation of the USA as a nation. Now, I will turn to the importance of studying this issue in the context of 'belief systems', or 'ideologies.'

1.2 Political Ideology: Theory Versus Reality

1.2.1 Theoretical Distinctions

Political Ideology (hereafter synonymous with a 'belief system') is 'one of the most controversial concepts... in political analysis' (Heywood, 2013, p.12). It is well beyond the scope of this paper to go in-depth into all major conceptual and empirical debates and challenges, once again a group of distinctions which inform the analysis are worth highlighting.

The first is between 'ideal type' ideological analysis and the analysis of actual public ideological thought. The former emphasises 'astute theorising' with complete cohesiveness of ideological constructions, while the latter advocates what Freeden (2013) calls a more 'functional approach' or the everyday manifestations of ideology in the public.

The second involves empirical conceptualisations of ideology - namely, as an *abstract label* versus a *set of issue positions*. A lot of work such as that by Sears (1993) on 'Symbolic Politics' emphasises the importance of symbols and long-standing dispositions, including ideological identities, in shaping attitudes and behaviour, and authors such as Mason (2018) emphasise the salience of self-identification with ideological monikers specifically in driving antagonism towards other ideological groups over and above the substance of actual beliefs. This 'ideological abstract vs issue set' binary has been expressed, in spirit, in many different ways, across both political science and psychology. Peffley and Hurwitz (1985) refer to ideological labels vs policy positions as 'different levels of abstraction'. Ellis and Stimson (2009) use the frames of 'Symbolic vs operational' ideology. Szalay, Kelly, and Moon (1972) differentiate between the 'doctrine' (theoretical ideas) vs the 'psychological' (actual systems of opinions and assumptions). There are meaningful if sometimes subtle differences between all these frames of ideology, but they all emphasise this abstract vs issue-based distinction.

This gives us a framework to approach the third important distinction, where visiting Converse's 1964 paper 'The Nature of Belief Systems in Mass Publics' is useful. Converse defines an ideology, or a 'belief system' as 'a configuration of ideas and attitudes in which the elements are bound together by some form of constraint or functional independence' (Converse, 2006, p.3). Converse coined the idea of 'ideological constraint'; specifically, the idea that specific attitudes and beliefs could be derived from some more deep-rooted abstract principle or 'some superordinate value or posture towards man and society' (Converse, 2006, p.7). This is to be distinguished from simple between-issue correlations or 'issue alignment'; the numerical relationship between scores on different issues (Knight, 2006). As Peffley and Hurwitz point out, while Converse's empirical methods align more with the latter, his definition of a belief system is more similar to the former (Peffley and Hurwitz, 1985).

The fourth regards the use of the term 'ideological polarisation'. The term has considerably diverse uses. It often refers simply to the spread of views across a population, with no overt reference to ideology or groups other than the assumption that either end reflects a certain ideological stance. Lindqvist and Östling (2010) and Abramowitz and Saunders (2008) make this assumption. The classical model of Esteban and Ray (1994) (using income) is similarly unidimensional. However, as Duclos, Esteban, and Ray (2004) acknowledge, they assume the scale itself forms the basis for group identification when other identifiers (here, explicit ideological identifiers) might be much more important. On this end, we have ideological polarisation on ideological group lines. Here, no overt relationship between ideological measures and an individual issue is necessarily assumed. Instead, the distribution patterns are drawn out through analysis of the relationship between ideology – such as a self-reported form – and the issue score itself (Baldassarri & Gelman, 2008).

Draca and Schwarz (2018) implement an LDA model based on the Esteban and Ray framework that draws out ideological 'types'. While it allows for ideology to be defined independently of an individual issue scale, it is beyond the scope of this paper to implement. Gradín (2000) integrates groups into the Esteban and Ray framework; however, given that the focus here is on interpretability and breadth of measures and issues, and the Gradin model is both highly mathematically complex and would require significant adjustments to be applicable to ordinal public opinion data, it will not be used. The new parallelogram framework introduced and utilised in this paper captures the spirit of these models with a multidimensional application of polarisation, with several additional advantages discussed later.

The fifth and final distinction is between ideological polarisation as defined as a *process* versus as a *state of being*. This paper uses the latter definition – specifically, 'the extent to which political views are widely dispersed' Axelrod, Daymude, and Forrest (2021, p.1). There is no time series data to my knowledge including attitudes to the USA becoming majority-minority, and to assess changes over time to all the measures considered here in-depth would be beyond the scope of the dissertation anyway. The American Trends Panel is themed, and so non-demographic questions are rarely repeated. For the purposes of this study, ideological polarisation refers to the level of public polarisation at this point in time.

To summarise; our first distinction is between the rigorous, analytically consistent study of ideology as an ideal type and the study of ideology as understood by the mass public in political life. The second refers to, within the 'actual public' approach, ideology as abstract labels versus a battery of issue preferences. The third refers to the measurement of ideological constraint; specifically, the constraint between views and abstract labels versus the constraint between different views themselves. The fourth distinguishes between polarisation where ideological groups are assumed by the scale itself versus identified by some other means such as the self-identification of respondents. The fifth refers to polarisation as defined as the movement towards extremes over time versus polarity at a point in time.

In this paper, I am focussing purely on the nature of ideology in the mass public, but constructing and studying both symbolic and operational measures and the relationships between them, to contextualise a single salient issue within multiple measures of polarisation. As a final note; other group-based polarisations, such as party sorting and party polarisation more generally is an important topic, but will not be discussed here. Instead, the focus will be on measures explicitly within the realm of ideological belief systems.

1.2.2 Ideological Patterns in the Mass Public and the Importance of the Careful Study of Ideology

Much empirical work on the internal coherence and predictability of issue preferences has found only a minority of engaged citizens to exhibit meaningful ideological constraint and patterns, with little between-view correlation and imperfect understanding of ideological terminology (E. G. Carmines & D'Amico, 2015; Converse, 2006; Sears, 1993).

Converse's paper, while impactful, was contested, often on methodological grounds. Peffley and Hurwitz (1985) use a hierarchical LISREL model with three levels of abstraction (liberal-conservative identification, sub-aspects thereof such as racial + economic domains, and individual policy preferences), finding that policy views *are* to a large extent constrained by abstract beliefs in the mass public at large. Baldassarri and Gelman (2008)'s time series found that party voters, politically interested voters and wealthier voters (as well as parties and political elites themselves) are far more polarised and consistently ideological in their preferences over the last few decades, though the general public are mostly not. It appeared that parties were better at sorting voters ideologically, while individual between-issue correlations remained low, despite a substantial relationship between self-reported liberalism-conservatism and almost all individual policy positions.

Ellis and Stimson (2009) argue that the public, while 'symbolically' conservative (i.e. self-reporting as predominantly conservative) are in fact operationally liberal (i.e. hold predominantly liberal policy positions). In fact, they find that around a third of the electorate possess 'joint preferences for both conservative symbols and liberal policy action' (Ellis & Stimson, 2009, p.2).

Finally, terminology must be understood in context. 'Liberal' in political philosophy can encompass the classical, laissez-faire liberalism of Robert Nozick or the Liberal Socialism of Eduard Bernstein. However, in the United States it has its own history which many authors argue has a meaningful impact on public opinion evaluations. Ellis and Stimson (2009), for example, argue that the dissonance is discourse-based, mapping the history of the term in American politics and argue that elite discourse in fact *frames* politics in terms of symbolic conservatism and operational progressive liberalism. This paper does not aim to quantify or solve this problem, just to draw out the importance of acknowledging the political context in which ideological identities are understood.

Ideological researchers are thus faced with complex empirical problems. This is not, however, a reason to take a defeatist attitude to its quantitative study. My own view is that these debates purely make a case to measure and quantify ideology in ways that draw out the relative strengths of different measures, though always with an acknowledgement of empirical shortcomings. Political ideology may be a uniquely complex concept to define and measure, but that is if anything a call for more careful research, not less.

1.3 Integrating Ideology and Racial Demographic Change

Gravelle (2016) splits the potential roots of immigration attitudes in a public into three camps; job threat, cultural threat, and political predispositions such as ideology. Newman (2013) discusses how cultural threat perceptions themselves can stem from 'symbolic orientations' like ideological identities. Sobolewska and Ford (2020) talk about the identity politics divide between liberals and conservatives specifically as a result of demographic change, where among the white population the gradual accommodation to change has in part been offset by rising polarisation between 'identity liberals' and 'identity conservatives'. This paper focusses on both symbolic and operational ideology as the main analytical focus, with a richer set of measurements than is usually used and insights from the literature on cultural and group threat.

Attitudes towards the future state of a social system feature heavily in the definitions of ideology put forward by authors such as Freeden (2013) and Heywood (2013). The quantitative relationship between ideology and racial demographic change has been explored, but mostly in one of two settings. The first is experimental (Bai & Federico, 2021; Craig et al., 2018a, 2018b). Brown et al. (2022), for example, find that conservatives were far more sensitive to information about perceived status threat than liberals. The second explores level of actual demographic change as a variable (Gravelle, 2016; Hopkins, 2010; Newman, 2013). This is related to the 'Contact Hypothesis', which tests whether increased contact with an out-group decreases overall prejudice. In the context of immigration and demographic change, this has been studied in so much depth that there is 'little need to demonstrate further' its efficacy (Pettigrew & Tropp, 2006, p.18).

Generally speaking, self-identified liberals are more likely to be supportive of immigration (Maggio, 2023; Solodoch, 2021). However, Brooks, Manza, and Cohen (2016) found that of all the immigration attitudes literature that includes ideology as a variable, in none was it a central research focus. Their study aimed to close that gap, finding that conservatives are more sensitive to the country of origin of the hypothetical immigrant if it is a country of non-western origin (Brooks et al., 2016).

The positive link between liberalism and (non-white) immigration is not theoretically surprising from an ideological perspective, given the tenets of liberalism as valuing egalitarianism and individual freedom. This, however, is a fairly shallow exploration of empirics. This paper goes beyond this surface-level link and explores multiple conceptualisations of ideology and ideological polarisation, including its relative significance for different aspects of racial demographic change.

Those in vocal opposition to a USA in which whites are a minority are often described in explicitly ideological terms. 'Far-right' appears frequently in both academia and journalism (Ekman, 2022; Obaidi et al., 2022). The idea that this is the only ideological moniker necessary does not entirely square with the notion that one single social position is insufficient to designate an abstract ideological grouping to an entire set of individuals and forgo more detailed analysis. Additionally, the bulk of the literature that studies racial demographic change from a discourse analysis perspective focusses entirely on the 'radicalisation' side rather than broader opinions (Ledwich & Zaitsev, 2020; Lewis, 2018; Munger & Phillips, 2020; Ribeiro, Ottoni, West, Almeida, & Meira, 2021). Understanding quantitative ideological patterns across the broader white public will complement the qualitative and experimental literature and provide important insight in the extent of support and opposition and in what areas polarisation is most strong.

Additionally, it would be irresponsible to assume an ideological left-right or liberal-conservative continuum along this attitude the way that might be more justifiable in, for example, attitudes to the encouragement of traditional values (given popular USA definitions of liberal, of course). Both ideologies could be used to justify an 'individualist' neutral stance towards racial demographic change. However, the two ideologies are theoretically broad and malleable enough that liberalism could quite easily argue for the change being positive on, for example, cosmopolitan grounds, and conservatism could argue for the change being negative on traditionalist grounds. This paper does not aim to go through every possible chain of reasoning; it simply aims to make the point that there is no explicitly assumable ideological distribution of opinions regarding this issue between more liberal and more conservative ideology despite it being such a salient and hot-button issue. The entirely spread-based measures of Lindqvist and Östling (2010) and Abramowitz and Saunders (2008) will thus likely not tell the full story.

Therefore, there are several facets worth studying. Firstly, the level of polarisation in this issue where the scale itself is assumed to accurately reflect some ideological continuum. Secondly, the exact ways in which those of different symbolic identities – more liberal vs more conservative – are polarised on the issue. Thirdly, whether ideological polarisation levels are different depending on the question asked. Fourthly, the ideological constraint between this issue and other racial issues. Finally, the extent to which self-reported (symbolic) and issue-based (operational) measures are robust to the other's inclusion; in other words, checking the extent to which policy positions have *ceteris paribus* power in predicting attitudes over and above ideological symbols.

Together, these questions will provide a holistic and contextualised yet focussed empirical strategy for assessing the ideological polarisation in attitudes to the notion of a majority-minority USA. Given the nature of the question and the focus on group threats, I will also follow the bulk of literature my focussing on just non-Hispanic White Americans (Craig et al., 2018b; Newman, 2014; Outten, Schmitt, Miller, & Garcia, 2012).

To summarise: drivers of attitudes towards immigration and demographic change have been studied through a multitude of angles. The effect of things such as contact and information provision have been explored extensively. Ideological dispositions have not yet been analysed with the same depth or nuance in this particular area. It is my hope that this paper will provide some much-needed methodological and conceptual richness to complement the existing experimental and/or contact-based literature.

Chapter 2

Methodology

2.1 Data Set and Measures

2.1.1 Data Set

The datasets used in this paper are Waves 41 and 43 of the 'American Trends Panel' from Pew Research Center, both from 2019, merged into one data frame (Pew Research Center, 2019a, 2019b). To my knowledge, no other public opinion data set explicitly asks about attitudes to the USA becoming majority-minority. Three questions specifically target this framing. All begin with:

"According to the U.S. Census Bureau, by the year 2050, a majority of the population will be made up of blacks, Asians, Hispanics, and other racial minorities. In terms of its impact on the country, do you think this will be..."

The three questions contain different scales. The first is the most general – 'a very good thing' to 'a very bad thing', with 'somewhat good', 'neither' and 'somewhat bad' in between. The second asks whether it will 'strengthen' or 'weaken' customs and values (or neither). The third asks whether it will lead to more or less conflict between ethnic groups (or neither). The first of these measures gives us our main assessment of overall attitudes. The second and third provide some insight into more specific evaluations; respectively, as a threat to American identity and as giving potential for a more pragmatic problem of potential inter-group conflict.

2.1.2 Ideological Measures

To measure 'symbolic' ideology, the self-reported liberal-conservative scale will be used in line with a vast number of previous ideological researchers (Baldassarri & Gelman, 2008; E. Carmines, Ensley, & Wagner, 2012; Converse, 2006). In the regression portion of our analysis, interpretation of coefficients and differences will be somewhat intuitive with no rescaling necessary; both this scale and the main dependent variable are on an ordinal 1-5 scale.

