A Social Sort of Brexit? Affective Polarization and Social Sorting among Leavers and Remainers

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A Social Sort of Brexit? Affective Polarization and Social Sorting among Leavers and Remainers

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Introduction

On Christmas day December 2018, Queen Elizabeth II addressed the nation in her traditional Christmas Message. In her speech she stated: ‘even with the most deeply held differences, treating the other person with respect and as a fellow human being is always a good first step towards greater understanding’ (Gidron, Adams & Horne, 2019). Her speech was made in a context of a divided state, in which rifts among the British population along the lines of Brexit have increased emotional tension and animosity to levels that have warranted concern among researchers and monarchs alike (Gidron, Adams & Horne, 2019; Simonsson et al., 2022; Sorace & Hobolt, 2020; Hobolt, Leeper & Tilley, 2020).

A significant avenue of research examining emotional animosity between people with competing political identities originally emerged from the US, where levels of emotional dislike between partisans has significantly increased in the last half-century (Iyengar, Sood & Lelkes, 2012). This phenomenon of antipathy between partisans is termed affective polarization (Iyengar, Sood & Lelkes, 2012). Through the lens of social identity theory, affective polarization is not theoretically limited to partisans, but partisan identities have garnered almost exclusive attention. This attention is justified by Mason (2015), as parties are often the primary groups seen to compete in the political realm, making them the most relevant.

However, the Brexit vote signifies a novel situation, whereby a new political struggle centred around the decision to Leave or Remain in the EU, has eclipsed battles of traditional partisanship in importance and relevance (Hobolt, Leeper & Tilley, 2020). The two identities in question are those that identify as Leavers (also referred to as Brexiteers) and those that identity as Remainers. Hobolt, Leeper and Tilley (2020) find that the vast majority of the British population identify with their side of the Brexit vote and feel a sense of emotional

attachment to the group and its members. Furthermore, the levels of affective polarization between Leavers and Remainers, is equally, if not, higher than the levels of hostility between partisans (Hobolt, Leeper & Tilley, 2020). Interestingly, elite and public stances on the vote and their Brexit based identities have been shown to cut sharply across traditional party lines, suggesting that these new divisions cannot be explained by partisan justifications alone (Hobolt, Leeper & Tilley, 2020). Despite these levels of polarization reaching the same level of intensity as partisan animosity and noting the cross-cutting novelty of this modern cleavage, little to no research has examined the causes that underly the affective divide. Resultantly, this paper seeks to answer the question: *what causes emotional animosity between people on opposite sides of the Brexit division?*

Drawing from research conducted on partisan affective polarization, I argue that increased alignment between social and Brexit divisions, a phenomenon otherwise referred to as social sorting (Mason & Wronski, 2018), increases the levels of affective polarization between Remainers and Leavers. Utilizing cross-sectional data from 2019 compiled by the British Election Study (Fieldhouse et al., 2020), the association between social sorting and affective polarization is tested. I find significant support in favour of the hypothesis, demonstrating that greater levels of social sorting are related to increased levels of emotional animosity between opposing Brexit identifiers.

The first section of this paper reviews literature on affective polarization from two main explanatory camps: the first constituting of arguments relating to issue disagreements, and the second relating to social identity. The main hypothesis is then derived by exploring how arguments associating increased levels of social sorting and partisan affective polarization, should be theoretically expected to apply to polarization between Leavers and Remainers. The hypothesis is then tested using a large-N observational study, which yields

substantial evidence in favour of the hypothesis. The final section ends with concluding remarks and a brief discussion about limitations, and future avenues for research.

Theory

What is Affective Polarization?

Affective polarization is a term originally created to capture the observed phenomenon of increased animosity between partisans in America (Iyengar, Sood & Lelkes, 2012). Whether measured by survey questions gauging how hot or cold respondents feel about Democrats or Republicans, or through questions determining the levels of acceptance between inter-party marriage or stereotype trait associations, US partisans increasingly dislike the opposition party and their supporters (Lelkes, 2016). This trend of interparty antipathy has been shown to exist at varying levels across the globe, with the US exhibiting 'average levels of affective polarization in international comparison' (Wagner, 2021, p. 6). There exist two main camps putting forward explanations for these trends, with the first attributing bias to objective policy disagreements, and the other crediting psychological identity-based phenomena.

Issue Disagreement Approach

Scholars advancing the issue disagreement approach argue that dislike between partisans can be explained by differing policy preferences (Rogowski & Sutherland, 2015; Webster & Abramowitz, 2017). Under this line of argumentation, partisanship is understood as signalling a set of policy preferences and inter-party enmity represents a dislike between preferred policy rather than animosity based on identity (Webster & Abramowitz, 2017).

By analysing American National Election Studies (ANES) survey data, Webster and Abramowitz (2017) find that respondents' opinions about welfare, abortion and gay rights

were significantly related to greater negative affect toward competing political candidates. Republican respondents whose opinions were more consistently conservative on the three dimensions, were found to be more likely to dislike a democratic candidate whose policy positions differed (Webster & Abramowitz, 2017). Similar results were found by Rogowski and Sutherland (2015), who using a representative national survey study, find that people's affective responses toward ideologically divergent political candidates was significantly more negative in comparison to ideologically convergent politicians.

However, this approach has come under fire from social identity scholars, who claim that ideology and specific issue preferences may function as identity cues, leading to polarization based on identity related mechanisms, rather than objective policy disagreements (Dias & Lelkes, 2021). Certain policy preferences are traditionally and widely associated with specific political groups (Dias & Lelkes, 2021). US elite and mass ideological positions have become increasingly sorted, with Republicans and Democrats becoming more consistent in their shared policy preferences with their co-partisans (Levendusky, 2009). Resultantly, Goggin, Henderson and Theodoridis (2019) find that respondents across all levels of political knowledge can correctly identify a person's partisan identity based on their opinions on immigration, public spending and welfare. A set of policy preferences such as pro-choice, pro-welfare and supportive of gay rights, might signal that this person is a Democrat, and the affective responses measured may be capturing an identity-based response rather than one purely down to issue disagreement.

By testing the affective responses of participants in response to policy issues shown not to be strongly associated with any one partisan identity, Dias and Lelkes, (2021) conducted a series of studies trying to pry apart the independent effects of partisan identities and policy disagreement on levels of affective polarization. They found that policy disagreement often acts as a signal for partisan identities, and that although policy

disagreements do account for some of the variance in affective polarization, the majority stems from exposure to partisan cues (Dias & Lelkes, 2021). It seems then that the observed relationship between issue disagreements and affective polarization may be confounded by respondents' prior identity.

