

First draft[†]

Can the tabloid media create Eurosceptic attitudes? A quasi-experiment on media influence in England

Florian Foos*
Daniel Bischof[‡]

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Abstract

Are changes in citizens' attitudes towards EU-integration endogenous to campaigns by tabloid media outlets? The question to what extent public opinion is a consequence, rather than a cause of media reports is difficult to answer because citizens self-select into media consumption. We use a unique quasi-experiment in the United Kingdom – the widespread boycott of the most important right-wing tabloid newspaper, the Sun, in Merseyside county as a direct consequence of the Sun's reporting on the 1989 Hillsborough soccer disaster – to identify the effects of reading the Sun on attitudes towards leaving the EU. Using a difference-in-differences design based on British Social Attitudes data spanning the years from 1983 to 1996, we show that this specific event caused a sharp drop in Sun readership in Merseyside. We also show that attitudes towards the EU got significantly more positive in Merseyside during the boycott, compared to attitudes of respondents in other English regions. We estimate that this effect amounts to around 11 percentage-points. The results of this paper have important implications for our understanding of media effects, and suggest that the tabloid media played a role in influencing attitudes towards leaving the EU.

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*Department of Political Economy, King's College London (UK); florian.foos@kcl.ac.uk. We are grateful for comments by Stuart Wilks-Heeg, and Dominik Hangartner.

[‡]Department of Political Science, University of Zurich (CH); bischof@ipz.uzh.ch.

1 Introduction

How the media shape public opinion on important political issues is a key question to research on democracies (Bartels 1993; Erikson 1976; Klapper 1960; Ladd and Lenz 2009; Lazarsfeld, Berelson, and Gaudet 1948; Lippmann 1921; Mutz and Martin 2001; Zaller 1996). At least since the 17th century democratic theorists assign a crucial role to the mass media, and specifically the press, in informing and to enlightening citizens (for a summary of these arguments, see: Holmes 1991).¹ Classical readings frequently employ superlative terms in relation to the press such as “the watchdog”, the “guardian of public interest” or the “Fourth Estate” when referring to the media in this context (Holmes 1991).

While much of the literature in democratic theory hence sees the media as a force with the potential to empower citizens in a democracy, and to hold the government and business accountable, there is also a darker side to media influence, especially if it is concentrated in the hands of a few influential individuals (Lukes 1974). According to this view of media power, the media can manipulate public opinion to suit the interests of a narrow economic and political elite (Horkheimer, Adorno, and Noeri 2002). The media influence public opinion by politizising issues, keeping other issues off the political agenda, and by suggesting what and how citizens think about specific issues (Lukes 1974). As Lippmann (1921) wrote:

“Under the impact of propaganda, not necessarily in the sinister meaning of the word alone, the old constants of our thinking have become variables. It is no longer possible, for example, to believe in the original dogma of democracy; that the knowledge needed for the management of human affairs comes up spontaneously from the human heart (Lippmann 1921: Chapter XV).

Lippmann (1921) emphasizes that individual attitudes that aggregate into public opinion do not arise out of a vacuum or solely out of the lived experience of individuals. Instead, they are informed and influenced by elites that use the means of propaganda to shift public opinion in their favour.

No matter to which view of the media one subscribes, both the optimist, enlightenment

¹For instance, Montesquieu describes “publicity” as a cure against corrupt and abusive elites. (Holmes 1991)

view, and the more negative, manipulation view, assume that the media is able to influence citizens, either by providing useful information or by providing misinformation. However, the empirical evidence on the media's ability to influence citizens is far from conclusive. Early studies suggested that public opinion remains mostly stable across time (Klapper 1960; Lazarsfeld, Berelson, and Gaudet 1948; Lippmann 1921), and at best, that media exposure should lead to a reinforcement of existing attitudes (Sherrod 1971; Shrum 2002). Most prominently Klapper (1960) concluded that, if anything, the media has "minimal effects" – meaning it best the media can prime citizens.