Baldassarri and Gelman (2008) and Peffley and Hurwitz (1985) conceptualise individual racial attitudes as a branch of more abstract liberal-conservative ideology. While the ATP does not provide a set of issues broad enough to create a general operational liberal-conservative scale, Wave 43 – containing largely the same participants surveyed just a few weeks later, contains a rich wealth of questions about racial attitudes and policy positions pertaining to race; specifically, affirmative action in universities and companies, the importance of diversity, the relative importance of missing vs wrongfully assuming discrimination, and hearing non-English languages in public. The last question in particular has been the subject of a lot of experimental literature itself (Enos, 2014; Newman, 2014).

By creating a battery score for individuals based on these, I have created a variable 'Operational Racial Liberalism'. Many questions in the wave are about African Americans – however, given the generality of our dependent variable I have not included anything that refers to a specific minority. The 5 questions were coded into dummies for an overall integer score for each person based on whether they gave a theoretically 'liberal' answer. As a result, regression interpretations are also effectively one-unit to one-unit. Additionally, relative polarisation between attitudes to racial demographic change and these variables individually can be made in some circumstances and with some caution (discussed more below). The exact question wordings can be found in the appendix.

2.1.3 Polarisation Measures

I will report a mixture of both what I call 'spread-based' and 'identity-based' polarisation measures. However, while the spread-based measures can provide some useful context if interpreted cautiously, the nature of our data is such that most of my statistically rigorous results come from analysis of identity-based measures. Lindqvist and Östling (2010) rely on what they refer to as simple, transparent measures; namely, the standard deviation and the minimum of the proportion of respondents at the most extreme ends of opinion. Only the former is used here, as the survey questions vary greatly in number of options, so under their second measure values would be highly biased towards questions with fewer options. Abramowitz and Saunders (2008) and Grechyna (2023) use the mean ideological distance (in absolute value) from the centre as a measure of polarisation with and across issues. This has the problem of not considering the spread between separate ends; for example, if all respondents picked 'very bad' then the polarisation figure would be at its maximum despite complete agreement. This score will be computed, but given this, should be interpreted very cautiously and in context – as the extent to which views are *generally not in the centre* and as one measure that adds its own 'brick in the wall'.

To find these *spread-based* polarisation measures, I have recentred the relevant variables from -1 (liberal) to 1 (conservative). It should be noted that within the racial issue set, the option wording is different for every question and so our spread-based measures in particular cannot *ipso facto* be interpreted as perfectly comparable, serving primarily as useful context. Numerical comparisons for non-majority-minority based racial issues thus do not show exact relative polarisation 'between issues' as such; they show relative polarisation *between the issue-specific distributions across questions.*

Even within our main dependent variables - the main focus of analysis - where all questions have a natural 'affirmative-neutral-negative' structure, there is potential for bias. Take the 'good/bad' question (5 options) versus the 'customs and values' question (3 options). If the former question had just three options, polarisation would go up unless more 'moderate end' respondents moved to the middle than stayed on their respective side - an unlikely scenario. To test the robustness of my result and get an absolute lower bound, where appropriate I recode the good/bad variable such that all those in the 'somewhat' category move to the 'very' category, as would be the case if there were 3 options and nobody chose to move to the middle. These 'maximum bias' scores are denoted by brackets in tables. Additionally, many of my results are not harmed by this characteristic of the questions.

I use a wealth of measures for group identity-based ideological polarisation, each of which provides unique insights. Baldassarri and Gelman (2008) measure the correlations between self-reported ideological score and individual issue scores. I use Kendall's Tau correlations of these, along with the 'polarisation λ' from my own framework detailed below, and a series of linear and ordinal logistic regressions to test the robustness of self-reported ideology as a predictor over and above demographic variables, levels of contact with other races and levels of prejudice. Finally, I will assess the degree of ideological constraint between racial policy positions with a specific focus on where attitudes to a majority-minority USA fit in to broader racial issue preferences.

2.2 Formal Hypotheses

2.2.1 Liberal-Conservative Polarisation

Above and beyond the general theoretical chains of reasoning from ideology to policy position, authors such as Sears (1993) and Mason (2018) emphasise the role of symbolic predispositions like ideological symbols in shaping political attitudes and behaviour. I expect the distribution of evaluations of a majority non-white USA to be significantly more right-skewed if the group self-reports as more conservative.

H1a: More self-described 'conservative' respondents are more likely to evaluate a majority-minority

USA more negatively.

However, as I discussed earlier, this is the most trivial and expected hypothesis – and serves somewhat of a confirmatory purpose. A more interesting question is the way this pattern changes depending on the specific evaluative topic. If white conservative individuals are particularly susceptible to perceiving demographic changes as a threat to *symbolic* aspects of the USA, then one would expect that the coefficient on self-reported ideology would be larger when the dependent variable references customs and values.

H1b: Ideological polarisation in attitudes between liberals and conservatives will be greater for questions about impact on 'customs and values' than other evaluations.

These hypotheses will be tested statistically with multivariate regressions, but contextualised and enriched with our multiple direct measures of polarisation. There is considerable debate over the extent to which opinion scales with approximately normal shapes can be treated as continuous as a dependent variable in linear regression. Most of the regressions will therefore be ordinal logistic, with the exception of an explanatory linear regression measuring the effect on out five-point general evaluation measure in which the Q-Q relationship is sufficiently similar to a normal distribution that it is worth utilising the additional interpretative transparency of the linear model.

2.2.2 Between-Issue Polarisation Differences

If racial attitudes a) exhibit some degree of ideological constraint, and b) attitudes to racial demographic change are similarly constrained based on a broader racially liberal ideology to be inferred from the scale, then issues that collectively measure 'liberal' attitudes towards race will strongly predict attitudes to a future majority-minority USA as well as self-reported liberalism-conservatism, and the intercorrelations between demographic change attitudes and other racial issues will be statistically significant.

H2: Attitudes to a majority non-white USA will exhibit significant intercorrelations with other racial issues and a significant relationship with the overall 'racial liberalism' operational scale.

2.2.3 Combined Ideology

Finally, the combination of our symbolic and operational (issue-based) measures is worth exploring. To illustrate this point, let us imagine the two extremes. If the liberal-conservative scale is a perfect encapsulation of an abstract ideological process from which any policy position can be derived, in theory, the 'racial attitudes' variable will simply be perfect collinear, as racial attitudes are part of the subset of views which self-reported ideology would capture perfectly. On the other hand, if the bivariate link between liberal-conservative ideology is entirely spurious and due to the influence of overall racial attitudes (assuming they are captured by our variable), then the liberal-conservative coefficient will disappear. Controlling, therefore, tests the extent to which racially liberal policy positions are their own unique sphere of political and social thought not captured by self-identification along the liberal-conservative scale. Conversely, it measures the extent to which liberal-conservative identity provides its own meaningful bedrock from which policy positions can be derived.

One would, of course, expect the result to be somewhere in between. Racial attitudes will capture some unique element of ideology that self-reported liberalism-conservatism, as a one-dimensional and imprecise axis will not; however, liberalism-conservatism is likely going to capture some underlying belief system.

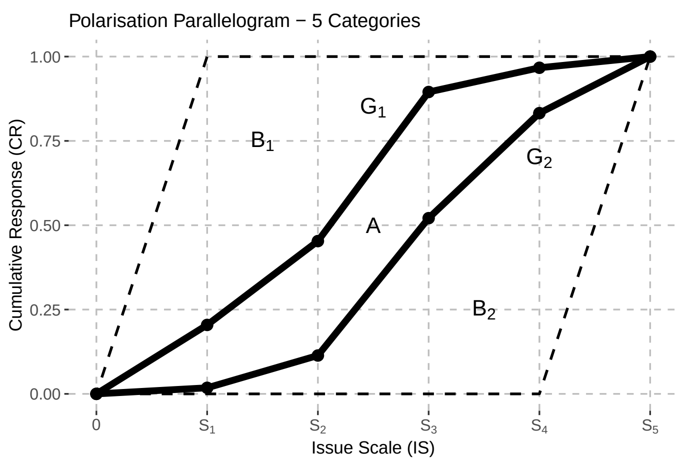
H3: Both self-reported liberal-conservative ideology (symbolic) and racially liberal issue positions (operational) will individually predict attitudes to a majority-minority USA.

In all regression models, controls were added in the form of Sex, Age and College dummies, income grouping, and a variable for the level of contact that respondents have on a daily basis with blacks, Hispanics and Asians. Additionally, I have included an explicit measure of racial prejudice in the form of the self-expressed 'warmth' felt towards Blacks, Hispanics, Asians and Native Americans. While not a perfect measure and prone to social desirability bias, it means that we have some degree to which our results reflect not direct antagonism towards other groups but ideological differences in attitudes. I have recoded it into a five-point scale for easy comparison with our ideological scales.

Additionally, I have included an issue battery of economic policy issues in the regression. If our ideological measures are accurate at providing an underpinning for attitudes to demographic change, we would expect economic progressivism to be correlated at the bivariate level with 'Majority-Minority' attitudes but to become insignificant at the multivariate level, as at the bivariate level the liberal ideology underpinning both would be omitted. These questions unfortunately suffer from acquiescence bias and are highly skewed towards assigning a 'priority' to almost every type of government spending among the mass public, but exhibit a strong ordinal α in excess of 0.7 (a measure robust to skewness) and in any case the scale is not essential to our main conclusions. The questions used can be found in the appendix.

2.3 The Polarisation Parallelogram

Here I introduce a new mathematical and graphical framework for analysis of group cleavages. It allows for standardised and interpretable quantitative measures of polarisation and opinion extremity between two groups (such as political parties, religions or ideological identities) that considers the full distribution of answers meaningfully and an intuitive visual representation thereof.



Consider Figure 1. The x axis contains an ordinal opinion scale with n (here, 5) categories on a given attitude or set of attitudes (for example, strongly disagree to strongly agree). The y axis contains the cumulative percentage of respondents within a group who have answered along that scale (or have that score) up to that point. Assume differences between categories along the x axis equal 1. The two lines therefore show the cumulative distribution of opinions of two groups G_1 and G_2. The area between the two graphs, A, as a percentage of the total area of the parallelogram, is our polarisation λ where $\lambda \in [0,1]$. The maximum value is 1; this would be the case if A covered the entire area of the parallelogram; in other words, if groups sorted entirely into respective extremes. The minimum value is 0; this would be the case if A=0 (i.e. group distributions are identical). Here are two ways of formulating the polarisation λ; one in terms of cumulative 'percentage answered' differences between groups in a given category $(y_{i1} - y_{i2})$, or D_i (i.e. vertical distances on the graph) and one in terms of differences *within* an individual category d_i:

$$1) \quad \lambda = \frac{\sum_{i=1}^{n-1}(y_{i1} - y_{i2})}{n-1} = \frac{\sum_{i=1}^{n-1} D_i}{n-1}$$

$$2) \quad \lambda = \frac{\sum_{i=1}^{n-1} \sum_{j=1}^{i} d_i}{n-1}$$

In other words, the polarisation measure can be computed entirely by summing the cumulative distances from scale positions 1 to n-1, where n is the number of categories. This can also be thought of as the 'mean cumulative difference' across all categories with a non-trivial deviation (as deviation will by definition be zero once the final category is reached). My proofs of all the formulae I have derived can be found in the appendix.

Now let us move to our measures of extremity ϵ_1 and ϵ_2, derived from the areas B_1 and B_2. If $\frac{B_j}{n-1} = 0$, then Group G_j's opinions are 100% 'extreme'. $\frac{B_j}{n-1} = 0.5$ would include, for example, a uniform distribution of answers or a situation in which all respondents chose the middle option. For a natural interpretation of $\epsilon = 0$ for central distributions and $\epsilon = \pm 1$ for maximum extremity:

$$\epsilon_j = 1 - \frac{2B_j}{n-1}$$

It can be shown that:

$$\epsilon_1 = \frac{2\sum_{i=1}^{n-1} y_{i1}}{n-1} - 1, \quad \epsilon_2 = 1 - \frac{2\sum_{i=1}^{n-1} y_{i2}}{n-1}$$

An ϵ value less than zero indicates that both groups skew in the same direction on an issue. We will see later that attitudes towards race-based affirmative action are an example. My suggestion is that λ, ϵ_1 and ϵ_2 are all reported together along with the visualisation (as this paper will do). Contextualising λ with ϵ allows for the reader to distinguish between, for example, low values of λ drawn from overall consensus on one side of a debate (this would mean ϵs have opposite signs) from low values of λ drawn from a consensus of neutrality (this would mean ϵs have values close to 0). Additionally, λ and ϵ are linked mathematically by the elegant relationship:

$$\lambda = \frac{\epsilon_1 + \epsilon_2}{2}$$

Intuitively, as respective extremity values move closer to 1, polarisation strictly increases and if $\epsilon_1 = -\epsilon_2$, the distributions will be identical and polarisation will be zero.

I can also show that λ is equivalent to half the absolute value of the difference between the recentered group means were the scale quantified on a [-1,1] scale. Once again, I have written a proof which is in the appendix.

The visual interpretation (i.e. in terms of areas) is subject to the assumption of no crossing between group cumulative distributions. However, the mathematics holds no matter what and for groups where opinion polarisation is expected, crossing is unlikely to occur and in this paper the non-intersection assumption holds true in all relevant cases.

A more detailed discussion of the situations where this framework is appropriate can be found in Chapter 5. Here, its primary use is to provide information on the level of ideological polarisation between ideological groups and the extremity of individual group distributions for our variables of interest.

For the study of relative ideological polarisation and group extremity in two theoretically meaningful groups within and between issues, the parallelogram provides a concise, illuminative, reliable and understandable method of extracting and understanding these multiple relevant characteristics. Like the Esteban and Ray (1994) model, it involves splitting into defined groups. However, it is designed for a measure of polarisation more similar to that of Draca and Schwarz (2018) where the focus of analysis is between predefined groups and the distribution of survey scores. It strikes an elegant balance between interpretability and rigour, not only having the advantage of relaxing any unidimensionality assumption, but being a) comparable across scales with differing numbers of options, b) comparable across groups of any relative size, c) representable in an intuitive visual way and, e) directly related to equally interpretable measures of individual group extremity, both of which are also computable from the parallelogram.