Social Identity Approach

By understanding partisanship as a social identity, scholars such as Iyengar, Sood and Lelkes (2012) have argued that interparty animosity can largely be explained by psychological mechanisms relating to individuals' self-conception and identity. Tajfel and Turner (1979) state that humans make sense of their social environment through categorizations, leading to the widespread use of social categories such as black, white, liberal, conservative, Christian, Muslim, Remainer and Leaver. Due to an innate desire to belong and assimilate, people tend to identify with certain categorizations, and attach their personal self-esteem and pride to their group memberships (Tajfel & Turner, 1979). Doing so, however, also leads to processes of social differentiation, whereby positive self-image and group status is maintained, by ensuring favourable comparisons with out-groups (Tajfel & Turner, 1979).

It is through the processes of social differentiation from which prejudice is said to stem and is especially heightened when group membership is highly salient for an individual's self-concept and the relative status of a group is perceived as being threatened (Brewer, 1999). In support of this theory, Tajfel and Turner (1979), demonstrate that identification with social groups, including totally arbitrary or seemingly pointless groups such as those defined by a preference for art created by Klee versus Kandinsky, can lead to outcomes of in-group favouritism and lay the foundations for out-group prejudice. The intensity of these outcomes is shown to be moderated by personality traits, contextual and

structural factors; all of which impact the degree to which a certain identity is seen and felt as being important (Roccas & Brewer, 2002).

Applied to the political realm, scholars have used these psychological mechanisms to theorize and test the relationship between media, elite polarization, alignment of social and partisan identities (also known as social sorting) and affective polarization (Druckman, Peterson & Slothuus, 2013; Lelkes, Sood & Iyengar, 2017; Levendusky, 2013; Mason, 2015). For example, some suggest that partisan news outlets increase the salience of partisan identities by encouraging the adoption of extreme ideological attitudes and focussing disproportionately on the shortcomings and danger of opposition members, resulting in greater levels of affective polarization (Lelkes, Sood & Iyengar, 2017; Levendusky 2013). However, it is difficult to determine if media has a generalizable independent effect on polarization, as there are potential confounders causing any visible links, with partisan news watchers often being polarized prior to media exposure (Iyengar et al., 2019). With substantial empirical backing, it has also been shown that when social divisions become highly correlated with people's partisan identities, levels of affective polarization tend to rise (Harteveld, 2021).

Non-Partisan Brexit Identities

The mechanisms outlined by social identity theorists such as Tajfel and Turner (1979) and Roccas and Brewer (2002) need not exclusively apply to partisan identities. Indeed, the same processes and bias can be expected to exist among other political social identities that are similarly salient. However, due to the historical importance of partisanship, few cases of non-partisan political identities have been analysed (Hobolt, Leeper & Tilley, 2020). The Brexit case offers an interesting, and novel situation, whereby traditional British partisan identities, have become equally if not less important compared to Brexit-based social

identities (Duffy, Murkin & Hewlett, 2019). A survey conducted consisting of 2,000 adults during the 2019 general election campaign, found that people's Brexit identities have grown even stronger than their political party identities, when compared to levels found two years prior (Duffy, Murkin & Hewlett, 2019). Twenty-two percent of respondents identified very strongly with their partisan identity, yet more than double – 55% – reported themselves as identifying very strongly with their Brexit identity (Duffy, Murkin & Hewlett, 2019).

Furthermore, these new identities cut across elite and mass partisan lines. All major parties in Parliament originally endorsed Remain, with a few high-profile party members on both sides being outspokenly in favour of leaving (Goodwin & Heath, 2016). This stands in stark contrast to the US context, in which elite policy stances have become more polarized and distinct over the past few decades (Banda & Cluverius, 2018). Despite no clear divisions between the parties, 52 percent of the British electorate chose in favour of leave (Goodwin & Heath, 2016).

There is also substantial proof of there being considerable levels of affective polarization between Brexit group identifiers, with them remaining as high in 2019 as after the referendum in 2016 (Hobolt, Leeper & Tilley, 2020). Remainers and Leavers are significantly more likely to stereotype people on their own side with desirable characteristics such as intelligence and selflessness whilst considering opposition group members to be closed minded and selfish (Hobolt, Leeper & Tilley, 2020). In addition, levels of social distance, measured by a self-reported level of approval of intergroup marriage of offspring, were comparably low between partisan and Brexit identities (Hobolt, Leeper & Tilley, 2020). Furthermore, a person's Brexit identity significantly predicted how favourably respondents considered the state of the economy, with Brexiters being much more likely to see post-Brexit economic performance as positive (Sorace & Hobolt, 2020). Relatedly, the prevalence of Brexit identities has been linked to increased levels of bias in regard to economic and

political decisions, rendering it a challenge to fair deliberation and accountability, warranting concern over the efficacy of Britain's post-Brexit political system (Sorace & Hobolt, 2020).

Could this be the result of strong issue polarization? In the run up to the election, there was a markedly clear-cut division on policy-related issues (Hobolt, 2016). These predominantly related to immigration and concerns over the erosion of sovereignty in the face of greater European centralization (Duffy et al., 2019). However, following the referendum in 2016, issue polarization appears to have decreased, with the perceptions of immigration becoming 'more positive, with a narrowing of the gap in opinion between Leavers and Remainers' (Duffy et al., 2019, p. 8). Furthermore, views on health and social care policies became more salient and found common support among either side of the divide (Duffy et al., 2019). Yet despite decreasing issue polarization, the emotional attachment and affective components of Brexit identities have remained largely the same (Hobolt, Leeper & Tilley, 2020).

Having established that Brexit identities are of equal or greater salience to partisan ones, and that there exists a substantial amount of affective polarization between them (Duffy et al., 2019; Hobolt, Leeper & Tilley, 2020), it is worth examining the social identity explanations for partisan polarization to see if it can be applied to the Brexit situation. Noting that elite polarization is not as prevalent in the British context as in the US, issue polarization in the UK appears to have decreased and appreciating the uncertainty surrounding media-based explanations, social sorting begs further examination. Indeed, I argue that alignment of social divisions with Brexit identities mirrors the phenomenon of highly correlated social and partisan identities in the United States.