Yet, more recent research casts doubt on these studies, emphasizing that earlier findings on media effects suffer from both methodological as well as conceptual shortcomings (Entman 1989; Bartels 1993; Kinder 1998; Ladd and Lenz 2009; Terkildsen and Schnell 1997). Recent research emphasizes that in several instances the media can affect public opinion (Baum and Potter 2008), especially on issues which are relatively unobtrusive to the public – such as issues of foreign policy (Baum 2002; Iyengar and Simon 1992). In the European context, the European Union (EU) is frequently described as an unobtrusive, technocratic, institutional puzzle both by the tabloid media as well as the general public (Kritzinger 2003). Specifically during the UK's Brexit campaign mainstream media, pundits and academics frequently suggested that British tabloids had a crucial impact on how the public perceived the campaign and how the public felt about the UK leaving the EU.² Also current research suggests that public knowledge about the EU are subject to media effects (Azrout, van Spanje, and de Vreese 2012; Carey and Burton 2004; De Vreese and Boomgaarden 2006; De Vreese, Boomgaarden, and Semetko 2011; Maier and Rittberger 2008). However to the best of our knowledge, we still lack robust *causal* evidence on whether and how the tabloid media affects public opinion on Euroscepticism.

Existing research faces several challenges in making robust causal inferences about the relationship between the media and public opinion regarding EU membership. First, in general, traditional media environments are fairly stable (*low variation*). Thus, empirically, the relative stability of the media environment makes it difficult to disentangle the effects of specific newspapers or television stations on public opinion. This means that the impression of

²The Guardian: [Did the Mail and Sun help swing the UK towards Brexit?](#); NYT: [To Understand 'Brexit', Look to Britain's Tabloids](#); Simon Wren-Lewis: [Leave and the Left Behind](#).

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minimal effects can arise because we are methodologically unable to study the effects of entire media organizations or media agendas on specific issues, and are left with studying smaller interventions that are manipulatable by researchers, for instance in survey experiments. Second, there is a consensus that there is a lack of credible measures of individuals' media exposure. Even if such measures exist, they usually suffer from severe *selection biases*. Most crucially individuals tend to self-select into media exposure, with self-selection being strongly driven by partisan and ideological reasoning. Third, mass media not only set the agenda, but also follow the political agenda, and are responsive to public opinion (*reverse causation*). Specifically the last two problems above make causal inference about important media effects extremely difficult – if not impossible for most studies.

Using a quasi-experimental design we attempt to address the three problems discussed above. Experimental (Gerber, Karlan, and Bergan 2009) and quasi-experimental designs (De-laVigna and Kaplan 2007; Ladd and Lenz 2009; Martin and Yurukoglu 2017) have been most successful in studying the causal effects of the media on political outcomes, and public opinion. Designs range from the random assignment of newspapers subscriptions (Gerber, Karlan, and Bergan 2009), over an unexpected change in party endorsement (Ladd and Lenz 2009; Reeves, McKee, and Stuckler 2016), to the placement of television channels on the remote control (Martin and Yurukoglu 2017).

Our design rests on a specific historical event, the Hillsborough disaster, a human crush at Hillsborough soccer stadium in Sheffield, England, on 15 April 1989, which led to the boycott of the Eurosceptic tabloid “The Sun” in Merseyside (UK). Importantly, this boycott was not triggered by the eurosceptic slander of “The Sun”, but by its extremely biased reporting on the disaster. The boycott was hence orthogonal to EU attitudes because it was triggered by a sports event, and therefore both *selection biases* and *reverse causation* are unlikely to explain the much greater decline in Sun readership in Merseyside after the disaster, compared to other areas in the UK. Moreover, the only large-scale, and enduring boycott of the nation's most important tabloid newspaper is a sufficiently large and important event to allow us to estimate the effects of a powerful news organisation on EU scepticism, addressing the methodological concern that often important causes are difficult to manipulate.

2 Conditions favorable to media influence: An unobtrusive issue subject to one-sided messaging

Using a difference-in-differences design based on yearly British Social Attitudes data spanning the years from 1983 to 1996, we show that this specific event caused a sharp drop in Sun readership in Merseyside. We also show that respondents' attitudes towards the EU got significantly more positive in Merseyside after the boycott, compared to attitudes of respondents in the UK as a whole, and other Northern cities.