Chapter 3

Results

3.1 Descriptive Statistics and Direct Measures of Polarisation

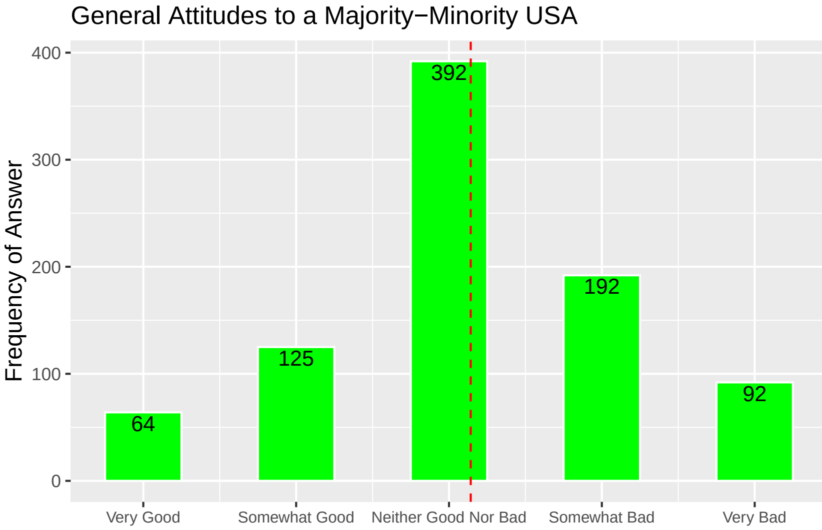


Figure 3.1: Overall Distribution of Answers Among White Americans

The mean value of our 1-5 scale for 'good vs bad' evaluation is 3.142 (shown by the red line in Figure 2) and 0.07 when scaled, illustrating a distribution of answers is somewhat symmetric but slightly weighted towards negative evaluations. This immediately indicates that it is more than just a tiny 'far-right' minority that do not look upon the upcoming change favourably. One interesting characteristic of the distribution, however, is that 'Neither Good Nor Bad' is not only the modal answer between the five opinion categories, but is the modal answer even when combining 'very' and 'somewhat' scores. Setting aside the possibility for social desirability and/or acquiescence bias (discussed later), the extent to which the public itself is polarised is at least not sufficient to create large tails.

Table 3.1 shows a set of statistics for our relevant variables. Immediately apparent is the difference in both standard deviation and overall ideological distance between general evaluations and specific references to customs/values *and* potential for conflict even under maximum possible category bias. Our five-point operational racial liberalism scale (also scaled between -1 and 1) gives an overall standard deviation and ideological distance higher than the good/bad evaluation, but far lower than the customs and values evaluation. While our spread-based measures alone are not conclusive given the problems in directly comparing numerical measures, the general pattern implies that the mass public are broadly more likely to take a non-neutral stance on the impact of racial demographic change on customs and values or potential for conflict than they are to take a stance on its overall merit.

Question	Mean	SD	Ideological Distances	$\rho(Score, Id)$	λ	ϵ_1	ϵ_2
Maj-Min (Very Good-Very Bad)	0.07	0.52 (0.73)	0.36 (0.55)	0.32 (0.32)	0.26 (0.36)	0.26	0.26
Maj-Min (Customs and Values)	0.33	0.78	0.72	0.35	0.43	0.24	0.72
Maj-Min (More or Less Conflict)	0.35	0.81	0.77	0.19	0.26	0.01	0.52
Affirmative Action (College)	0.82	0.46	0.89	0.17	0.14	-0.57	0.85
Whiteness in Getting Ahead	-0.27	0.56 (0.73)	0.47 (0.64)	0.33 (0.31)	0.31 (0.35)	0.71	-0.09
Diversity in Workplace	-0.4	0.68	0.72	0.34	0.31	0.66	-0.08
Hearing Non-English in Public	-0.17	0.74	0.68	0.31	0.26	0.61	0.03
Operational Racial Liberalism	-0.18	0.59	0.51	0.41	0.42	0.39	0.45

Table 3.1: Polarisation and Distribution Statistics. Brackets denote score under 'worst-case scenario' of category bias.

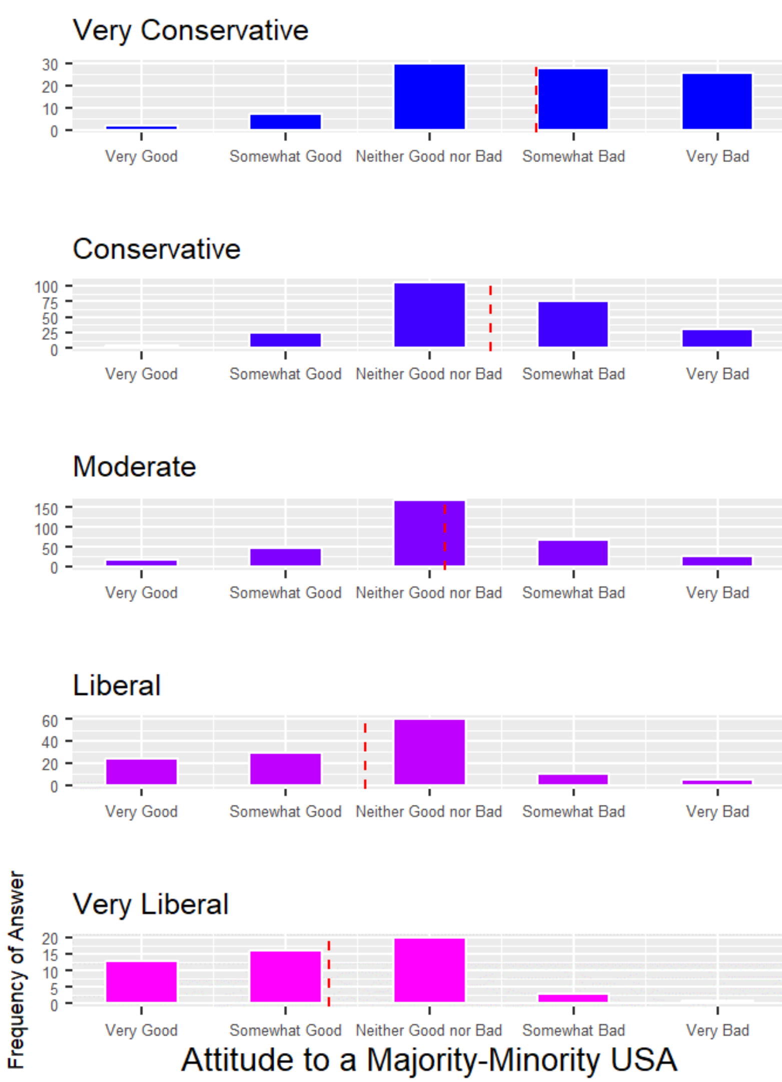
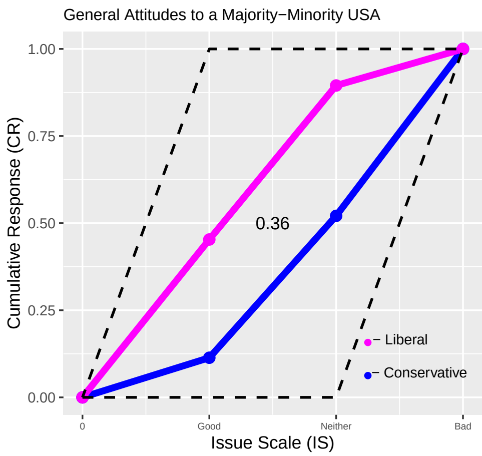


Figure 3.2: Distributions by level of self-identified liberalism-conservatism

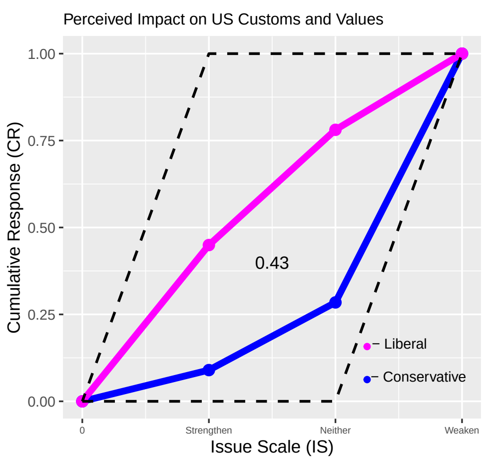
Now we will turn to the polarisation with respect to ideological symbols of relative liberalism and conservatism. When 'good vs bad' evaluations are broken up by self-reported ideology, the mean value consistently decreases with liberal identity, suggesting a substantial degree of 'ideological constraint' between abstract liberal-conservative identification and general attitudes to a majority-minority USA. However, 'Neither good nor bad' is the modal evaluation for every single self-reported ideological position. Even when combining the strengths as before, only for hard ideologues does this dominance of a non-neutral view occur. For 'Conservative' and 'Liberal' respondents, the neutral answer is the modal answer even when 'very' and 'somewhat' are combined. In other words, the 'colorblind attitude' consistently dominates for moderate ideologues but not for harder ideologues.

That said, despite the modal value being 'Neither good nor bad' at all levels, very few respondents report views contrary to the expected ideological report. Given someone thinks a majority non-white USA would be 'very bad', they are six times more likely to be conservative than liberal. The best way to describe the overall relationship would be 'consistent and meaningful but not extreme'. The ideology-issue correlation shows that the general majority-minority evaluation is high relative to other racial issues, but still lower than that of the customs and values question, which has the highest correlation of all issues in addition to the high variance already discussed.

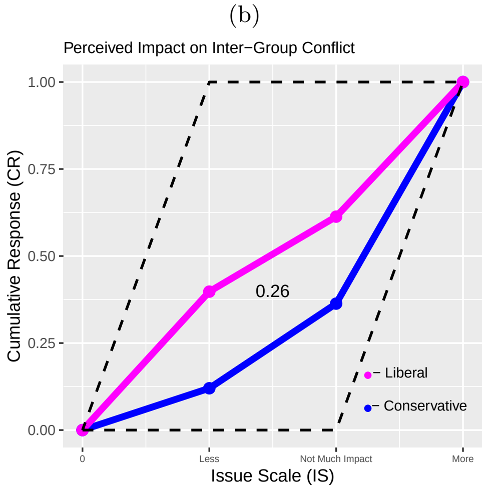
Baldassari and Gelman's (2008) data of correlations between self-reported liberalism-conservatism and racial issues is slightly different in that the questions are predominantly about African-Americans whereas these are more general. They are not directly comparable, but happen to be broadly in the same ballpark, being substantial but never in excess of 0.4.



(a)



(b)



(c)

Figure 3.3: Parallelograms

The polarisation λ between self-reported liberals and conservatives when in five categories is approximately 0.26 (meaning the area takes up just over a quarter of the total parallelogram). This λ value is once again the lowest of all racial issue questions except for affirmative action, and the value for the 'customs and values' question is the highest at 0.43. Additionally, our 'worst-case' scenario that accounts for the bias introduced with the extra two options produces a λ score of 0.36, still substantially lower than the customs and values λ. This is what is shown in figure 3.1 for easy comparison, but note that the actual equivalent figure is highly likely to be in between 0.26 and 0.36.

For the customs and values question, the 'Neither' option is no longer the modal option either. Instead, a significantly greater share of the population believes that the USA becoming majority non-white will weaken customs and values than believe it will make no difference or strengthen them. The two polarisation parallelograms show, however, that this is not fully robust to both liberals and conservatives. Almost 3/4 of self-identified liberals believe American customs and values will be stronger when majority-minority, while over three quarters of self-identified conservatives believe it will be weaker. This finding is very much in line with past literature; that conservative personalities are far more sensitive to perceived group threats than liberal personalities. Liberals, in the vast majority of cases, do not see demographic change as a threat to American customs and values.

The greatest disparity between spread-based and identity-based measures is on potential for conflict. While the public are in relative terms quite polarised, the liberal-conservative gap is rather small, driven mostly by relative liberal pessimism (almost 40% believing conflict will increase). If anything, it shows the limitations of using just one measure of ideological polarisation.

The key takeaway from these results is that polarisation in attitudes to a majority-minority future USA is highly dependent on the focus of the question. Consistently, the impact on customs and values is highly polarising among the broader public and between self-reported liberals and conservatives. However, evaluations of its general nature as 'good' or 'bad' do not show a noteworthy level of ideological polarisation on the whole, and consistently less so than the customs and values question. The robustness of these findings to other informed confounders such as level of overt prejudice, level of contact and education will now be tested.

3.2 Symbolic Ideology Regressions

Figure 3.4: Ordinal Logistic Regression Results

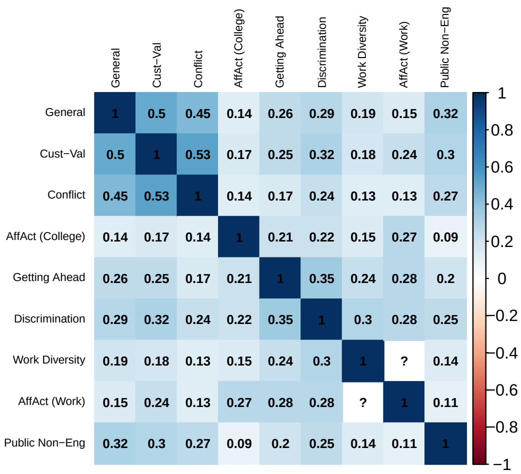
	General	Customs + Values	Conflict
	1	2	3
Liberalism-Conservatism	$-.65^{***}$	$-.76^{***}$	$-.37^{***}$
	(.07)	(.08)	(.07)
College Degree	-.28	-.34	-.27
	(.18)	(.18)	(.18)
Income Category	-.01	-.01	$-.06^{*}$
	(.03)	(.03)	(.03)
Female Dummy	-.03	.02	.10
	(.14)	(.14)	(.14)
Age 30-49	.36	$.52^{*}$	.24
	(.24)	(.25)	(.24)
Age 50-64	$.77^{**}$	$.80^{***}$	$.87^{***}$
	(.24)	(.24)	(.24)
Age 65+	$.55^{*}$	$.62^{**}$	.35
	(.24)	(.24)	(.23)
Intergroup Warmth (1-5 Scale)	$-.33^{***}$	$-.31^{***}$	$-.23^{**}$
	(.08)	(.08)	(.08)
Intergroup Contact	.07	.07	.10
	(.08)	(.08)	(.08)
Observations	819	815	816
Notes:	*P < .05		
	**P < .01		
	***P < .001		

In the multivariate logistic regressions, prejudice, college degree and contact are significant, but the R squared for ideological identity greatly exceeds any of them (as an aside, the value of λ for college vs non-college individuals is just 0.10). This suggests that our symbol-based polarisation figures are not being driven by the unobserved effect of a higher education (something that has been shown to help cultivate a cosmopolitan outlook) or overt animosity – there is something about existing dispositions that alone goes an extraordinarily long way into predicting attitudes to racial demographic change. The regression table for the 'very good-very bad' scale is shown in Table 2.