Social Sorting

Democrats and Republicans are increasingly similar to their co-partisans in terms of the non-partisan social identities they possess (Mason, 2016). Partisan identities have become more consistently correlated with religious, racial and ideological identities, thereby leading to an electorate that is increasingly socially sorted (Mason, 2016).

Insights from early political science literature have long hypothesized and investigated the effects of cleavage alignment for partisan loyalty and conflict. Campbell (1960) stated that it is important to observe a plurality of political and societal pressures exerted on any given person, with Lipset (1960) asserting that the prevalence of multiple cross-cutting cleavages constitutes an essential and important precondition for democratic health and stability. The idea being that despite disagreements on specific issues, any two people in a society characterized by a plurality of cleavages can find at least some common ground. Following from this logic, the prevalence of multiple aligned cleavages can increase the perceived social distance and remove any basis for common understanding, making it more difficult to transcend disagreements that exist in the political realm.

Social identity scholars posit that when social identities become aligned, the perception of group homogeneity increases, leading to a reduced 'social identity complexity' (Roccas & Brewer, 2002, p. 89). In essence, this is where people begin to associate group membership of one social identity (such as being a Democrat), as a signal of inexorable membership of other yet aligned social identities, such as being an urbanite and secular. Increased alignment of social identities promotes greater 'social comparison and perceptions of conflict of interest', as processes of social differentiation and comparison are more easily applicable to everyday life, thereby increasing the potential for prejudice and conflict (Brewer, 1999, p. 439). When one's social identity complexity is high, perceived internal

homogeneity of social identities is lower, reducing the perceived differences between in-groups and out-groups (Roccas & Brewer, 2002). Resultantly, higher complexity also reduces the ability for any single identity to satisfy 'an individual's need for belonging and self-definition' (Roccas & Brewer, 2002, p. 102). Indeed, experimental research shows that when manipulating the degree to which people on opposing sides of a group distinction are made conscious about their common group membership on another, bias between individuals can be reduced (Levendusky, 2018).

Further research on the effects of social sorting additionally yields results in line with these theoretical predictions. Mason (2016) and Mason and Wronski (2018) show that greater levels of social sorting in the US, are related to significant increases in affective polarization. Through historical trends, theoretical insights, and contemporary survey data, Mason and Wronski (2018) demonstrate that Republican identities are associated with white, Christian, and conservative identities. Their analysis shows that when Republican and social identities align, they tend to be more affectively polarized than fellow Republicans who have at least one cross-cutting identity. The reverse was also observed, whereby Democrats who identified as secular and non-white, displayed greater levels of animosity towards Republicans than their co-partisans who had cross-cutting identities. These patterns also hold across the globe. In an analysis of partisans in 40 countries spanning over three decades, Harteveld (2021) found evidence that social sorting along partisan lines is commonly associated with increases in affective polarization across a broad range of contexts.

Why should this matter for the polarization between Brexit identities? Political commentators and scholars have commonly remarked that the Brexit vote struck such a sharp chord by tapping into underlying fault lines between the winners and losers of globalisation (Hobolt, 2016, p. 1265). Multiple social division have aligned with Brexit identities, reflecting the sorting seen among partisans in the US (Hobolt, Leeper & Tilley, 2020).

Researchers have examined the group characteristics associated with Brexit attitudes and identity, and find overwhelming evidence that age, educational attainment, ethnicity, class and national identity align with the choice to vote for Brexit (Clarke, Goodwin & Whiteley, 2017; Becker, Fetzer & Novy, 2017; Goodwin & Heath, 2016; Hobolt, 2016, Liberini et al., 2019). It stands to reason that decreased barriers to trade benefit the well-off, young and educated, as they have the social capital to make best use of these conditions (Clarke, Goodwin & Whiteley, 2017). Whereas poorer, less-skilled voters are more likely to perceive, whether accurately or inaccurately, that EU membership will bring greater competition from low-skilled EU immigrant workers and threaten their livelihoods (Clarke, Goodwin & Whiteley, 2017). Furthermore, those that with English national identities, commonly express concerns over cultural protection and pooled sovereignty, whereas British and Scottish identities are associated with more integrationist attitudes (Clarke, Goodwin & Whiteley, 2017).

Research and theoretical insights both suggest that the alignment of social and political identities often leads to greater levels of bias (Brewer, 1999; Harteveld, 2021). When considering that the Brexit vote, and Brexit identities were heavily associated with socio-demographic identities such as age, class and ethnicity, it stands to reason that the outcomes of social sorting espoused by social identity and classical political science theorists, ought to apply. In line with the theory and argumentation above, the following hypothesis is formed:

H_1: Greater levels of social sorting along Brexit lines is associated with greater levels of affective polarization.

Research Design

Data

In order to test the relationship between social sorting and affective polarization between Leavers and Remainers, I utilize a large-N quantitative survey study using data obtained from the 19th wave of the British Election Study Internet Panel (BESIP) (Fieldhouse et al., 2020). This wave of the BESIP is chosen specifically, as it was the first to ask respondents questions related to their animosity towards Brexit-groups. Despite the referendum having happened three years prior, the levels of affective polarization between Leavers and Remainers stayed the same, thereby warranting equal attention (Hobolt, Leeper & Tilley, 2020). The panel survey was conducted online by YouGov between the 13th and 23rd of December 2019 and was administered to a sub-sample of 32,177 respondents aged 16 years and older, obtained from YouGov's sampling pool of over 1 million British adults (Fieldhouse et al., 2020).

Internet surveys have been increasingly used a method of conducting surveys, boasting lower costs than traditional face-to-face or telephone methods, thereby rendering larger sample sizes affordable (Breton et al., 2017). In addition, due to fact that they are self-administered, internet surveys are associated with decreased levels of social desirability bias (Breton et al., 2017), thereby increasing internal validity of the study.

However, there are some noteworthy concerns. The BESIP data utilizes non-probabilistic sampling methods (Fieldhouse et al., 2020), which have been historically shown to overrepresent younger, male and educated citizens (Dassonneville et al., 2018). In addition, they are likely to incur 'coverage error', which relates to concerns that internet surveys may systematically underrepresent the segments of the population that do not have access to the internet (Couper, 2000). Lastly, online election surveys have been shown to

attract respondents who are more politically involved and interested than the average respondent recruited by more conventional probability samples (Chang & Krosnick, 2009).