Our findings suggest that the tabloid media had a severe influence on public perceptions of the EU. The substantial size of our effect – around 10 percentage-points – speaks also to previous research finding comparable media effects on voting intentions (e.g. Ladd and Lenz 2009; Reeves, McKee, and Stuckler 2016; DellaVigna and Kaplan 2007; Martin and Yurukoglu 2017). Several implications can be drawn from our study. On the one hand, it appears that the public actively used information that they receive via media to become informed about what was then a relatively unobtrusive issue – the EU. On the other hand, simple messages spread via by the tabloid media stuck with parts of the public. A well-organised and sustained media campaign, especially if it is characterised by one-sided messaging, can hence have important consequences for public opinion. Consistent with our findings, the Sun's 20 years campaign against British EU membership might hence contributed to laying the groundwork for one of the most consequential public policy decisions in recent history, the UK's decision to leave the European Union in the 2016 EU referendum.

2 Conditions favorable to media influence: An unobtrusive issue subject to one-sided messaging

In the current polarizing times, characterized by strong two-sided messaging against or in favor of the EU, we should not expect strong persuasive effects of media exposure as subjects increasingly consume media outlets that are aligned with their political preferences (Chong and Druckman 2007). Under these circumstances we should observe the polarization of political attitudes, instead of a shift in the population mean. This is what DellaVigna and Kaplan (2007) and Hopkins and Ladd (2014) find in their papers about Fox News consumption in the United States. Lately, the EU issue has also been subject to increased visibility since the rejection of the European constitutional treaty in France and the Netherlands in 2004, the latest

2 Conditions favorable to media influence: An unobtrusive issue subject to one-sided messaging

economic and financial crisis, and the Brexit and refugee debates (Boomgaarden et al. 2010).

However, in the late 1980s, and mid 1990s, the period under investigation, news about the EU have been at the margins of the mainstream news media agenda (Peter and De Vreese 2004); only facing singular peaks during crucial moments such as the ratification of the Maastricht treaty, and the UK's withdrawal from the ECU.

Arceneaux and Kolodny (2009) show based on a randomized field experiment that campaign messages influence attitudes and issue salience on emerging, but not on established issues. In the 1980s and 1990s, the EU issue could be classified as an emerging issue, which was politicised by issue entrepreneurs (De Vries and Hobolt 2012; Hobolt and de Vries 2015). Combined with sustained one-sided messaging (Chong and Druckman 2007) from campaigning media outlets, an emerging issue provides optimal conditions for slanted media coverage to have large and durable effects on public opinion. If this one-sided messaging on an issue of paramount public policy importance is not countered by political elites and the mainstream media, campaigning papers such as "The Sun" or the "Daily Mail", which succeed at framing and politicizing an issue, can fuel a perfect storm.

2.1 How the media affects euroscepticism: challenges for causal inference

Research on the effects of media persuasion are plagued by several severe methodological challenges. First, in most instances, variation of messages send by the media is low. Since the mid 1980s, in general media outlets and newspapers have been remarkably consistent in their position on the European Union. This might also explain why several studies find no effect or small effects of individual media exposure to EU messages (Carey and Burton 2004; Azrout, van Spanje, and de Vreese 2012). Instead some studies suggest that a country's media environment drives euroscepticism (e.g. Azrout, van Spanje, and de Vreese 2012). This might be case purely because there is more variation of media environments across countries (de Vreese 2001) than there is variation within countries across news outlets.

Furthermore, it remains difficult to conclude that cross-country differences are subject to different media environments and not driven by any other country-specific difference (*confounding*). For instance Lubbers and Scheepers (2010) find that between 1994-2004 Dutch cit-

2 Conditions favorable to media influence: An unobtrusive issue subject to one-sided messaging

izens became more eurosceptic whereas support for the EU increased in Spain for the same period. They suggest that the introduction of the Euro might partly explain this difference. While this seems to be a plausible explanation, any difference between the two countries experienced between 1994 and 2004 might be plausibly responsible for the increase/decrease of Euroscepticism. This problem of confounding became more severe in the last decade with several disruptive and simultaneous events driving the European agenda – such as the European debt crisis, the “refugee crisis” or the Brexit debate.