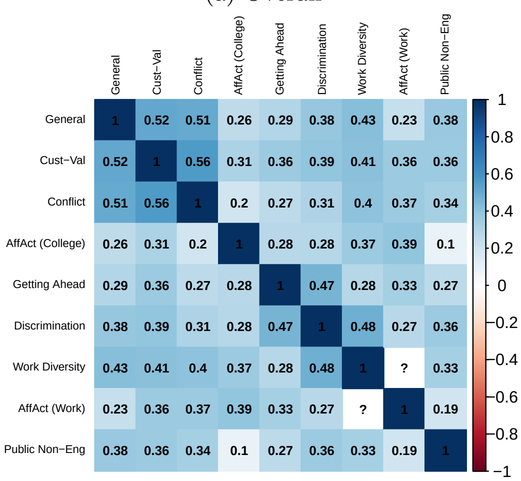
Regressions of good/bad evaluation *on* the conflict and customs/values questions find, as expected, that negative evaluations in general are driven far more by negative attitudes to customs and values. This shows the dominance of symbolic cultural perceived group threats being more important than pragmatic concerns about potential for conflict as a driver of *overall* negative attitudes. This will not be lingered on too much as it does not directly address ideological polarisation, but it is useful confirmation that symbolic threats dominate pragmatic conflict-based concerns in importance.

My logit model - with the table showing log odds coefficients - uses three categories as before, in the 'worst-case scenario' to fully account for potential bias from differing number of options. Even in this lower bound scenario, the coefficient on ideological identity is by far the highest for customs and values, following by general good/bad, with potential for conflict considerably lower.

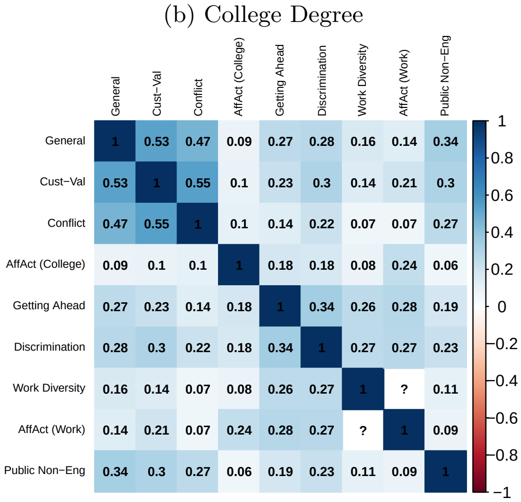
3.3 Ideological Constraint Matrices



(a) Overall



(b) College Degree



(c) No College Degree

Figure 3.5: Correlation Matrices

The correlation matrix of all racial questions together shows values not unlike those found by Baldassarri and Gelman (2008) - consistently highly statistically significant correlations under 0.4 (with the exception of the three majority-minority questions with each other). Together, there is sufficient attitude constraint within racial issue preferences to imply some underlying ideological pattern on racial issues. The first three rows show that those with positive views on a majority-minority America seem to hold similar views on other racial issues. Converse (2006) stressed strongly that ideological constraint is mostly present for more educated and politically involved people. The side-by-side matrices for those with and without a college degree show that there is indeed a substantial difference in the extent of between-issue correlations.

Internal consistency for both the dummy case and the Likert Scale case was evaluated using Ordinal α, a measure both designed for binary and ordinal scales and robust to skewness (Gadermann, Guhn, & Zumbo, 2019). The ordinal α for both the binary variables and the overall ordinal scores just exceeds 0.5. A degree of intercorrelation is present, but it is far from the generally accepted threshold for a valid Likert scale, which is generally regarded to be around 0.7 (roughly the value of the economic scale).

3.4 Individual Effects of Symbolic Ideology vs Operational Racial Ideology

Table 3.2: Multiple Scales Results - Linear Regression

	No Controls	With Controls
	1	2
Liberalism-Conservatism	$-.23^{***}$	$-.21^{***}$
	(.04)	(.04)
Racial Issue Liberalism	$-.27^{***}$	$-.23^{***}$
	(.03)	(.03)
Economic Issue Liberalism		-0.00
		(.05)
College Degree		-.06
		(.08)
Income Category		$-.03^{*}$
		(.01)
Female Dummy		-.08
		(.07)
Age 30-49		.14
		(.11)
Age 50-64		$.34^{**}$
		(.11)
Age 65+		$.28^{*}$
		(.11)
Intergroup Warmth		$-.15^{***}$
		(.04)
Intergroup Contact		.06
		(.04)
Constant	4.21^{***}	4.37^{***}
	(.09)	(.24)
R^2	.22	.27
Adjusted R^2	.22	.26
Residual Std. Error	.91 (df = 818)	.89 (df = 790)
F Statistic	116.10^{***} (df = 2; 818)	26.19^{***} (df = 11; 790)
Notes:	$^{*}P < .05$	
	$^{**}P < .01$	
	$^{***}P < .001$	

In terms of good/bad evaluations to a majority-minority USA, at the bivariate level, the value of the coefficient on the racial attitude scale individually is almost exactly the same size as the liberal-conservative scale; in fact, it is slightly smaller, at 0.37. This, in essence, means that the effect of answering one more racial question liberally is about equal to the effect of moving one place along the 1-5 liberal-conservative scale.

The overall ideological regression does not aim to compare coefficients, so I use OLS and general good/bad evaluations. Both our symbolic and operational coefficients remain highly significant when regressed together, though both coefficients decrease in size. Furthermore, the correlation between economically progressive policy positions becomes non-existent when controlling for ideological identity. In other words, the positive effect between grouped issue preferences and attitudes towards our dependent variable is driven entirely by a broader liberal-conservative ideology in the economic case but not the racial case. The significance of other independent variables exhibits much the same pattern to the ordinal logistic regressions.

Chapter 4

Discussion and Conclusion

4.1 Limitations

More advanced methods such as the clustering techniques of Baldassarri and Gelman (2008), the machine learning models of Draca and Schwarz (2018) and the explicitly hierarchical LISREL model of Peffley and Hurwitz (1985) absolutely have their place in empirical ideology research, and can often provide a richer analysis than what is present here. To take the former as an example: while my focus was on ideological identities, there is scope for more research on the link between individual issues and the ideological 'types' assigned through factor extraction methods like theirs.

Additionally, while I mentioned the clearly unbalanced nature of the economic scale, there is also the possibility of acquiescence bias in the dependent variables themselves. While the large number of 'ambivalents' in good/bad evaluations could be attributed to the potential 'colourblindness' that both liberal and conservative ideology can exhibit, it could also reflect mixed feelings, a lack of confidence or a general desire to acquiesce on something so general.

I discussed the problems in comparing issues with different scales in the spread-based measures, even after recentering. The measures I took to account for this help show that, on the whole, there is fairly strong evidence that the customs and values question is to an extent uniquely polarising, but ideally all racial questions would have been in the same form such that other scientific between-issue comparisons could be made.

It would have also been ideal if there were a rich enough set of issue-based questions to make a holistic liberal-conservative issue-based scale and look at the effects of this vs self-reported liberal-conservative ideology, perhaps along the four categories of foreign, economic, moral and racial policy in the work of Peffley and Hurwitz (1985) and Baldassarri and Gelman (2008). However, the themed nature of the ATP makes this significantly more difficult even with the possibility of merging temporally close waves.

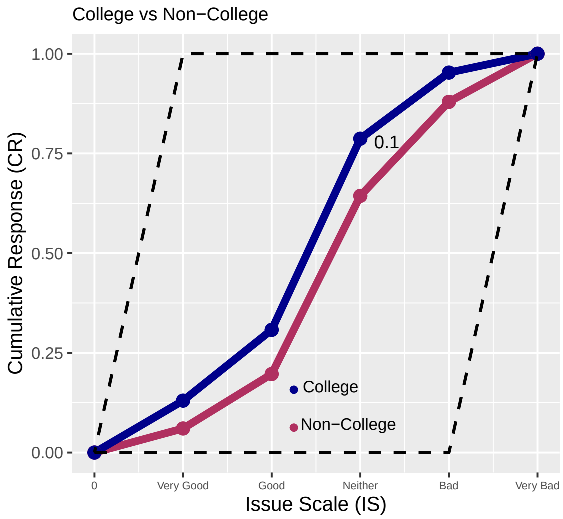
4.2 Discussion on Empirical and Methodological Issues in Ideology

Since the 'end of ideology' discourse itself all but crumbled, it is all the more important that political scientists are precise when researching ideological patterns, especially in public opinion surveys where the context of questions and their interpretation by a diverse set of respondents is so important to keep in mind. I have argued that ideology is often best analysed using the joint insights of symbolic ideological identities and operational ideological belief sets, all in the context of the specific public being analysed. This provides a methodologically rich approach that can draw out very meaningful insights when one zooms into a particular salient or relevant policy or social issue.

The introduction of the 'polarisation parallelogram' provides a useful standardised visual and mathematical set of measures that provide information on the exact distribution, level of polarisation and relative extremity of distributions between two groups with non-intersection cumulative distributions. While initially my plan was to use racial demographic change as an ideal example of my method in practice, it has actually turned out to be something even more fruitful; an illustration of both its benefits and its limitations.

The parallelogram itself is actually not always best suited to 'ideological' groups if the goal is to measure across entire populations, since it does not allow for easy interpretation of more than two groups (such as liberal, conservative and moderate). It was used here to specifically hone in on those who identified themselves as either liberal or conservative, in conjunction with correlations which measured the entire spread of ideological self-identification through symbols. It may in many cases be better suited to binary classifications such as education level or religion (see the surprisingly small λ of 0.10 on college vs non-college respondents).

Esteban and Ray (1994) and Gradín (2000) discuss this possibility. The latter's model is a primarily



economic one designed for continuous rather than ordinal data and does not have the visual clarity, interpretability, multi-measure focus, computational ease or emphasis on public opinion data that the parallelogram has.

4.3 Discussion on the Ideological Patterns of Attitudes to Racial Demographic Change

The idea that racial demographic change can motivate fear and opposition for some while providing an exciting cosmopolitan vision for others is not new, nor is the argument about the extent to which American culture is inherently multiracial. However, despite the wealth of literature on the effects of contact and the often-cited importance of existing political dispositions, there is a lack of rigorous research on exactly where this fits within broader political belief systems in the American Mass Public – both in terms of the set of issue preferences and in terms of the ideological groups with which different members of the public identify. This research aimed to fill that gap.

On all evaluations, most respondents take a stance that is not neutral. While liberals are moderately more ‘optimistic’ about the ability of racial demographic change to occur without increasing conflict, polarisation on racial demographic change is formed substantially more by evaluations of its impact on customs and values, with especially *relative* large effects for non-moderates, as our parallelogram shows.

The paper also provides evidence for a large degree of ideological constraint within racial policy issues seemingly only related by their mention of race. In essence, attitudes to the US' future racial makeup form part of a broader system of racially liberal opinions including attitudes to affirmative action and philosophy on the relative importance of understating vs overstating instances of discrimination. The correlation with economic progressivism that disappears controlling for liberal-conservative self-identification in the 'economic views' but not the 'racial views' case provides further evidence that a) there is a degree of deep-rooted ideology captured to an extent by liberal-conservative self-placement, and b) systems of racial opinions in particular have salience *even beyond this.*

4.4 Concluding Thoughts and Future Directions

What would be helpful now is a deeper look into the specific mechanisms behind the ideological polarisation found, and why the symbolic threat to customs and values is so uniquely polarising. An obvious channel for this research is in the effect of social media. There has already been a great deal of scholarly work in this regard, including into the effects of algorithms and their relationship with the promotion of 'Great Replacement' conspiracy theories. This is often framed as 'rabbit holes' and 'echo chambers', where those with existing ideological dispositions are funnelled into less politically diverse content with more potential for exposure to conspiracy theories that frequently invoke threats to existing American culture (Ledwich & Zaitsev, 2020; Lewis, 2018).

The movement of the USA into an increasingly cosmopolitan nation – including the shift to 'majority-minority' status – is broadly considered inevitable. The existing literature's results have been described as 'sobering' for progressives (Craig et al., 2018a). This dissertation goes some way to confirming that thought. Not only do the distributions for all three relevant questions skew towards the negative, it is largely only already liberal respondents that do not perceive the shift to majority-minority status as being a largely bad thing that threatens American customs and values. In other words, while overt extremist action is taken on the whole by a tiny minority and condemned by a vast majority, much of the public - including the overwhelming majority of white conservatives - do not disagree with many important aspects of the manifestos put out by extremists; that America's values are under threat from demographic change. Furthermore, it is this most fundamental, deep-rooted attitude on the nation's cultural identity as a whole that exhibits the most polarisation.

I believe it is essential that American culture is defined and understood as multiracial. The effect of information provision about the demographic change on racial bias and warmth is, as discussed, well-established. This change should not be framed as some binary shift from power to powerlessness, or the sudden weakening of dearly-held values. We know that these concerns are not driven by direct antagonism for other races, on the whole. Ironically, in many respects non-white immigrants are more conservative than the average citizen (Sobolewska & Ford, 2020). The racial makeup of the USA should not form an ideological fight. For that to come to fruition, discourse must be as thoughtful and contextualised as possible. This may seem a tall order, but framing demographic change as it really is – a movement of a highly ideologically diverse and disproportionately law-abiding set of people - rather than as an 'us vs them' binary threat, would go a long way.

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Chapter 5

Appendix

5.1 The Proofs

Below the mathematical proofs of the relevant formulas for the polarisation parallelogram can be found. All proofs are entirely my own work.