Fortunately, the 19th wave of the BESIP utilizes YouGov's method of statistical weighting, which weights their data by age, gender, social class, region, level of education and level of political interest, to reduce any potential bias (Fieldhouse et al., 2020). It is still possible, however, that those that take part in the survey may systemically differ on a dimension not included in the weighting or measured by the survey. That being said, the weighting in combination with YouGov's method of quota sampling, ensures that the 19th wave of the BESIP can be used as a cross-sectional representative dataset on the dimensions included in the weighting, allowing for better generalizations to be made, therefore increasing the external validity of this study.

Operationalisation of Dependent Variable: Affective Polarization

Affective polarization relates to the extent to which those with opposing identities view the out-group negatively, and the in-group favourably (Druckman & Levendusky, 2019). Typically, affective polarization is measured through thermometer survey questions, asking respondents to rate the opposing and in-groups, often on a 100-point scale (Iyengar et al., 2019). Other similar operationalisations include trait stereotyping, whereby respondents pick which traits they associate with the different groups, and survey questions relating to how much respondents trust their own and opposing groups (Iyengar et al., 2019).

These measures share a common ambiguity as to whether respondents' answers relate to the evaluations of the group's elite group members such as politicians, or ordinary group-members. Indeed, Druckman & Levendusky (2019) conducted an experiment assessing these general measures among partisans and find that they tend to represent people's opinions on party elites, rather than ordinary partisan voters. Since the central hypothesis is not limited to

polarization regarding Remain or Leave elites, but instead focusses on mass polarization between opposing identifiers, the measures above would not adequately capture the relationship in question.

A more appropriate method for assessing affective polarization are social distance measures. These work by gauging and comparing emotive responses to hypothetical interactions with in and out group members (Iyengar et al., 2019). The greater the difference between respondents' willingness to enter close inter-personal relationships with in and out group members, the greater their level of affective polarization (Iyengar, Sood & Lelkes, 2012). These social distance measures have been validated by Duckman and Levendusky (2019), who show that these questions explicitly tap into respondents' feelings toward ordinary group members, instead of group elites.

A prominent social-distance question used to measure affective polarization utilized by Iyengar, Sood and Lelkes (2012) asks respondents how comfortable they would be with their child marrying someone from opposing and congruent groups. Social distance is calculated by subtracting the self-reported level of comfort of having an out-party child in-law from the level of having an in-party child in law (Iyengar, Sood & Lelkes, 2012). Therefore, the greater the difference between their responses, the greater the level of affective polarization. Considering the aims of the study and the focus on polarization among mass Brexit-group identifiers, this study utilizes the Iyengar, Sood and Lelkes's (2012) social distance question as a measure of affective polarization.

To do so, I first determine the person's group status. This is done using a survey question, asking a respondent how they voted in the 2016 Brexit referendum. Admittedly, this is not a strong measure of whether a person identifies with Leave or Remain. However, Hobolt, Tilley & Leeper (2020), show that 75% of people who voted in the referendum,

identified with their Brexit side, indicating their Brexit choice to be a broader political identity beyond a mere policy choice. Furthermore, prior studies analysing the strength of partisan identities and affective polarization have argued that measures that fail to directly tap into the social identity aspect of group membership tend to downplay the relationship between identity and polarization (Mason, 2015). The following results should therefore be seen as a conservative test of the relationship between affective polarization and identity-based mechanisms related to social sorting.

Once a respondent's group membership is ascertained, the social distance score is calculated by utilizing a pair of questions administered in the BESIP (Fieldhouse et al., 2020). Respondents were asked how they would feel having a son or daughter who married someone who votes for Leave and Remain. The responses are coded on a 4-point scale ranging from 1 (Very unhappy) to 4 (Very happy). Social distance is then calculated by subtracting the response for out-group in-laws from the response given for in-group in-laws. For example, a Remain respondent who would be 'somewhat unhappy' (coded as 2) with having a Leaver as an in-law, and 'very happy' (coded as 5) with a Remainer as an in-law, would receive an affective polarization score of 3. Rather than use the absolute difference, negative scores are included as they represent a situation in which people are affectively polarized against their own party. The central hypothesis states that sorting leads to greater levels of animosity towards out-group members. Including the absolute scores of people polarized against their own party would obscure whether a respondent's polarization is directed at in-group or out-group members. Since the direction of polarization matters, raw scores are used.

As shown in Table 1, the affective polarization variable has a range of 9, with minimum value of -4, and a maximum value of 4. Interestingly, 190 respondents had negative social distance measures, meaning that they would rather have their child marry an

out-party in-law than one from the respondents' own side. The modal value for the affective polarization variable is 0, however, the mean for all respondents is equal to 1.1, with a standard deviation of 1.5. The results of an independent t-test, equal variances not assumed, show that Remainers (M = 1.3, SD = 1.6) are more affectively polarized than Leavers (M = 0.8, SD = 1.5), with the difference being statistically significant $t(4728.141)$, $p < 0.001$. These results echo results found by Hobolt, Leeper and Tilley (2020), who similarly find Leavers to be more likely to support inter-group marriage than Remainers.

Table 1

Frequency table of affective polarization variable

Affective Polarization	Leave		Remain		Full Sample	
	n	%	n	%	n	%
-4	18	0.7	2	0.1	20	0.4
-3	8	0.3	9	0.4	17	0.4
-2	33	1.3	21	0.9	54	1.1
-1	52	2.1	47	2.0	99	2.0
0	1490	59.7	990	42.8	2480	51.6
1	193	7.7	233	10.1	426	8.9
2	292	11.7	380	16.4	672	14.0
3	195	7.8	345	14.9	540	11.2
4	214	8.6	287	12.4	501	10.4
Total	2495	100	2314	100	4809	100

Operationalisation of Independent Variable: Social Sorting

In H1 I argued that social sorting, understood as an alignment of social divisions with Brexit identities, would lead to greater levels of affective polarization. Consistent with prior literature on social sorting and affective polarization, this paper utilizes Hartveled's (2021) measure of social sorting. Following Harteveld (2021), an OLS model is constructed predicting Brexit vote using variables shown to be theoretically salient and aligning with Brexit choice. In our model these include ethnicity, nationality, age, educational attainment,

and class (Clarke, Goodwin & Whiteley, 2017; Becker, Fetzer & Novy, 2017; Goodwin & Heath, 2016, Hobolt, 2016, Liberini et al., 2019). Finer geographical identities beyond nationality were not included, as despite the perception propagated by political commentators that Brexit was a vote between rural and urban dwellers, empirical analysis shows regional identities to be inconsequential for predicting Brexit vote choice when other characteristics such as age and education are included in the analysis (Manley, Jones & Johnston, 2017).