From a methodological angle, more recent research on the media and EU attitudes addresses concerns about confounding by relying on individual panel studies (Semetko, Van der Brug, and Valkenburg 2003; De Vreese and Boomgaarden 2006; Azrout, van Spanje, and de Vreese 2012). While improving on the issue of confounding compared to cross-sectional data, and more carefully investigating the low variation of media messages, these studies rely on respondents’ self-reported exposure to media environments, and in the absence of a clear identification strategy, are still subject to time-variant confounders and sample attrition. This is troublesome for various reasons. First, studies frequently rely on general questions about media exposure – e.g. number of days watching television news (De Vreese and Boomgaarden 2006). Studies relying on such questions at best can differentiate between respondents *amount* of exposure. But in essence, the crucial comparison of interest for causal claims is the difference between respondents without exposure and people with *any* exposure. More crucially, researchers are also interested in the specific type of media that respondents are exposed to. For instance, in the British case the effect of exposure to a yellow press tabloid such as the Sun is likely different from reading the Guardian. Nevertheless, even if panel respondents are asked about which news outlets they consume, citizens still self-select into exposure. This selection process is likely to be correlated with several factors, with political ideology being a major driver. When respondents select into media which coincide with their political ideology, differentiating the cause from the effect of media exposure becomes impossible.

Lately scholars have also employed survey experimental designs to address issues of confounding (Schuck and De Vreese 2006; Maier and Rittberger 2008; De Vreese, Boomgaarden, and Semetko 2011). These studies report consistent effects of media exposure on attitudes

towards the EU. However they suffer from questions of external validity, and durability. For instance, Maier and Rittberger (2008) build their sample on 95 undergraduates at the University of Kaiserslautern (Germany). Leaving aside the small sample size, this is a peculiar sample of respondents, which makes it virtually impossible to generalise from the sample to the broader population of interest.

In summary, while literature reports mixed findings on the influence of the media on Euro-sceptic attitudes, previous research suffers from several issues making it difficult to sustain causal claims about media effects on Euroscepticism. While findings are mixed (Hobolt and de Vries 2016: 421-423), from a theoretical perspective the period under investigation lends itself to strong media effects because it is characterised by sustained populist, one-sided messaging from newspapers with a large audience, on a relatively inobtrusive and technical issue.

3 The Hillsborough Disaster

We seek to address these issues of causal inference by relying on a quasi-experiment, exploiting exogenous differences in exposure to the most important tabloid paper in the UK (The Sun), as a direct consequence of the “Hillsborough Disaster”. On 15 April 1989 Liverpool F.C. was playing Nottingham Forest in the semi-finals of the British Football Association (FC) Cup at the Hillsborough stadium located in Sheffield (UK). Originally the match was scheduled to start at 3 pm. Yet, approximately at 2.30 pm large crowds – largely Liverpool FC supporters – started gathering in front of the stadium. At that time the police officer in charge of the site became aware that police started losing control of the masses. At 2.47 pm the commander in chief decided to ask staff to open the exit gates of the stadium (Jemphrey and Berrington 2000: 472-476; Scration 2004).

At 2.52 pm the gates were opened for about five minutes. Roughly 2000 Liverpool FC supporters found their way into the stadium. Once the match was underway the exit gates were opened again and more supporters entered the stadium. This uncontrolled instreaming of ever more people led to a overcrowding of the stadium, specifically of the side pens (Jemphrey and Berrington 2000: 472-476). Since the stands were separated from the pitch by tall fences, people had no possibility to escape and run on the pitch. This eventually led to ninety-six

people losing their lives, hundreds being injured and thousands traumatized (Scrutton 2004; Wright 1993; Wright, Gaskell, and O’Muirheartaigh 1998).