5.1.1 Proof of λ Formula

The area A is equal to the difference between the areas under G_1 and G_2. Using the trapezoidal method to calculate the areas under G_1 and G_2:

$$
\begin{aligned}
A = (&\frac{1}{2}\left(\frac{S_n - 0}{n}\right)(0 + 1 + 2(y_{11} + y_{21} + \ldots + y_{(n-1)1})) - \frac{1}{2} * 1 * 1) - \\
(&\frac{1}{2}\left(\frac{S_n - 0}{n}\right)(0 + 1 + 2(y_{12} + y_{22} + \ldots + y_{(n-1)2})) - \frac{1}{2} * 1 * 1) \\
&= \frac{1}{2}\left(2[(y_{11} - y_{12}) + (y_{21} - y_{22}) + \ldots + (y_{(n-1)1} - y_{(n-1)2})]\right) \\
&= \sum_{i=1}^{n-1}(y_{i1} - y_{i2})
\end{aligned}
$$

The area of the parallelogram is equal to $(n - 1) * 1 = n - 1$. Thus, Area A as a proportion of the parallelogram $= \frac{A}{A+B_1+B_2} = \frac{A}{n-1}$

$$
\begin{aligned}
&= \frac{\sum_{i=1}^{n-1}(y_{i1} - y_{i2})}{n - 1} \\
&= \lambda \ \in \ [0, 1] = \textbf{Polarisation}
\end{aligned}
$$

5.1.2 Proof of ϵ Formulae

Let $\epsilon_j = 1 - \dfrac{2B_j}{n-1}$

For our purposes it is easier to start with the derivation of ϵ_2.

$$
\begin{aligned}
B_2 &= \frac{1}{2}\left(\frac{S_n - 0}{n}\right)(0 + 1 + 2(y_{12} + y_{22} + \ldots + y_{(n-1)2})) - \frac{1}{2} \\
&= \frac{1}{2}(1 + 2(y_{12} + y_{22} + \ldots + y_{(n-1)2})) - \frac{1}{2} \\
&= \sum_{i=1}^{n-1} y_{i2}
\end{aligned}
$$

Thus, $\epsilon_2 = 1 - \dfrac{2\sum_{i=1}^{n-1} y_{i2}}{n-1}$

ϵ_1 can now be derived using our formula forB_2 :

$$
\begin{aligned}
B_1 &= (n-1) - A - B_2 \\
&= (n-1) - \sum_{i=1}^{n-1}(y_{i1} - y_{i2}) - \sum_{i=1}^{n-1} y_{i2} \\
&= (n-1) - \sum_{i=1}^{n-1} y_{i1} + \sum_{i=1}^{n-1} y_{i2} - \sum_{i=1}^{n-1} y_{i2} \\
&= (n-1) - \sum_{i=1}^{n-1} y_{i1}
\end{aligned}
$$

Substituting into the formula for ϵ_1 :

$$
\begin{aligned}
\epsilon_1 &= 1 - \frac{2(n - 1 - \sum_{i=1}^{n-1} y_{i1})}{n-1} \\
&= 1 - \frac{2(n-1)}{n-1} + \frac{2\sum_{i=1}^{n-1} y_{i1}}{n-1} \\
&= \frac{2\sum_{i=1}^{n-1} y_{i1}}{n-1} - 1
\end{aligned}
$$

Hence,

$$
\begin{aligned}
\epsilon_1 &= \frac{2\sum_{i=1}^{n-1} y_{i1}}{n-1} - 1 \\
\epsilon_2 &= 1 - \frac{2\sum_{i=1}^{n-1} y_{i2}}{n-1}
\end{aligned}
$$

5.1.3 Proof of λ and ϵ Relationship

Recall that $\epsilon_j = 1 - \dfrac{2B_j}{n-1}$

By rearranging, $\dfrac{B_j}{n-1} = \dfrac{1-\epsilon_j}{2}$

Recall that the parallelogram area is equal to $A + B_1 + B_2 = n - 1$

Thus, $\dfrac{A}{n-1} + \dfrac{B_1}{n-1} + \dfrac{B_2}{n-1} = 1$

$\lambda + \dfrac{1-\epsilon_1}{2} + \dfrac{1-\epsilon_2}{2} = 1$

$\lambda + \dfrac{1}{2} + \dfrac{1}{2} - \dfrac{\epsilon_1 + \epsilon_2}{2} = 1$

$\lambda = \dfrac{\epsilon_1 + \epsilon_2}{2}$

Hence, polarisation λ is equal to the midpoint of the two extremity measures ϵ_1 and ϵ_2.

5.1.4 Proof of Equivalence to Recentered Means

For this result it is once again easier to start with ϵ_2.

Recall that $B_2 = \sum_{i=1}^{n-1} y_{i2}$

Each cumulative percentage is itself the sum of all previous percentages.

Thus, if P_i is the proportion of respondents in the ith category in group 2:

$$B_2 = (n-1)P_1 + (n-2)P_2 + \ldots + P_{n-1}$$

$$\epsilon_2 = 1 - \frac{2[(n-1)P_1 + (n-2)P_2 + \ldots + P_{n-1}]}{n-1}$$

For an integer ordinal scale, the mean score across all respondents can be computed as:

$$\mu = P_1 + 2P_2 + \ldots + nP_n$$

$$P_n = 1 - (P_1 + P_2 + \ldots + P_{n-1})$$

Thus,

$$\mu = n(1 - (P_1 + P_2 + \ldots + P_{n-1})) + P_1 + 2P_2 + \ldots + P_{n-1}$$
$$= n + (1-n)P_1 + (2-n)P_2 + \ldots - P_{n-1}$$

We want our scale to move from [1,n] to [-1,1]. If x $\in [1, n]$ is a point on the old scale it can be rescaled with:

$$\frac{2}{n-1} \cdot (x - \frac{n+1}{2})$$

By the linearity of expected values, this also applies to our mean:

$$\tilde{\mu} = \frac{2}{n-1} \cdot (\mu - \frac{n+1}{2})$$
$$= \frac{2}{n-1} \cdot \mu - \frac{n+1}{2} \cdot \frac{2}{n-1}$$
$$= \frac{2[(n + (1-n)P_1 + (2-n)P_2 - P_{n-1})]}{n-1} - \frac{n+1}{n-1}$$
$$= \frac{2n}{n-1} - \frac{n+1}{n-1} + \frac{2[(1-n)P_1 + (2-n)P_2 - P_{n-1}]}{n-1}$$
$$= 1 + \frac{2[(1-n)P_1 + (2-n)P_2 - P_{n-1}]}{n-1}$$
$$= 1 - \frac{2[(n-1)P_1 + (n-2)P_2 + P_{n-1}]}{n-1}$$
$$= \epsilon_2$$

Thus, our extremity value ϵ_2 is equal to the mean score if the ordinal scale were centered at 0 with equally spaced values ranging from -1 to 1.

Almost the same applies to ϵ_1; however, in this case it is the negative recentered mean.

If we multiply our ϵ_1 formula by -1 we get

$-\epsilon_1 = 1 - \frac{2\sum_{i=1}^{n-1} y_{i1}}{n-1}$ and then the proof is identical to that of ϵ_2.

As $\lambda = \frac{\epsilon_1 + \epsilon_2}{2}$, by substituting $-\tilde{\mu_1}$ for ϵ_1 and $\tilde{\mu_2}$ for ϵ_2, λ can be written as:

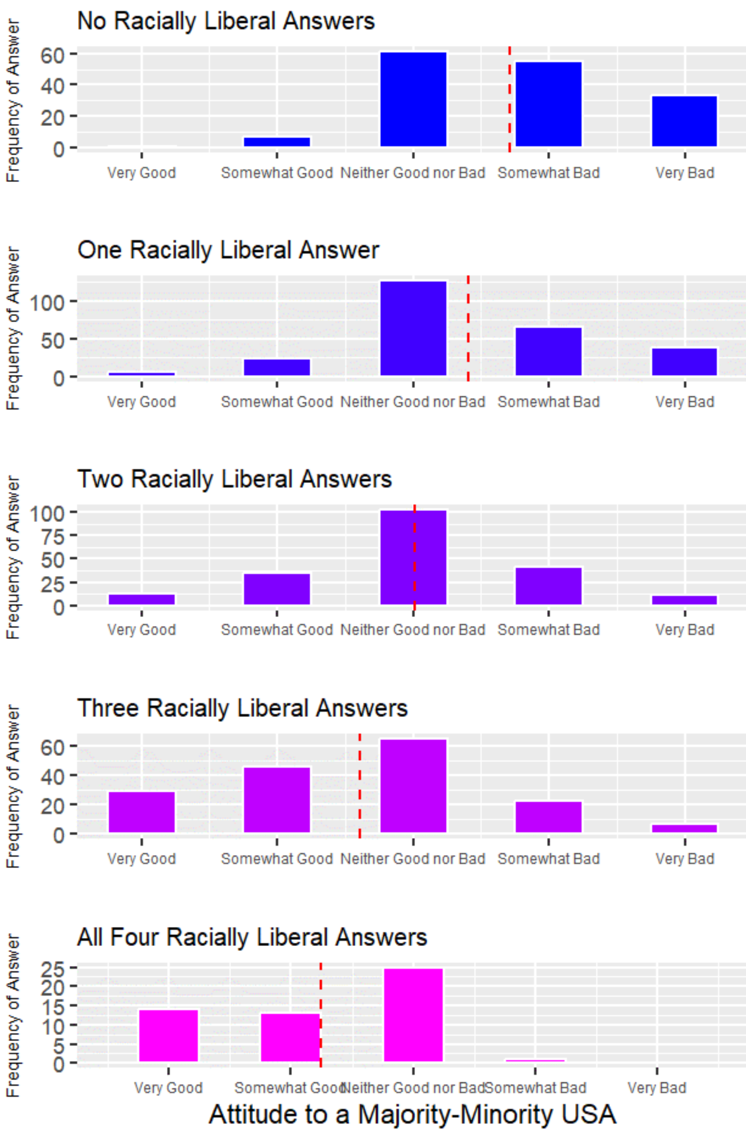
$$\lambda = \frac{\tilde{\mu_2} - \tilde{\mu_1}}{2}$$

5.2 Operational Racial Liberalism: Further Information

5.2.1 Operational Racial Liberalism Questions

1. Do you think [race or ethnicity] should be a major factor, minor factor, or not a factor in college admissions?
   a) Major Factor
   b) Minor Factor
   c) Not a factor
2. When it comes to racial discrimination, which do you think is the bigger problem for the country today?
   a) People NOT seeing racial discrimination where it really DOES exist
   b) People seeing racial discrimination where it really does NOT exist
3. How important, if at all, would you say it is for companies and organizations to promote racial and ethnic diversity in their workplace?
   a) Very important
   b) Somewhat important
   c) Not too important
   d) Not at all important
4. When it comes to decisions about hiring and promotions, do you think companies and organizations...
   a) Should take a person's race and ethnicity into account, in addition to their qualifications, in order to increase diversity
   b) Should only take a person's qualifications into account, even if it results in less diversity in the workplace
5. Overall, how does [being white] affect people's ability to get ahead in our country these days?
   a) Helps a lot
   b) Helps a little
   c) Neither helps nor hurts
   d) Hurts a little
   e) Hurts a lot
6. How much, if at all, would it bother you to hear people speak a language other than English in a public place?
   a) Not at all
   b) Not much
   c) Some
   d) A lot

5.2.2 Relationship Between Operational Racial Liberalism and Attitudes to Demographic Change



5.3 Code

Listing 5.1: Code

```
---
title: "MA Dissertation Code"
author: "Joey Cartwright"
date: "2023-08-16"
output:
pdf_document: default
html_document: default
---

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```


```{r script 1, echo=FALSE, message=FALSE, warning=FALSE}
#Working Directory and Packages
setwd("C:/Users/Joe/OneDrive - University of Warwick/MA Public Policy/Dissertation/Wave_SAVs")
library(acid)
library(car)
library(colorspace)
library(corrplot)
library(dplyr)
library(foreign)
library(ggplot2)
library(gridExtra)
library(GPArotation)
library(Hmisc)
library(ltm)
library(MASS)
library(patchwork)
library(psych)
library(questionr)
library(stargazer)

#Create Merged Dataset
ATPW41<-read.spss("ATPW41.sav", to.data.frame=TRUE,max.value.labels=100)
ATPW43 <- read.spss("ATPW43.sav", to.data.frame=TRUE,max.value.labels=100)
Merged41_43 <- merge(ATPW41, ATPW43, by = "QKEY")
WMerged41_43 <- filter(Merged41_43, F_RACETHNMOD=="White")