All predictors in the model were statistically significant predictors of Brexit vote choice ($p < 0.001$), with the directional effects corresponding with previous findings. For example, age was positively associated with Brexit vote choice, as was white ethnicity when compared to those that were non-white (Clarke, Goodwin & Whiteley, 2017). Furthermore, highly educated respondents holding an undergraduate degree or higher were less likely to vote for Brexit than those with A-levels or lower (Clarke, Goodwin & Whiteley, 2017; Hobolt, 2016; Manley, Jones & Johnston, 2017). The full results of this regression model can be found in Appendix A.

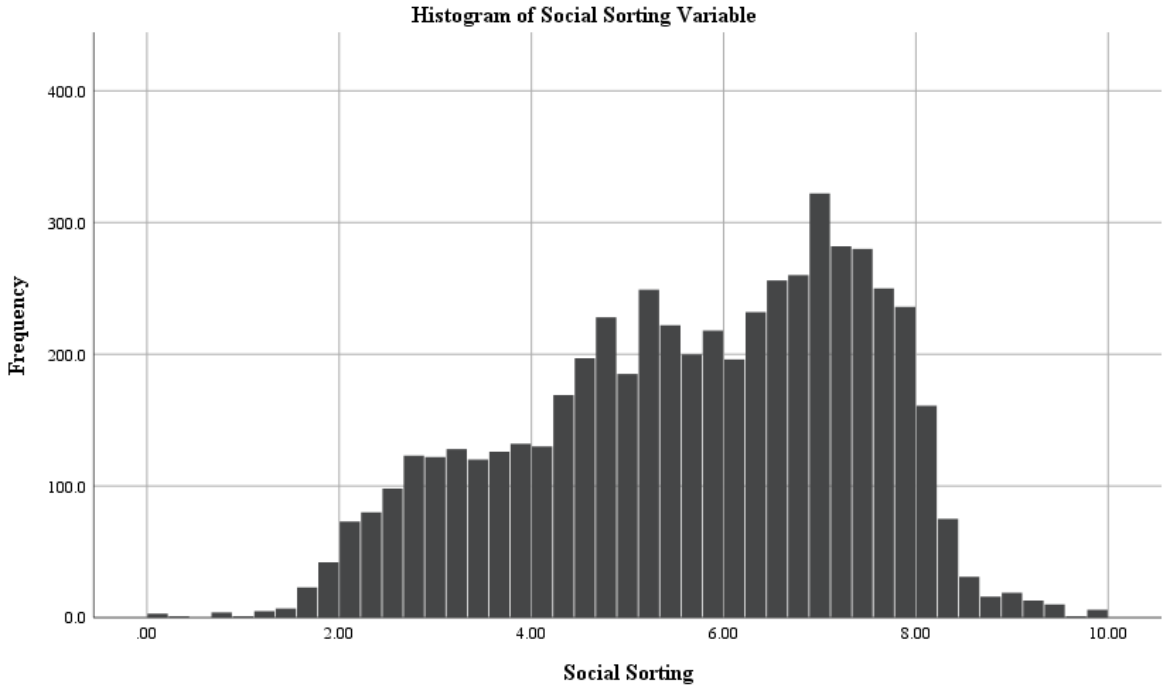
Upon this, for each individual their residuals according to the model are calculated. The logic here is that people who do not fit the characteristic composition of their Brexit group, will obtain a larger absolute residual score (Harteveld, 2021). Since the hypothesis states greater levels of social sorting relates to greater levels of affective polarization, the final sorting score is computed by subtracting the absolute residual from one, thereby ensuring higher results represent greater levels of sorting. The results are then rescaled by multiplying them by 10, to aid easier analysis of the results.

Overall, as shown in figure 1, the social sorting variable contains values ranging from a minimum of 0, to a maximum of 10. The responses are negatively skewed, with the modal level of social sorting approximately lying at 7.0, at which point the frequencies of higher

sorted individuals strongly drops. The average of all respondents is 5.7, with a standard deviation of 1.8 to one decimal point. When running an independent t-test between the mean level of sorting among Leavers and Remainers, we find that those that voted to Remain (M = 5.6, SD = 1.8) were marginally, yet significantly more sorted than those that voted Leave (M = 5.8, SD = 1.7), t(4692.937), $p < 0.001$.

Figure 1

Histogram showing frequency distribution of social sorting scores



Model

A hierarchical regression model is used, wherein the dependent variable is treated as continuous. Doing so assumes that the relationship between the independent variables and dependent variables is linear, and that a one-point increase from 0 to 1 in affective polarization represents an equal magnitude of change as an increase from 2 to 3. The assumptions relating to independence of errors and multi-collinearity are held. However, considering figure C1 and C2 shown in Appendix C, it appears that the data is heteroscedastic

and may be non-normal. Fortunately, according to central limit theorem, with large samples such as the one used in this study, the assumption of normality is likely to be true regardless of the shape of the population (Field, 2018). Heteroscedastic data, however, is more problematic as it can make significance tests unreliable (Field, 2018). Resultantly, in order to obtain more 'robust confidence intervals and statistical tests', bootstrapping is utilized, as recommended by Field (2018, p. 566). For a more detailed discussion about the assumptions, see Appendix C.

Control variables are included in order to account for any potential confounders and decrease bias in the model. Prior research on social sorting controls for mostly time-invariant socio-demographic variables such as education, age and gender, and as such are included as controls in this study (Harteveld, 2021; Mason, 2016). Although education and age are used to calculate the social sorting score, including them in the main model ensures that the effects of social sorting are not confounded by any explanatory power held by the demographic variables. Political interest is also controlled for, as those that are politically interested may be more likely to be affectively polarized (Rogowski & Sutherland, 2015) and may be more likely to be sorted (Harteveld, 2021). Furthermore, a variable measuring ideological extremity is included. Holding extreme ideological preferences has been shown to be associated with increased levels of heuristic processing and heightened levels of prejudicial behaviour (Brown & Hohman, 2022; Golec de Zavala, Guerra & Simão, 2017). It is therefore important to include, as the relationship between sorting and affective polarization could theoretically be driven by extreme ideologues. This variable is measured by folding an ideology scale such that those on either extreme end of the left-right spectrum have a higher score, with centrists being closer towards zero. A more detailed description of these variables and their coding can be found in Appendix B

Results

Hypothesis 1 states that greater levels of social sorting should lead to greater levels of affective polarization among respondents and their opposition Brexit identifiers. The outcomes of two linear regression models testing this hypothesis are shown in Table 2. Bias corrected and accelerated bootstrap (BCa) 95% confidence intervals are reported in square brackets.