3.1 The Sun’s Coverage of the Hillsborough Disaster, the boycott in Merseyside & Euroscepticism in the Sun

The Sun’s coverage of the Hillsborough disaster was particularly one-sided and falsely claimed that “the truth” about the disaster was that the Liverpool fans were largely responsible for the chaotic escalation (see figure 1). Based partly on false information by a South Yorkshire

Figure 1: The Sun’s Hillsborough coverage



Source: The Sun on 13th September 2012: We are sorry for our gravest error.

police inspector, the Sun claimed that Liverpool fans had stolen from the dead as the disaster unfolded. According to the Sun’s source one of the dead people had “numerous wallets” on him, and was likely “one of the Liverpool pickpockets”.³

23 years after the incident, in the wake of the publication of the 2nd Hillsborough report by the Hillsborough Independent Panel established by Parliament, which concluded that Liverpool fans were in no way responsible for the disaster⁴, the Sun admitted that their coverage was “false”. The Sun apologized to the families of victims, and Liverpool supporters, and called

³The Guardian: How the Sun’s ‘truth’ about Hillsborough unravelled.

⁴Hillsborough Independent Panel

their Hillsborough coverage “our gravest error”, and the “blackest day in this newspaper’s history”. Their apology read “Today we unreservedly apologize to the Hillsborough victims, their families, Liverpool supporters, the city of Liverpool and all our readers for that misjudgment.”

Despite what was clearly a commercial disaster for the paper, with sales in Merseyside dropping from 524,000 to 320,000 overnight, in the days following the infamous front page, The Sun remained stubborn. This stubbornness led to a boycott of the Sun in the Merseyside area. The boycott was not only supported by supporters of Liverpool F.C., the most popular soccer club in the Merseyside region, but even supporters of Premier League rival Everton F.C. showed their solidarity with Liverpool supporters and the Hillsborough 96, and vouched never to buy the Sun again. Until today this boycott is ongoing. In 2017 after speaking to several victims of the Hillsborough disaster, the club owners, and the manager Jürgen Klopp decided to ban any Sun journalists from entering their stadium at Anfield road and their training ground.⁵

3.1.0.1 The Sun’s campaign against the EU The Australian-born media mogul Rupert Murdoch bought the Sun in 1969. During the period we study (1981-1996) the paper suppor-

Figure 2: The Sun’s anti-EEC coverage in the early 1990s



ted the Conservative party under Margaret Thatcher (PM from 1979-1990), and John Major (PM from 1990-1997). Since the beginning of the 1980s, the Sun has printed strong anti-EU sentiments. For instance, on the frontpage in figure 2 it takes a strong stance against EU in-

⁵The Guardian: Liverpool ban Sun journalists over Hillsborough coverage.

tegration in November 1990. During the time period under investigation, there was hence no change in the Sun’s stance on the EU. While the Sun supported New Labour under Tony Blair and Gordon Brown from 1997 until the 2010 General Election, it remained steadfast in its Eurosceptic slant and anti-EU coverage throughout UK Labour’s last period in office (Ladd and Lenz 2009).

4 Research Design

The unexpected occurrence of the Hillsborough disaster allows us to estimate the causal effect of a plausibly exogenous, sudden decline in Sun readership on attitudes towards leaving the EU. Given the strong anti-EU stance of the Sun, we expect that the boycott of the Sun in Merseyside should affect public attitudes towards the EU in Merseyside. More specifically, we assume that, after the Hillsborough disaster, euroscepticism should decrease in Merseyside, compared to the rest of the country. To test if the Hillsborough disaster firstly led to a decrease of Sun readership in Merseyside, and secondly, to a decrease in Euroscepticism, we exploit the occurrence of the Hillsborough disaster in a difference-in-differences design (Angrist and Pischke 2009: 165-186; Folke, Hirano, and Snyder 2011; Fowler and Hall 2015; Keele 2015; Dinas et al. 2018). More specifically we use the Hillsborough to assign respondents into treatment (=Merseyside) and control groups (=remaining England):

$$Leaving\ EU_{i,c,t} = \gamma_M + \lambda_t + (\gamma_M \times \lambda_t) + \rho_r + \tau_t + \zeta_i + \epsilon_{i,c,t} \quad (1)$$

where $Leaving\ EU_{i,c,t}$ is respondent $_i$ ’s support to leave the EU in constituency $_c$ at year $_t$; ρ_r are regional fixed effects, τ_t year fixed effects, ζ_i a vector of individual level controls outlined below and $\epsilon_{i,c,t}$ the error term. $\gamma_M \times \lambda_t$ is the treatment effect of interest based on the Hillsborough disaster which is an interaction term between a set of binary dummy variables being ‘1’ for constituencies in Merseyside (γ_M) and a binary variable being ‘1’ for all respondents surveyed after the Hillsborough disaster (λ_t). Since the sampling frame of the survey is stratified by constituency, we cluster our standard errors at the constituency level.