#Initial Exploration of Key Variable Distributions
table(WMerged41_43$ETHNCMAJMOD_W41)
table(WMerged41_43$F_IDEO.x)
table(WMerged41_43$F_IDEO.y)
#Reorder so middle option is not at the end + rename
```
```

```
levels(WMerged41_43$ETHNCMAJMOD_W41)
WMerged41_43$MajMin <- factor(WMerged41_43$ETHNCMAJMOD_W41, levels = c("A very good thing", "A somewhat good thing", "Neither a good nor bad thing", "A somewhat bad thing", "A very bad thing", "Refused"))
levels(WMerged41_43$MajMin)

WMerged41_43$MajMin[WMerged41_43$MajMin=="Refused"] <- NA
table(WMerged41_43$MajMin)
WMerged41_43$MajMinN <- as.numeric(WMerged41_43$MajMin)
#Now in order - almost no refusals

qqnorm(WMerged41_43$MajMinN)
qqline(WMerged41_43$MajMinN, col = "red", lwd=4)
#Approximately normal shape

#Conflict and Cust/Vals
WMerged41_43$Conflict <- factor(WMerged41_43$ETHNCMAJ3, levels = c("Fewer conflicts between racial and ethnic groups", "Not much of an impact", "More conflicts between racial and ethnic groups", "Refused"))
WMerged41_43$Conflict[WMerged41_43$Conflict=="Refused"] <- NA
WMerged41_43$ConflictN <- as.numeric(WMerged41_43$Conflict)
table(WMerged41_43$ConflictN)

levels(WMerged41_43$ETHNCMAJ4_W41)
table(WMerged41_43$ETHNCMAJ4_W41)
WMerged41_43$CustVal <- factor(WMerged41_43$ETHNCMAJ4, levels = c("Strengthen American customs and values", "Not much of an impact", "Weaken American customs and values", "Refused"))
WMerged41_43$CustVal[WMerged41_43$CustVal=="Refused"] <- NA
WMerged41_43$CustValN <- as.numeric(WMerged41_43$CustVal)
table(WMerged41_43$CustValN)

MajMinN <- WMerged41_43$MajMinN
CustValN <- WMerged41_43$CustValN
ConflictN <- WMerged41_43$ConflictN

#Ideological Identity
Idl <- WMerged41_43$F_IDEO.x
table(Idl)
Idl[Idl=="Refused"] <- NA
IdlN <- as.numeric(Idl)
table(IdlN)
WMerged41_43$IdlN <- IdlN

#Bivariate Regression
MMId <- lm(WMerged41_43$MajMinN ~ WMerged41_43$IdlN, data = WMerged41_43)
summary(MMId)

#Operational Racial Ideology
AffAct <- WMerged41_43$ADMISSIONa_W43
```

```
Ahead <- WMerged41_43$RACESURV5a_W43
SeeDisc <- WMerged41_43$RACESURV6_W43
CompDiv <- WMerged41_43$RACESURV48_W43
CompHire <- WMerged41_43$RACESURV49_W43
SpkEng <- WMerged41_43$RACESURV52_W43

table(AffAct)
table(Ahead)
table(SeeDisc)
table(CompDiv)
table(CompHire)
table(SpkEng)

#Recode if necessary
Ahead <- factor(Ahead, levels = c("Helps a lot", "Helps a little", "Neither helps nor hurts", "Hurts a little", "Hurts a lot", "Refused"))
table(Ahead)

SpkEng <- factor(SpkEng, levels = c("Not at all", "Not much", "Some", "A lot", "Refused"))
table(SpkEng)

SeeDisc <- factor(SeeDisc, levels = c("People NOT seeing racial discrimination where it really DOES exist", "People seeing racial discrimination where it really does NOT exist", "Refused"))
table(SeeDisc)

Ahead <- factor(Ahead, levels = c("Helps a lot", "Helps a little", "Neither helps nor hurts", "Hurts a little", "Hurts a lot", "Refused"))

RaceEg <- c("AffAct", "Ahead", "SeeDisc", "CompDiv", "CompHire", "SpkEng")
RaceEgFrame <- data.frame(AffAct = AffAct,
Ahead = Ahead,
SeeDisc = SeeDisc,
CompDiv = CompDiv,
CompHire = CompHire,
SpkEng = SpkEng)


RaceEgFrame[RaceEgFrame == "Refused"] <- NA
table(RaceEgFrame$AffAct)
#Make Binary
AffActD <- ifelse(RaceEgFrame$AffAct=="Not a factor", 0, 1)
AheadD <- ifelse(RaceEgFrame$Ahead=="Helps a lot" | RaceEgFrame$Ahead== "Helps a little", 1, 0)
SeeDiscD <- ifelse(RaceEgFrame$SeeDisc=="People NOT seeing racial discrimination where it really DOES exist", 1, 0)
CompDivD <- ifelse(RaceEgFrame$CompDiv=="Very important" | RaceEgFrame$CompDiv== "Somewhat important", 1, 0)
CompHireD <- ifelse(RaceEgFrame$CompHire=="Should take a person's race and
```

```
    ethnicity into account, in addition to their qualifications, in order to increase divers", 1, 0)
SpkEngD <- ifelse(RaceEgFrame$SpkEng=="Not much" | RaceEgFrame$SpkEng=="Not at all", 1, 0)

CompD <- coalesce(CompDivD, CompHireD)
table(CompD)

table(AffActD)
table(AheadD)
table(SeeDiscD)
table(CompDivD)
table(CompHireD)
table(SpkEngD)

RaceDSml <- AffActD+AheadD+SeeDiscD+SpkEngD
table(RaceDSml)
RaceDSmlM <- c("AffActD", "AheadD", "SeeDiscD", "SpkEngD")
RaceDSmlDF <- data.frame(AffActD = AffActD,
AheadD = AheadD,
SeeDiscD = SeeDiscD,
SpkEngD = SpkEngD)

CorMatRaceD <- cor(RaceDSmlDF, use = "pairwise.complete.obs")
print(CorMatRaceD)
cronbach.alpha(RaceDSmlDF, na.rm=T)
##Much lower internal consistency but meaningful correlations still

RaceEgFrameN <- RaceEgFrame %>%
mutate_all(as.numeric)

CorMatRaceN <- cor(RaceEgFrameN, use = "pairwise.complete.obs")
print(CorMatRaceN)
cronbach.alpha(RaceEgFrameN, na.rm=T)


#Economic Issue Preference Variables
EdSpend <- WMerged41_43$GOVPRIOb_W41
HlthSpend <- WMerged41_43$GOVPRIOc_W41
RichPoor <- WMerged41_43$GOVPRIOe_W41
WelfSpend <- WMerged41_43$GOVPRIOmF2_W41
InfrSpend <- WMerged41_43$GOVPRIOiF1_W41
TaxDown <- WMerged41_43$GOVPRIOjF1_W41

Econ <- c("EdSpend", "HlthSpend", "RichPoor", "WelfSpend", "InfrSpend",
"TaxDown")

EconFrame <- data.frame(EdSpend = EdSpend,
HlthSpend = HlthSpend,
RichPoor = RichPoor,
```

```
WelfSpend = WelfSpend,
InfrSpend = InfrSpend,
TaxDown = TaxDown)

WMerged41_43 <- cbind(WMerged41_43, EconFrame)

for (col in 269:272) {
        WMerged41_43[, col][WMerged41_43[, col] == "Refused"] <- NA
}

WMerged41_43[, 269:272] <- sapply(WMerged41_43[, 269:272], as.numeric)

table(WMerged41_43$EdSpend)
table(WMerged41_43$HlthSpend)
table(WMerged41_43$RichPoor)
table(WMerged41_43$WelfSpend)
table(WMerged41_43$InfrSpend)
table(WMerged41_43$TaxDown)

IntVarsNoWelf <- WMerged41_43[, 269:271]
table(IntVarsNoWelf)
CorMat <- cor(IntVarsNoWelf, use = "pairwise.complete.obs", method="kendall")
print(CorMat)
cronbach.alpha(IntVarsNoWelf, na.rm=T)

IntScoreNW <- (WMerged41_43$EdSpend+WMerged41_43$HlthSpend+WMerged41_43$RichPoor)/3

cor(IdlN, IntVarsNoWelf, use="pairwise.complete.obs", method="kendall")
cor(IdlN, IntScoreNW, use="pairwise.complete.obs", method="kendall")
#Significant Correlation between liberal identity and economic interventionism
cor(WMerged41_43$MajMinN, IntScoreNW, use="pairwise.complete.obs", method="kendall")
#Much smaller correlation with attitudes to Maj-Min (general good/bad)

MMIntNW<-lm(MajMinN ~ IntScoreNW, data = WMerged41_43)
summary(MMIntNW)
#Strong Bivariate Correlation

```

```{r script2, echo=FALSE, message = FALSE, warning=FALSE}
#Controls

#Education
#Education
levels(WMerged41_43$F_EDUCCAT.x)
EducD <- ifelse(WMerged41_43$F_EDUCCAT.x == "College graduate+", 1,
0)
table(EducD)
```

```
#Bivariate Education
MMEd<-lm(MajMinN ~ EducD, data = WMerged41_43)
summary(MMEd)

#Multivariate
MMIdEd<-lm(MajMinN ~ IdlN + EducD, data = WMerged41_43)
summary(MMIdEd)

#Income
levels(WMerged41_43$F_INCOME.x)
table(WMerged41_43$F_INCOME.x)
IncN <- as.numeric(WMerged41_43$F_INCOME.x)
#Income is in 9 Categories so dummies probably not appropriate. Numerical
    interpretation isn't essential anyway
table(IncN)

#Bivariate Income
MMInc<-lm(MajMinN ~ IncN, data = WMerged41_43)
summary(MMInc)
#Multivariate
MMIdEdInc<-lm(MajMinN ~ IdlN + EducD + IncN, data = WMerged41_43)
summary(MMIdEdInc)

#Sex
table(WMerged41_43$F_SEX.x)
WMerged41_43$Sex <- WMerged41_43$F_SEX.x
#Bivariate Sex
MMSex<-lm(MajMinN ~ Sex, data = WMerged41_43)
summary(MMSex)
MMIdEdIncSex<-lm(MajMinN ~ IdlN + EducD + IncN + Sex, data = WMerged41_43)
summary(MMIdEdIncSex)

#Age
table(WMerged41_43$F_AGECAT.x, MajMinN)
WMerged41_43$F_AGECAT.x[WMerged41_43$F_AGECAT.x=="DK/REF"] <- NA
WMerged41_43$AgeCat <- WMerged41_43$F_AGECAT.x

MMAge<-lm(MajMinN ~ AgeCat, data = WMerged41_43)
summary(MMAge)
MMIdEdIncSexAge<-lm(MajMinN ~ IdlN + EducD + IncN + Sex + AgeCat, data = WMerged41
    _43)
summary(MMIdEdIncSexAge)
#Older people consistently more negative

#Warmth Towards Other Races
WMerged41_43$THERMBLK[WMerged41_43$THERMBLK_W43=="Refused"] <- NA
WMerged41_43$THERMHISP[WMerged41_43$THERMHISP_W43=="Refused"] <- NA
WMerged41_43$THERMASN[WMerged41_43$THERMASN_W43=="Refused"] <- NA
WMerged41_43$THERMNAT[WMerged41_43$THERMNAT_W43=="Refused"] <- NA
```

```r

AttBlk <- as.numeric((as.character(WMerged41_43$THERMBLK_W43)))
AttHisp <- as.numeric((as.character(WMerged41_43$THERMHISP_W43)))
AttAsn <- as.numeric((as.character(WMerged41_43$THERMASN_W43)))
AttNat <- as.numeric((as.character(WMerged41_43$THERMNAT_W43)))

#Move to five-point scale
Racism <- (AttBlk+AttHisp+AttAsn+AttNat)/100
table(Racism)
MMRacism<-lm(MajMinN ~ Racism, data = WMerged41_43)
summary(MMRacism)

MMIdRacism<-lm(MajMinN ~ IdlN + Racism, data = WMerged41_43)
summary(MMIdRacism)
#Ideology has a highly significant effect of its own - and a greater one than actual warmth towards other races

#Racial Differences
MMIdFullBlk<-lm(MajMinN ~ IdlN + EducD + IncN + Sex + AttBlk, data = WMerged41_43)
summary(MMIdFullBlk)

MMIdFullNat<-lm(MajMinN ~ IdlN + EducD + IncN + Sex + AttNat, data = WMerged41_43)
summary(MMIdFullNat)

MMIdFullAsn<-lm(MajMinN ~ IdlN + EducD + IncN + Sex + AttAsn, data = WMerged41_43)
summary(MMIdFullAsn)

MMIdFullHisp<-lm(MajMinN ~ IdlN + EducD + IncN + Sex + AttHisp, data = WMerged41_43)
summary(MMIdFullHisp)

MMIdFullBNAH<-lm(MajMinN ~ IdlN + EducD + IncN + Sex + AttBlk + AttNat + AttAsn + AttHisp, data = WMerged41_43)
summary(MMIdFullBNAH)
#Slightly larger effect on Hispanic than others

cor(Racism, RaceDSml, use="pairwise.complete.obs", method="kendall")

#Contact
#Contact with Hispanics
ContactH <- WMerged41_43$RACESURV29c_W43
table(ContactH)
ContactH[ContactH=="Refused"] <- NA
ContactHN <- as.numeric(ContactH)
table(ContactHN)
IdContH <- lm(MajMinN ~ IdlN + ContactHN, data=WMerged41_43)
summary(IdContH)
IdContHM <- lm(MajMinN ~ IdlN + ContactHN + EducD + Sex + IncN, data=WMerged41_43)
summary(IdContHM)