Model 1 shows the results for affective polarization regressed on social sorting alone. I find that a one-point increase in the level social sorting relates to a statistically significant 0.124 [BCa CI: 0.092, 0.160] increase in the level of affective polarization, controlling for no other variables ($p < 0.01$). Model 2 shows a similar positive relationship when controlling for political interest, ideological extremity, age, education level, and gender. All else held constant, a one-point increase in social sorting is associated with a 0.117 [BCa CI: 0.084, 0.153] increase in affective polarization. The coefficient for social sorting is also statistically significant ($p < 0.01$). The bootstrap confidence intervals of both coefficients do not contain a zero value, therefore further indicating a positive relationship between social sorting and affective polarization, and tempering concerns of statistical validity relating to normality or heteroscedasticity.

High statistical significance may mean little in terms of substantive effect. Utilizing Weaver and Dubois's (2012) !OLScomp tool for comparing coefficient estimates, I estimate the predicted level of affective polarization between a respondent who has a very low social sorting score of one, and a respondent with a much higher score of nine. This is done whilst holding the control variables constant at the mean level of political interest (7.0), ideological polarization (4.2), age (56) and the modal responses for gender (female) and level of education (A-levels or lower). Those that are highly characteristically divergent from their

Table 2

Hierarchical regression model predicting affective polarization

	Model 1	**Model 2**
(Constant)	0.334** [0.122, 0.524]	-0.266 [-0.595, 0.490]
	(0.090)	(0.170)
Social Sorting	0.124** [0.092, 0.160]	0.117** [0.084, 0.153]
	(0.017)	(0.017)
Political Interest		0.103** [0.079, 0.128]
		(0.013)
Ideological Extremity		0.055** [0.036, 0.076]
		(0.010)
Age		-0.005* [-0.008, -0.001]
		(0.002)
Education Level		
(Ref. = A-levels or Lower)		
University or higher		0.241** [0.121, 0.352]
		(0.062)
Gender (Ref. = Female)		
Male		-0.257** [-0.374, -0.144]
		(0.058)
R^2	0.020	0.075
Adj. R^2	0.019	0.073
N	3672	3672

Note: OLS Regression coefficients with bias corrected and accelerated (BCa) 95% lower and upper confidence intervals in square brackets. Standard errors in round brackets
***p < 0.001, **p < 0.01, *p < 0.05

Brexit group norm are on average less affectively polarized (predicted value = 0.707 [CI: 0.553, 0.862]) than those whose social divisions are highly aligned with their Brexit identity (predicted value = 1.450 [CI: 1.330, 1.571]). The difference in predicted level of affective polarization between low and high sorted individuals is approximately 0.74 scale points, which roughly represents 8% of the length of the scale. Models 1 and 2 therefore provide evidence in favour of Hypothesis 1.

Looking at the control variables included in model 2, a one unit increase in a respondent's level of political interest was associated with a 0.103 [BCa CI: 0.084, 0.153] scale unit increase in affective polarization ($p < 0.01$). When holding the categorical variables constant at their mode, and holding the continuous values constant at their mean, the predicted difference between highly politically interested (score of 10 on a scale of 11) and disinterested respondents (score of 1) was equal to 1.090 scale points [CI: 0.892, 1.289]. This represents roughly 12% of the total scale. This suggests that political interest has a larger substantive effect on affective polarization than social sorting. Those with a university degree or higher are significantly more affectively polarized than those with lower levels of education ($p < 0.01$). Age was negatively associated with affective polarization ($p < 0.05$), as was the male gender compared with female ($p < 0.01$).

In addition, ideological extremity was a significant predictor, with a one-point increase in ideological extremity leading to a 0.055 [BCa CI: 0.036, 0.076] increase in affective polarization ($p < 0.01$). Holding all else constant at their modes and means, the difference between centrists (score of 1 on a scale of 11) and extreme ideologues (score of 10) lies at 0.542 [CI: 0.390, 0.693], representing 4.91% of the scale. Despite research suggesting that extreme ideologues tend to 'support conventionalism, order, and a non-diverse environment' (Golec de Zavala, Guerra & Simão, 2017, p. 3), I find little evidence suggesting that they are more socially sorted. Running a Pearson product-moment correlation

testing the relationship between social sorting and ideological extremity, finds no statistically significant correlation, $r(3680) = 0.013$, $p = 0.44$. Indeed, this is reflected by the significant coefficient for social sorting in model 2, indicating that the results are not confounded by the controls included in the model.

In order to check the robustness of my results when using different operationalisations of affective polarization, the regression models are re-run, whereby the absolute values of respondents' affective polarization scores are used as the dependent variable. See Appendix D for a full table of results. The coefficients echo the relationships found when using the initial measure, where holding all controls constant, a one unit increase in sorting is positively associated with a 0.094 [BCa CI: 0.066, 0.124] scale unit increase in the level of affective polarization ($p < 0.05$). The BCa bootstrap confidence intervals do not include a zero, meaning that the positive relationship holds even under conditions of heteroscedastic and non-normal data.

. In sum, those that are more socially sorted are significantly and substantively more affectively polarized.

Conclusion

Scholars and policymakers are eager to understand the factors contributing to affective polarization due to the danger it poses to democratic discourse, trust in institutions, and unbiased evaluations of leaders (Hobolt, Leeper & Tilley, 2020). Scholars have argued that polarization between political identities can be understood by looking at psychological mechanisms relating to group memberships and identity (Iyegnar et al., 2019; Mason, 2015; Mason, 2016; Mason & Wronski, 2018; Harteveld, 2021: Roccas & Brewer, 2002). One prominent conclusion shown to apply between partisans in the US and worldwide, is that when partisan identities correlate highly with other divisions in society, people tend to

express greater animosity toward those considered as out-groups (Mason & Wronski, 2018; Harteveld, 2021). Noting a similar phenomenon of social divisions aligning with those that voted to Leave and Remain, I argued that the outcomes observed between partisan social sorting, ought to apply to the animosity observed between Brexit identities. Indeed, by conducting a study utilizing BESIP survey data from 2019 (Fieldhouse et al., 2020), I find that as the level of social sorting among Brexit voters increases, so does the observed degree of affective polarization. However, there are some important limitations that have theoretical significance and alter the implications one may draw from the results.