```

```
#Black
ContactB <- WMerged41_43$RACESURV29b_W43
table(ContactB)
ContactB[ContactB=="Refused"] <- NA
ContactBN <- as.numeric(ContactB)
table(ContactBN)
IdContB <- lm(MajMinN ~ IdlN + ContactBN, data=WMerged41_43)
summary(IdContB)
IdContBM <- lm(MajMinN ~ IdlN + ContactBN + EducD + Sex + IncN, data=WMerged41_43)
summary(IdContBM)

#Asian
ContactA <- WMerged41_43$RACESURV29d_W43
table(ContactA)
ContactA[ContactA=="Refused"] <- NA
ContactAN <- as.numeric(ContactA)
table(ContactAN)
IdContA <- lm(MajMinN ~ IdlN + ContactAN, data=WMerged41_43)
summary(IdContA)
IdContAM <- lm(MajMinN ~ IdlN + ContactAN + EducD + Sex + IncN, data=WMerged41_43)
summary(IdContAM)

ContactFN <- 4*((ContactAN+ContactBN+ContactHN)-3)/9
table(ContactFN)
#Now on five-point scale
IdContF <- lm(MajMinN ~ IdlN + ContactFN, data=WMerged41_43)
summary(IdContF)
IdContFM <- lm(MajMinN ~ IdlN + ContactFN + EducD + Sex + IncN + AgeCat, data=
    WMerged41_43)
summary(IdContFM)
IdContFMS <- lm(MajMinN ~ scale(IdlN) + scale(ContactFN) + EducD + Sex + IncN +
    AgeCat, data=WMerged41_43)
summary(IdContFMS)

IdContFMSR <- lm(MajMinN ~ scale(IdlN) + scale(ContactFN) + scale(RaceDSml) +
    EducD + Sex + IncN + Racism + AgeCat, data=WMerged41_43)
summary(IdContFMSR)

JustContact <- lm(MajMinN ~ scale(ContactFN), data=WMerged41_43)
summary(JustContact)
‘‘‘

‘‘‘{r script 3, echo=FALSE, message=FALSE, warning=FALSE}
#Ordinal Form + Correcting for Category Bias in MajMinN

#Data Set and Statistics for Parallelogram
WedgeDF <- data.frame(MajMinN = MajMinN,
CustValN = CustValN,
ConflictN = ConflictN,
AffAct = AffAct,
```

```
        Ahead = Ahead,
        SeeDisc = SeeDisc,
        CompDiv = CompDiv,
        CompHire = CompHire,
        SpkEng = SpkEng)




        WedgeDF[WedgeDF == "Refused"] <- NA

        WedgeDF <- WedgeDF %>%
        mutate_all(as.numeric)

        cor(WedgeDF$MajMinN, IdlN, use="complete.obs")
        cor(WedgeDF$CustValN, IdlN, use="complete.obs")
        cor(WedgeDF$ConflictN, IdlN, use="complete.obs")

        cor(WedgeDF$AffAct, IdlN, use="complete.obs")
        cor(WedgeDF$Ahead, IdlN, use="complete.obs")
        cor(WedgeDF$SeeDisc, IdlN, use="complete.obs")
        cor(WedgeDF$CompDiv, IdlN, use="complete.obs")
        cor(WedgeDF$CompHire, IdlN, use="complete.obs")
        cor(WedgeDF$SpkEng, IdlN, use="complete.obs")

        ##Correlations
        cor(IntScoreNW, IdlN, use="pairwise.complete.obs")
        cor(RaceDSml, IdlN, use="pairwise.complete.obs")
        cor(RaceDSml, IntScoreNW, use="pairwise.complete.obs")

        #Recentered Variables
        MajMinP2 <- 0.5*(WedgeDF$MajMinN-3)
        mean(abs(MajMinP2), na.rm=T)
        sum(abs(MajMinP2)-mean(MajMinP2), na.rm=T)
        sd(MajMinP2, na.rm=T)
        mean(MajMinP2, na.rm=T)

        CustValP2 <- WedgeDF$CustValN-2
        mean(abs(CustValP2), na.rm=T)
        sd(CustValP2, na.rm=T)
        mean(CustValP2, na.rm=T)
        cor(CustValP2, IdlN, use="pairwise.complete.obs")

        ConflictP2 <- WedgeDF$ConflictN-2
        mean(abs(ConflictP2), na.rm=T)
        sd(ConflictP2, na.rm=T)
        mean(ConflictP2, na.rm=T)

        AffActP2 <- WedgeDF$AffAct-2
        mean(abs(AffActP2), na.rm=T)
```

```
sd(AffActP2, na.rm=T)
mean(AffActP2, na.rm=T)

AheadP2 <- 0.5*(WedgeDF$Ahead-3)
mean(abs(AheadP2), na.rm=T)
sd(AheadP2, na.rm=T)
mean(AheadP2, na.rm=T)

CompDivP2 <- 2*(WedgeDF$CompDiv-2.5)/3
mean(abs(CompDivP2), na.rm=T)
sd(CompDivP2, na.rm=T)
mean(CompDivP2, na.rm=T)

CompHireP2 <- (WedgeDF$CompHire-0.5)*2
mean(abs(CompHireP2), na.rm=T)
sd(CompHireP2, na.rm=T)
mean(CompHireP2, na.rm=T)

SpkEngP2 <- 2*(WedgeDF$SpkEng-2.5)/3
mean(abs(SpkEngP2), na.rm=T)
sd(SpkEngP2, na.rm=T)
mean(SpkEngP2, na.rm=T)
```

```{r script 4, echo=FALSE, message=FALSE, warning=FALSE}
#Graphs
VCon <- subset(WMerged41_43, IdlN==1)
MCon <- subset(WMerged41_43, IdlN==2)
Mod <- subset(WMerged41_43, IdlN==3)
MLib <- subset(WMerged41_43, IdlN==4)
VLib <- subset(WMerged41_43, IdlN==5)

VConC <- rgb(0, 0, 252, maxColorValue = 252)
MConC <- rgb(63, 0, 252, maxColorValue = 252)
ModC <- rgb(126, 0, 252, maxColorValue = 252)
MLibC <- rgb(189, 0, 252, maxColorValue = 252)
VLibC <- rgb(252, 0, 252, maxColorValue = 252)

BarOv <- ggplot(WMerged41_43, aes(x = MajMinN)) +
geom_histogram(fill = "green", color = "white", binwidth=0.5) +
labs(title = paste("General Attitudes to a Majority-Minority USA"),
x = " ",
y = "Frequency of Answer") +
geom_vline(xintercept=mean(WMerged41_43$MajMinN, na.rm=T), color="red", linetype="dashed") +
geom_text(stat='count'  aes(label=..count..), color="black", vjust=1.2) +
theme(plot.title = element_text(size = 13), axis.text.x = element_text(size = 6), axis.title.y = element_text(size = 12)) +
scale_x_continuous(breaks = c(1, 2, 3, 4, 5), labels = c("Very Good", "Somewhat Good", "Neither Good nor Bad", "Somewhat Bad", "Very Bad"))
```

```r
BarOv


BarVCon <- ggplot(VCon, aes(x = MajMinN)) +
geom_histogram(fill = VConC, color = "white", binwidth=0.5) +
labs(title = paste("Very Conservative"),
x = " ",
y = "") +
geom_vline(xintercept=mean(VCon$MajMinN, na.rm=T), color="red", linetype="dashed")
    +
theme(plot.title = element_text(size = 10), axis.text.x = element_text(size = 5),
     axis.text.y = element_text(size = 5),axis.title.y = element_text(size = 7)) +
scale_x_continuous(breaks = c(1, 2, 3, 4, 5), labels = c("Very Good", "Somewhat
    Good", "Neither Good nor Bad", "Somewhat Bad", "Very Bad"))
BarVCon

BarMCon <- ggplot(MCon, aes(x = MajMinN)) +
geom_histogram(fill = MConC, color = "white", binwidth=0.5) +
labs(title = paste("Conservative"),
x = " ",
y = "") +
geom_vline(xintercept=mean(MCon$MajMinN, na.rm=T), color="red", linetype="dashed")
    +
theme(plot.title = element_text(size = 10), axis.text.x = element_text(size = 5),
    axis.text.y = element_text(size = 5), axis.title.y = element_text(size = 7)) +
scale_x_continuous(breaks = c(1, 2, 3, 4, 5), labels = c("Very Good", "Somewhat
    Good", "Neither Good nor Bad", "Somewhat Bad", "Very Bad"))
BarMCon

BarMod <- ggplot(Mod, aes(x = MajMinN)) +
geom_histogram(fill = ModC, color = "white", binwidth=0.5) +
labs(title = paste("Moderate"),
x = " ",
y = "") +
geom_vline(xintercept=mean(Mod$MajMinN, na.rm=T), color="red", linetype="dashed")
    +
theme(plot.title = element_text(size = 10), axis.text.x = element_text(size = 5),
    axis.text.y = element_text(size = 5), axis.title.y = element_text(size = 7)) +
scale_x_continuous(breaks = c(1, 2, 3, 4, 5), labels = c("Very Good", "Somewhat
    Good", "Neither Good nor Bad", "Somewhat Bad", "Very Bad"))

BarMod

BarMLib <- ggplot(MLib, aes(x = MajMinN)) +
geom_histogram(fill = MLibC, color = "white", binwidth=0.5) +
labs(title = paste("Liberal"),
x = " ",
y = "") +
geom_vline(xintercept=mean(MLib$MajMinN, na.rm=T), color="red", linetype="dashed")
    +
```

```
theme(plot.title = element_text(size = 10), axis.text.x = element_text(size = 5), axis.text.y = element_text(size = 5), axis.title.y = element_text(size = 7)) +
scale_x_continuous(breaks = c(1, 2, 3, 4, 5), labels = c("Very Good", "Somewhat Good", "Neither Good nor Bad", "Somewhat Bad", "Very Bad"))

BarMLib

BarVLib <- ggplot(VLib, aes(x = MajMinN)) +
geom_histogram(fill = VLibC, color = "white", binwidth=0.5) +
labs(title = paste("Very Liberal"),
x = "Attitude to a Majority-Minority USA",
y = "Frequency of Answer",
linetype = "Mean") +
geom_vline(xintercept=mean(VLib$MajMinN, na.rm=T), color="red", linetype="dashed") +
theme(plot.title = element_text(size = 10), axis.text.x = element_text(size = 5), axis.text.y = element_text(size = 5), axis.title.y = element_text(size = 7)) +
scale_x_continuous(breaks = c(1, 2, 3, 4, 5), labels = c("Very Good", "Somewhat Good", "Neither Good nor Bad", "Somewhat Bad", "Very Bad"))
BarVLib

IdBars <- BarVCon / BarMCon / BarMod / BarMLib / BarVLib

IdBars
```

```{r script 5, echo=FALSE, message=FALSE, warning=FALSE}
#Good-Bad Evaluations
MMTableMCon <- prop.table(table(WedgeDF$MajMinN[IdlN==1 | IdlN==2]))
MMCumMCon <- cumsum(MMTableMCon)

MMCumMConF <- data.frame(CFMCon = MMCumMCon)

MMTableMLib <- prop.table(table(WedgeDF$MajMinN[IdlN==4 | IdlN==5]))
MMCumMLib <- cumsum(MMTableMLib)

MMCumMLibF <- data.frame(CFMLib = MMCumMLib)

MMCumMConF
MMCumMLibF

MMCumMConF <- rbind(data.frame(CFMCon = 0), MMCumMConF)
MMCumMLibF <- rbind(data.frame(CFMLib = 0), MMCumMLibF)

XLabsM <- c("0", "0", "Very Good", "Good", "Neither", "Bad", "Very Bad")

ModWedge <-ggplot() +
geom_line(data = MMCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color="blue", lwd=2) +
geom_line(data = MMCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color="
```

```
    magenta", lwd=2) +
geom_point(data = MMCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color = "
    blue", size = 3) +
geom_point(data = MMCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color = "
    magenta", size = 3) +
scale_x_continuous(breaks = 0:6, labels = XLabsM) +
xlab("Issue Scale (IS)") +
ylab("Cumulative Response (CR)") +
ggtitle("General Attitudes to a Majority-Minority USA") + theme(legend.position =
    "top", plot.title = element_text(size = 10), axis.text.x = element_text(size =
     6)) +
annotate("text", x = 5, y = 0.255, label = " - Liberal", color = "black", size =
    3) +
annotate("point", x = 4.5, y = 0.245, color = "magenta", size = 1.5) +
annotate("text", x = 5.34, y = 0.135, label = " - Conservative", color = "black",
    size = 3) +
annotate("point", x = 4.5, y = 0.125, color = "blue", size = 1.5)
ModWedge

LambdaMod <- sum(((MMCumMLib-1)-(MMCumMCon-1)))/4
LambdaMod

ModMajMinSumCon <- sum(MMCumMCon)
ModMajMinSumLib <- sum(MMCumMLib)

ModMajMinSumLib
ModMajMinSumCon

AreaAMod <- (ModMajMinSumLib-ModMajMinSumCon)
AreaAMod

TentB2Mod <- ModMajMinSumCon-1
TentB2Mod
TentB1Mod <- 4-AreaAMod-TentB2Mod
TentB1Mod

Epsilon1Mod <- 1-2*TentB1Mod/4
Epsilon2Mod <- 1-2*TentB2Mod/4

LambdaMod


Epsilon1Mod
Epsilon2Mod

#Ordinal Good-Bad Parallelogram for Comparison
WMerged41_43$MajMinOrd <- cut(WMerged41_43$MajMinN, breaks = c(0, 2, 3, 5), labels
     = c("Good", "Neither", "Bad"))

table(WMerged41_43$MajMinOrd)
```

```
MMOrdTableMCon <- prop.table(table(WMerged41_43$MajMinOrd[IdlN==1 | IdlN==2]))
MMOrdCumMCon <- cumsum(MMOrdTableMCon)
MMOrdCumMCon

MMOrdCumMConF <- data.frame(CFMCon = MMOrdCumMCon)

MMOrdTableMLib <- prop.table(table(WMerged41_43$MajMinOrd[IdlN==4 | IdlN==5]))
MMOrdCumMLib <- cumsum(MMOrdTableMLib)
MMOrdCumMLib

MMOrdCumMLibF <- data.frame(CFMLib = MMOrdCumMLib)

MMOrdCumMConF
MMOrdCumMLibF

MMOrdCumMConF <- rbind(data.frame(CFMCon = 0), MMOrdCumMConF)
MMOrdCumMLibF <- rbind(data.frame(CFMLib = 0), MMOrdCumMLibF)

XLabsMMOrd <- c("0", "0", "Good", "Neither", "Bad")

sum((MMOrdCumMCon-MMOrdCumMLib)/2)


MMOrdMajMinSumCon <- sum(MMOrdCumMCon)
MMOrdMajMinSumLib <- sum(MMOrdCumMLib)
MMOrdMajMinSumLib
MMOrdMajMinSumCon
LambdaMMOrd <- (MMOrdMajMinSumLib-MMOrdMajMinSumCon)/2
LambdaMMOrd


AreaAMMOrd <- (MMOrdMajMinSumLib-MMOrdMajMinSumCon)
AreaAMMOrd


TentB2MMOrd <- MMOrdMajMinSumCon-1
TentB2MMOrd
TentB1MMOrd <- 2-AreaAMMOrd-TentB2MMOrd
TentB1MMOrd

Epsilon1MMOrd <- 1-2*TentB1MMOrd/2
Epsilon2MMOrd <- 1-2*TentB2MMOrd/2
Epsilon1MMOrd
Epsilon2MMOrd

PGMB <- data.frame(x = c(1, 3, 4, 2), y = c(0, 0, 1, 1))
OrdWedge <-ggplot() +
geom_line(data = MMOrdCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color="
```

```
blue", lwd=2) +
geom_line(data = MMOrdCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color="magenta", lwd=2) +
geom_point(data = MMOrdCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color = "blue", size = 3) +
geom_point(data = MMOrdCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color = "magenta", size = 3) +
scale_x_continuous(breaks = 0:4, labels = XLabsMMOrd) +
xlab("Issue Scale (IS)") +
ylab("Cumulative Response (CR)") +
ggtitle("General Attitudes to a Majority-Minority USA") + theme(legend.position = "top", plot.title = element_text(size = 10), axis.text.x = element_text(size = 6)) +
annotate("text", x = 3.49, y = 0.255-0.0885, label = " - Liberal", color = "black", size = 3) +
annotate("point", x = 3.25, y = 0.245-0.0875, color = "magenta", size = 1.5) +
annotate("text", x = 3.64, y = 0.135-0.0635, label = " - Conservative", color = "black", size = 3) +
annotate("point", x = 3.25, y = 0.125-0.0625, color = "blue", size = 1.5) +
annotate("text", x = 2.5, y = 0.5, label = round(LambdaMMOrd, 2), color = "black", size = 4) +
geom_polygon(data = PGMB, aes(x = x, y = y),
fill = NA, color = "black", linetype = "dashed", size=0.8)
OrdWedge

#Customs and Values
CVTableMCon <- prop.table(table(WedgeDF$CustValN[IdlN==1 | IdlN==2]))
CVCumMCon <- cumsum(CVTableMCon)
CVCumMCon

CVCumMConF <- data.frame(CFMCon = CVCumMCon)

CVTableMLib <- prop.table(table(WMerged41_43$CustValN[IdlN==4 | IdlN==5]))
CVCumMLib <- cumsum(CVTableMLib)
CVCumMLib

CVCumMLibF <- data.frame(CFMLib = CVCumMLib)

CVCumMConF
CVCumMLibF

CVCumMConF <- rbind(data.frame(CFMCon = 0), CVCumMConF)
CVCumMLibF <- rbind(data.frame(CFMLib = 0), CVCumMLibF)

XLabsCV <- c("0", "0", "Strengthen", "Neither", "Weaken")

CVMajMinSumCon <- sum(CVCumMConF)
CVMajMinSumLib <- sum(CVCumMLibF)
CVMajMinSumLib
CVMajMinSumCon
```

```
LambdaCV <- (CVMajMinSumLib-CVMajMinSumCon)/2
LambdaCV


AreaACV <- (CVMajMinSumLib-CVMajMinSumCon)
AreaACV


TentB2CV <- CVMajMinSumCon-1
TentB2CV
TentB1CV <- 2-AreaACV-TentB2CV
TentB1CV

Epsilon1CV <- 1-2*TentB1CV/2
Epsilon2CV <- 1-2*TentB2CV/2
Epsilon1CV
Epsilon2CV
PGMB <- data.frame(x = c(1, 3, 4, 2), y = c(0, 0, 1, 1))
CVWedge <-ggplot() +
geom_line(data = CVCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color="blue",
     lwd=2) +
geom_line(data = CVCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color="
    magenta", lwd=2) +
geom_point(data = CVCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color = "
    blue", size = 3) +
geom_point(data = CVCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color = "
    magenta", size = 3) +
scale_x_continuous(breaks = 0:4, labels = XLabsCV) +
xlab("Issue Scale (IS)") +
ylab("Cumulative Response (CR)") +
ggtitle("Perceived Impact on US Customs and Values") + theme(legend.position = "
    top", plot.title = element_text(size = 10), axis.text.x = element_text(size =
    6)) +
annotate("text", x = 3.49, y = 0.255-0.0885, label = " - Liberal", color = "black"
    , size = 3) +
annotate("point", x = 3.25, y = 0.245-0.0875, color = "magenta", size = 1.5) +
annotate("text", x = 3.64, y = 0.135-0.0635, label = " - Conservative", color = "
    black", size = 3) +
annotate("point", x = 3.25, y = 0.125-0.0625, color = "blue", size = 1.5) +
annotate("text", x = 2.5, y = 0.4, label = round(LambdaCV, 2), color = "black",
    size = 4) +
geom_polygon(data = PGMB, aes(x = x, y = y),
fill = NA, color = "black", linetype = "dashed", size=0.8)
CVWedge

sum((CVCumMCon-CVCumMLib)/2)



#Conflict
```

```r
ConfTableMCon <- prop.table(table(WedgeDF$ConflictN[IdlN==1 | IdlN==2]))
ConfCumMCon <- cumsum(ConfTableMCon)
ConfCumMCon

ConfCumMConF <- data.frame(CFMCon = ConfCumMCon)

ConfTableMLib <- prop.table(table(WMerged41_43$ConflictN[IdlN==4 | IdlN==5]))
ConfCumMLib <- cumsum(ConfTableMLib)
ConfCumMLib

ConfCumMLibF <- data.frame(CFMLib = ConfCumMLib)

ConfCumMConF
ConfCumMLibF

ConfCumMConF <- rbind(data.frame(CFMCon = 0), ConfCumMConF)
ConfCumMLibF <- rbind(data.frame(CFMLib = 0), ConfCumMLibF)

XLabsConf <- c("0", "0", "Less", "Not Much Impact", "More")

sum((ConfCumMCon-ConfCumMLib)/2)

ConfMajMinSumCon <- sum(ConfCumMCon)
ConfMajMinSumLib <- sum(ConfCumMLib)
ConfMajMinSumLib
ConfMajMinSumCon
LambdaConf <- (ConfMajMinSumLib-ConfMajMinSumCon)/2
LambdaConf


AreaAConf <- (ConfMajMinSumLib-ConfMajMinSumCon)
AreaAConf


TentB2Conf <- ConfMajMinSumCon-1
TentB2Conf
TentB1Conf <- 2-AreaAConf-TentB2Conf
TentB1Conf

Epsilon1Conf <- 1-2*TentB1Conf/2
Epsilon2Conf <- 1-2*TentB2Conf/2
Epsilon1Conf
Epsilon2Conf

PGMB <- data.frame(x = c(1, 3, 4, 2), y = c(0, 0, 1, 1))
ConfWedge <-ggplot() +
geom_line(data = ConfCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color="blue", lwd=2) +
geom_line(data = ConfCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color="magenta", lwd=2) +
```

```
geom_point(data = ConfCumMConF, aes(x = seq_along(CFMCon), y = CFMCon), color = "blue", size = 3) +
geom_point(data = ConfCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color = "magenta", size = 3) +
scale_x_continuous(breaks = 0:4, labels = XLabsConf) +
xlab("Issue Scale (IS)") +
ylab("Cumulative Response (CR)") +
ggtitle("Perceived Impact on Inter-Group Conflict") + theme(legend.position = "top", plot.title = element_text(size = 10), axis.text.x = element_text(size = 6)) +
annotate("text", x = 3.49, y = 0.255-0.0885, label = " - Liberal", color = "black", size = 3) +
annotate("point", x = 3.25, y = 0.245-0.0875, color = "magenta", size = 1.5) +
annotate("text", x = 3.64, y = 0.135-0.0635, label = " - Conservative", color = "black", size = 3) +
annotate("point", x = 3.25, y = 0.125-0.0625, color = "blue", size = 1.5) +
annotate("text", x = 2.5, y = 0.4, label = round(LambdaConf, 2), color = "black", size = 4) +
geom_polygon(data = PGMB, aes(x = x, y = y),
fill = NA, color = "black", linetype = "dashed", size=0.8)

ConfWedge

OrdWedge
CVWedge
ConfWedge

#5 Category Good/Bad
GBTableMCon <- prop.table(table(WedgeDF$MajMinN[IdlN==1 | IdlN==2]))
GBCumMCon <- cumsum(GBTableMCon)
GBCumMCon

GBCumMGB <- data.frame(CFMCon = GBCumMCon)

GBTableMLib <- prop.table(table(WedgeDF$MajMinN[IdlN==4 | IdlN==5]))
GBCumMLib <- cumsum(GBTableMLib)
GBCumMLib

GBCumMLibF <- data.frame(CFMLib = GBCumMLib)

GBCumMGB
GBCumMLibF

GBCumMGB <- rbind(data.frame(CFMCon = 0), GBCumMGB)
GBCumMLibF <- rbind(data.frame(CFMLib = 0), GBCumMLibF)

XLabsGB <- c("0", "0", "Helps a lot", "Helps a little", "Neither", "Hurts a little", "Hurts a lot")

sum((GBCumMCon-GBCumMLib)/4)
```

```
GBMajMinSumCon <- sum(GBCumMCon)
GBMajMinSumLib <- sum(GBCumMLib)
GBMajMinSumLib
GBMajMinSumCon
LambdaGB <- (GBMajMinSumLib-GBMajMinSumCon)/4
LambdaGB


AreaGBA <- (GBMajMinSumLib-GBMajMinSumCon)
AreaGBA


TentB2GB <- GBMajMinSumCon-1
TentB2GB
TentB1GB <- 4-AreaGBA-TentB2GB
TentB1GB

Epsilon1GB <- 1-2*TentB1GB/4
Epsilon2GB <- 1-2*TentB2GB/4
Epsilon1GB
Epsilon2GB

PGMB <- data.frame(x = c(1, 5, 6, 2), y = c(0, 0, 1, 1))
GBWedge <-ggplot() +
geom_line(data = GBCumMGB, aes(x = seq_along(CFMCon), y = CFMCon), color="blue",
    lwd=2) +
geom_line(data = GBCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color="
    magenta", lwd=2) +
geom_point(data = GBCumMGB, aes(x = seq_along(CFMCon), y = CFMCon), color = "blue"
    , size = 3) +
geom_point(data = GBCumMLibF, aes(x = seq_along(CFMLib), y = CFMLib), color = "
    magenta", size = 3) +
scale_x_continuous(breaks = 0:6, labels = XLabsGB) +
xlab("Issue Scale (IS)") +
ylab("Cumulative Response (CR)") +
ggtitle("Role of Whiteness in Getting GB") + theme(legend.position = "top", plot.
    title = element_text(size = 10), axis.text.x = element_text(size = 6)) +
annotate("text", x = 5.49, y = 0.255-0.0885, label = " - Liberal", color = "black"
    , size = 3) +
annotate("point", x = 5.25, y = 0.245-0.0875, color = "magenta", size = 1.5) +
annotate("text", x = 5.64, y = 0.135-0.0635, label = " - Conservative", color = "
    black", size = 3) +
annotate("point", x = 5.15, y = 0.125-0.0625, color = "blue", size = 1.5) +
annotate("text", x = 3.9, y = 0.65, label = round(LambdaGB, 2), color = "black",
    size = 4) +
geom_polygon(data = PGMB, aes(x = x, y = y),
fill = NA, color = "black", linetype = "dashed", size=0.8)

GBWedge
```

````
```

```{r regressions, echo=FALSE, warning=FALSE, message=FALSE}
LCMult <- lm(MajMinN ~ IdlN + EducD + IncN + Sex + Racism + ContactFN + AgeCat,
    data = WMerged41_43)
summary(LCMult)

MMFullIdMult <- lm(MajMinN ~ IdlN + RaceDSml + IntScoreNW + EducD + IncN + Sex +
    Racism + ContactFN + AgeCat, data = WMerged41_43)
summary(MMFullIdMult)

MajMinOrdMod <- polr(MajMinOrd ~ IdlN + EducD + IncN + Sex + AgeCat + Racism +
    ContactFN, data=WMerged41_43, Hess=TRUE)
summary(MajMinOrdMod)

ConflictOrdMod <- polr(Conflict ~ IdlN + EducD + IncN + Sex + AgeCat + Racism +
    ContactFN, data=WMerged41_43, Hess=TRUE)
summary(ConflictOrdMod)

CustOrdMod <- polr(CustVal ~ IdlN + EducD + IncN + Sex + AgeCat + Racism +
    ContactFN, data=WMerged41_43, Hess=TRUE)
summary(CustOrdMod)

MajMinOrdModF <- polr(MajMinOrd ~ IdlN + RaceDSml + IntScoreNW + EducD + IncN +
    Sex + Racism + ContactFN + AgeCat, data=WMerged41_43, Hess=TRUE)
summary(MajMinOrdModF)

ConflictOrdModF <- polr(Conflict ~ IdlN + RaceDSml + IntScoreNW + EducD + IncN +
    Sex + Racism + ContactFN + AgeCat, data=WMerged41_43, Hess=TRUE)
summary(ConflictOrdModF)

CustOrdModF <- polr(CustVal ~ IdlN + RaceDSml + IntScoreNW + EducD + IncN + Sex +
    Racism + ContactFN + AgeCat, data=WMerged41_43, Hess=TRUE)
summary(CustOrdModF)

Reasons <- lm(MajMinN ~ scale(ConflictN) + scale(CustValN), data = WMerged41_43)
summary(Reasons)

ReasonsCont <- lm(MajMinN ~ scale(ConflictN) + scale(CustValN) + EducD + IncN +
    Sex + Racism + AgeCat + ContactFN, data = WMerged41_43)
summary(ReasonsCont)

ReasonsCont <- lm(MajMinN ~ scale(ConflictN) + scale(CustValN) + IdlN + RaceDSml +
     IntScoreNW + EducD + IncN + Sex + Racism + AgeCat + ContactFN, data =
    WMerged41_43)
summary(ReasonsCont)