In this study I used groups that were shown in previous literature to be objectively aligned with Brexit identities but did not include a measure relating to how important people themselves view these group memberships. As mentioned before, sorting only leads to greater potential for bias when the identities are salient and important for an individual's understanding of the world and their place in it (Brewer, 1999; Mason & Wronski, 2018; Roccas & Brewer, 2002). If Brexiteers were hypothetically aligned with non-salient identities, such as a preference for Worcester sauce over Henderson's relish, this is unlikely to lead to any affective responses unless this divide became important enough. Of course, for the alignment of political and non-political identities to lead to prejudice, objective alignment of group memberships is a necessary condition (Brewer, 1999). This is perhaps why I find significant results. However, the strength of the resulting affective responses may well be conditional on the subjective value of these aligned identities. I encourage further future research to investigate the relationship between the objective alignment of identities and their subjective value to individuals.

In addition, a respondent's social identity complexity, and the saliency of identities may also be impacted by the perceived degree of societal social sorting (Mason & Wronski, 2018). For example, Ahler and Sood (2018) show that Americans tend to overestimate the

degree to which salient political and social identities align. The modal Republican and Democrat supporters are middle-aged, white and Christian (Ahler & Sood, 2018). However, the American public tend to associate Democrats as young secular urbanites (Ahler & Sood, 2018). Overall, Ahler and Sood (2018) show that American respondents overestimate the levels of sorting by a factor of 342% (p. 966). Indeed, when correcting these misperceptions, the levels of affective polarization among respondents decreases (Ahler & Sood, 2018). This suggests that people's understanding of how society is structured has a significant impact on their social identity complexity, with greater levels of perceived societal sorting leading to decreased awareness of cross-cutting group memberships. Ideally, one would conduct a study in which objective and subjective individual sorting, and objective and perceived societal sorting is measured. Testing the relationship between these factors could help make sense of the interrelated mechanisms between societal and individual level factors.

These limitations and omissions may however bode positive news for the implications of this study. Having shown that objective levels of social sorting increases affective polarization, one might draw the conclusion that there are no immediate remedies that policy makers could utilize to decrease this affective divide, especially given that sociodemographic group memberships such as gender and class are not particularly time-variant. However, by noting that the saliency and subjective value of the aligned divisions are important and potentially fluid (Brewer, 1999), policymakers and stakeholders could try to promote the importance of common cross-cutting identities. There is evidence to support this kind of intervention yielding positive results, with Levendusky (2018) reducing the levels of affective polarization among partisans by priming their common American national identity. This may not work as well for England, Scotland and Wales, as priming national identities would likely lead to greater affective polarization, since they are correlated with Brexit identities. However, an (inter)national public health emergency such as Covid-19, which threatened to

overwhelm the United Kingdom's central health services, could have been an adequate catalyst for common British identities to override the saliency of Brexit and related identities, thereby reducing the polarization between Leavers and Remainers. Suggestive of this possibility, Boxell et al. (2022) find that affective polarization among American partisans following the COVID-19 pandemic remained unchanged or decreased, depending on the data source they examined. Resultantly, further research could investigate the effects of the COVID-19 on Brexit based polarization to see if the outcomes predicted by social identity mechanisms similarly apply.

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Appendix A

OLS regression predicting Brexit vote

Table A1

Linear regression model predicting likelihood to vote Leave.

	Model 1
(Constant)	0.1575
	(0.0176)
Age	0.0057***
	(0.0004)
Ethnicity (Ref. = Non white)	
White	0.1244***
	(0.0136)
Education Level (Ref. = A-Levels or lower)	
University or higher	- 0.2285***
	(0.0069)
Class (Ref. = Middle Class)	
None	0.0729***
	(0.0087)
Working Class	0.0989***
	(0.0084)
Other	0.0870***
	(0.0281)
Country (Ref. England)	
Scotland	-0.1763***
	(0.0118)
Wales	-0.0553***
	(0.0149)
R^2	0.1369
Adj. R^2	0.1366
N	20570

Note: OLS regression coefficients with standard errors in brackets.
***p < 0.001, **p < 0.01, *p <0.05

Appendix B

Coding and measurement of control variables

Table B1

Table showing coding and description (if necessary) of control variables

Variable	Coding	Description
Age	Discrete age in years	
Gender	0 = 'Female' 1 = 'Male'	
Education	0 = A-Levels or lower 1 = University or Higher	BES level of education recoded into a dichotomous variable.
Ideological Extremity	11 – point scale, where 0 represents centrists, and 10 is an extreme ideologue.	Created by folding respondents' placement on the BES 20-point left-right ideology scale that has values ranging from 0 to 10. For example, an extreme left respondent with a score of 1, and an extreme right respondent with a score of 9 in the BES ideology scale, would both be represented by a value of 9 in the ideology extremity variable.

Political Interest	11-point scale ranging from 0 (no interest), to 11 (pay a great deal of attention)	