```
````
````

~~~~
```{r results='asis'  echo=FALSE, warning=FALSE, message=FALSE, tab.cap = NULL}

Reg1 <- stargazer(MajMinOrdMod, CustOrdMod, ConflictOrdMod, header=F, type = "latex", style="ajs", align = TRUE, dep.var.labels = c("", "", ""), center = TRUE, font.size="tiny", omit.stat="n", title="Ordinal Logistic Regression Results", digits=2, out="MajMinOrdMod", covariate.labels=c("Liberal-Conservative Ideology", "College Degree", "Income Category", "Female Dummy", "Age 30-49", "Age 50-64", "Age 65+", "Intergroup Warmth (1-5 Scale)", "Level of Overall Contact"), dep.var.caption = "Evaluation Question", column.labels = c("Question", "General", "Customs + Values", "Inter-Group Conflict"))
cat(Reg1, file="Reg1.tex")
```
```{r matrices, echo=FALSE, warning=FALSE, message=FALSE}
#Correlation Matrices
RaceMatSP <- cor(WedgeDF, use="pairwise.complete.obs", method="spearman")
RaceMatK <- cor(WedgeDF, use="pairwise.complete.obs", method="kendall")
RaceMatSP <- round(RaceMatSP, 2)
RaceMatSP
RaceMatK <- round(RaceMatK, 2)
RaceMatK

cor(RaceDSml, IdlN, use="complete.obs", method="spearman")
cor(RaceDSml, IdlN, use="complete.obs", method="kendall")
cor(WedgeDF, IdlN, use="pairwise.complete.obs", method="spearman")
cor(WedgeDF, IdlN, use="pairwise.complete.obs", method="kendall")

cor(WedgeDF$MajMinN[EducD==0], WedgeDF$CompHire[EducD==0], use="complete.obs")


WedgeDFUned <- WedgeDF
WedgeDFUned$EducD <- EducD
WedgeDFUned <- WedgeDF[WedgeDFUned$EducD == 0, ]
View(WedgeDFUned)
table(WedgeDFUned$MajMinN)
table(WedgeDF$MajMinN, EducD)

RaceMatUned <- cor(WedgeDFUned, use="pairwise.complete.obs", method="spearman")
RaceMatUnedR <- round(RaceMatUned, 2)
RaceMatUnedR

WedgeDFEd <- WedgeDF
WedgeDFEd$EducD <- EducD
WedgeDFEd <- WedgeDF[WedgeDFEd$EducD == 1, ]
View(WedgeDFEd)
table(WedgeDFEd$MajMinN)
table(WedgeDF$MajMinN, EducD)

RaceMatEd <- cor(WedgeDFEd, use="pairwise.complete.obs", method="kendall")
RaceMatEdR <- round(RaceMatEd, 2)
RaceMatEdR
~~~~

```
cor.test(WedgeDF$MajMinN, WedgeDF$CustValN, use="complete.obs")

names(WedgeDF)

CPLabels <- c(
"MajMinN" = "General",
"CustValN" = "Cust-Val",
"ConflictN" = "Conflict",
"AffAct" = "AffAct (College)",
"Ahead" = "Getting Ahead",
"SeeDisc" = "Discrimination",
"CompDiv" = "Work Diversity",
"CompHire" = "AffAct (Work)",
"SpkEng" = "Public Non-Eng"
)
colnames(RaceMatK) <- CPLabels
rownames(RaceMatK) <- CPLabels
colnames(RaceMatUned) <- CPLabels
rownames(RaceMatUned) <- CPLabels
colnames(RaceMatEd) <- CPLabels
rownames(RaceMatEd) <- CPLabels

MatDi <- corrplot(RaceMatK, method = "color", tl.cex = 0.6, number.cex = 0.7, tl.
    col = "black", addCoef.col = "black")

MatDiUned <- corrplot(RaceMatUned, method = "color", tl.cex = 0.6, tl.col = "black
    ", number.cex = 0.7, addCoef.col = "black")

MatDiEd <- corrplot(RaceMatEd, method = "color", tl.cex = 0.6, number.cex = 0.7,
    tl.col = "black", addCoef.col = "black")

#Correlation Matrix P Values
Vars <- ncol(WedgeDF)
Ps <- matrix(NA, nrow = Vars, ncol = Vars)


for (i in 1:Vars) {
        for (j in 1:Vars) {if (i != j && !(colnames(WedgeDF)[i] %in% c("CompDiv"
            "CompHire")) && !(colnames(WedgeDF)[j] %in% c("CompDiv" "CompHire")))
             {
                        Result <- cor.test(WedgeDF[, i], WedgeDF[, j], use = "
                            complete.obs")
                        Ps[i, j] <- Result$p.value
                }
        }
}

print(Ps)
```

````r

#No College P Values
VarsU <- ncol(WedgeDFUned)
PsU <- matrix(NA, nrow = VarsU, ncol = VarsU)


for (i in 1:Vars) {
        for (j in 1:Vars) {if (i != j && !(colnames(WedgeDFUned)[i] %in% c("CompDiv" "CompHire")) && !(colnames(WedgeDFUned)[j] %in% c("CompDiv" "CompHire"))) {
                        Result <- cor.test(WedgeDFUned[, i], WedgeDFUned[, j], use = "complete.obs")
                        PsU[i, j] <- Result$p.value
                }
        }
}

print(PsU)

PM <- round(Ps, 5)
PMU <- round(PsU, 5)
PM
PMU
```
````
````