Appendix C

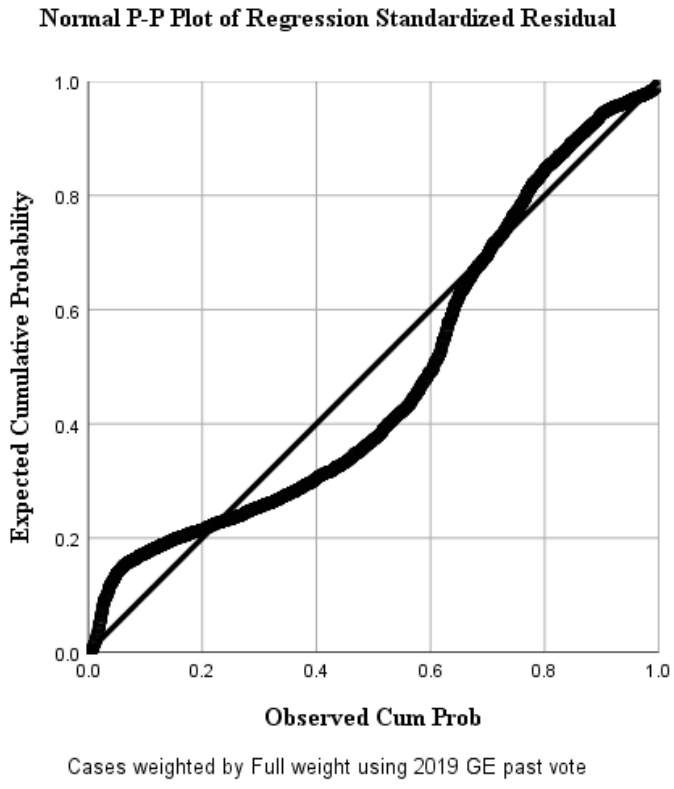
Linear regression assumption checks

Normality of Residuals

For significance tests to be accurate, the sampling distribution of what is being tested must be normal. By looking at Figure C1, there may be cause for concern. Fortunately, central limit theorem states that the assumption likely holds when using large samples (Field, 2018, p. 374). Nonetheless, it is advisable to use bootstrapping for more robust confidence intervals and statistical tests (p. 465).

Figure C1

Normal P-P plot of regression standardized residual

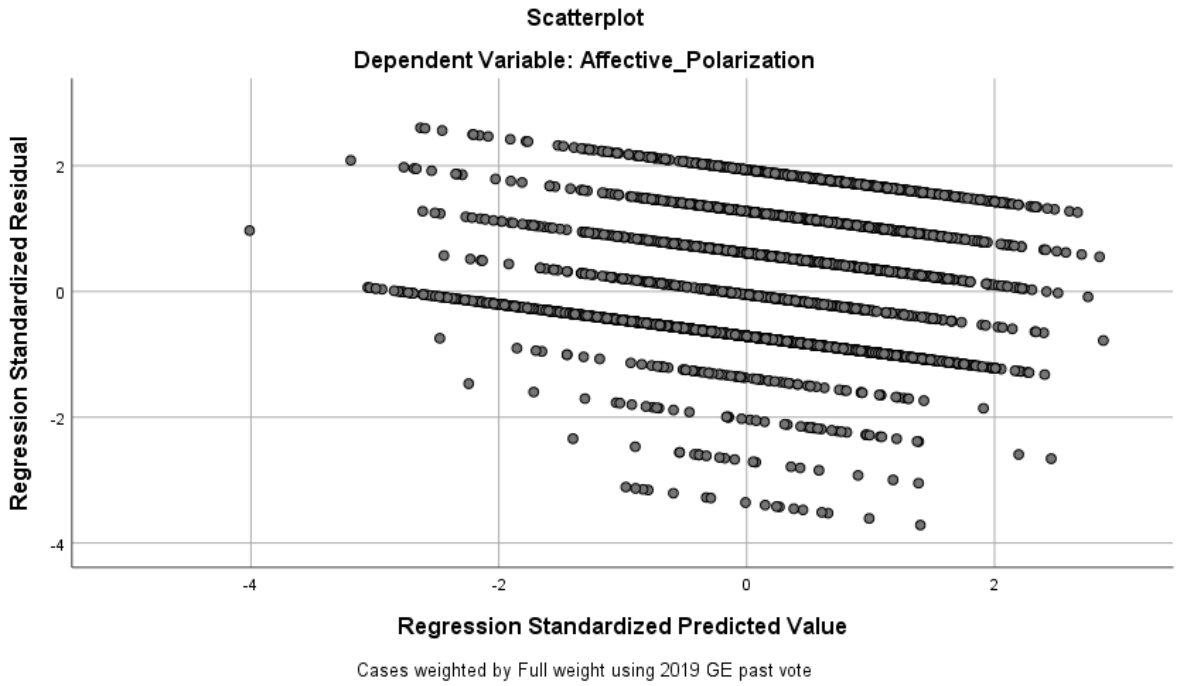


Homoscedasticity

Figure C2 suggests the assumption of homoscedasticity is not met. By looking at the plot of standardized predicted values against standardized residuals, we do not see a random array of dots, and instead see an upward funnel trend. An assumption of test statistics is that the variance of the dependent variable is equal across values of the independent variable (Field, 2018, p. 531). If the variances aren't equally spread, it just means that the estimates of the parameters aren't entirely optimal, but they are largely unbiased (Field, 2018, p. 514.). This is mainly a problem for significance tests and can make them unreliable, leading Field (2018) to recommend bootstrapping to obtain more robust tests of significance (p. 566).

Figure C2

Scatterplot of standardized predicted values by standardized residuals.



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Linearity

Figure C2 showing a scatterplot of standardized predicted values by standard residuals doesn't suggest a major issue with linearity, as the tell-tale sign of non-linearity whereby there is a distinct, observable curve in the plot, is not present (Field, 2018, p. 358). This makes it appropriate to use OLS regression.

Multi-collinearity

Since all VIF values are below 5, we can safely assume per Field (2018, p. 532), that the predictor variables are not collinearly related. In addition, the tolerance statistics are all above 0.2, further suggesting there to be no multicollinearity.

Table C1

VIF and tolerance values for model 2, Table 2

	VIF	**Tolerance**
Social Sorting	1.004	0.996
Political Interest	1.070	0.934
Ideological Extremity	1.015	0.985
Age	1.075	0.931
Education Level	1.091	0.917
Gender	1.049	0.953

Appendix D

Check of results for alternative affective polarization measure

Table D1

Hierarchical regression predicting absolute affective polarization

	Model 1	**Model 2**
(Constant)	0.592** [0.422, 0.775]	-0.088 [-0.398, 0.263]
	(0.090)	(0.162)
Social Sorting	0.102** [0.070, 0.131]	0.094** [0.066, 0.124]
	(0.015)	(0.015)
Political Interest		0.110** [0.085, 0.135]
		(0.012)
Ideological Extremity		0.065** [0.046, 0.086]
		(0.010)
Age		-0.005** [-0.008, -0.001]
		(0.002)
Education Level		
(Ref. = A-levels or Lower)		
University or higher		0.226** [0.119, 0.325]
		(0.050)
Gender (Ref. = Female)		
Male		-0.245** [-0.347, -0.136]
		(0.049)
R^2	0.015	0.087
Adj. R^2	0.014	0.086

N	3672	3672

Note: OLS Regression coefficients with bias corrected and accelerated (BCa) 95% lower and upper confidence intervals in square brackets. Standard errors in round brackets.
***p < 0.001, **p < 0.01, *p < 0.05