Our analyses is based on the long-running and high-quality British Social Attitudes (BSA)

survey. We measure euroscepticism by relying on a question asking respondents if “Britain should continue its EC/EU membership”. Respondents can then either answer “continue”, “withdraw”, or “don’t know”.⁶ Our dependent variable *Leaving EU* is then coded ‘1’ if respondents answered that Britain should withdraw from the EC/EU, and 0 otherwise. We cover the years from 1983 to 1996, the last year in which a question on leaving the European Union was included in the BSA. Unfortunately, the question only re-appears in different wording in the 2015 wave of the BSA. We also include a range of control variables in our models. We control for respondents’ gender, age, education, ethnicity, self-reported social class and party identification. Since the BSA reports the interview dates for each respondent, we can directly identify which respondents were interviewed before and after the 20th of April 1989 – the day the Sun published its article on the Hillsborough Disaster.

5 Results

5.1 Plausibility of difference-in-differences assumptions

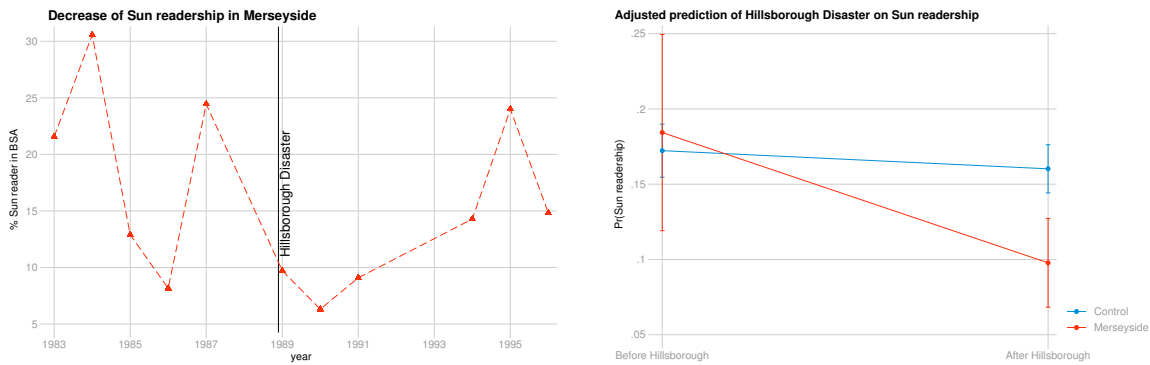
The first part of our analysis discusses the plausibility of our research design. While ample anecdotal evidence exists on the Sun boycott in Merseyside following Hillsborough, little systematic empirical evidence has been provided so far. However, anecdotal evidence is hardly enough to validate our identification strategy.

5.1.1 Decrease of Sun readership in Merseyside

Thus, in the first step of our analyses we estimate if a decrease of Sun readership occurred in Merseyside based on British Social Attitudes (BSA) data. The left panel in figure 3 gives a first insight into the development of the Sun readership across time in Merseyside. There is a significant drop of 15 percentage-points immediately after the Hillsborough disaster.

The right panel in figure 3 then compares this drop with the remaining constituencies covered in the BSA for England using a logistic difference-in-differences regression (full mod-

⁶From 1993 onwards the BSA introduced six answer categories to the same question: “uk leave ec”, “stay+reduce ec power”, “leave as is”, “stay+incr.ec power”, “single ec govt”, and “don’t know”. However, since this change in the measurement instrument does not coincide with the treatment, it should not bias our results. All results are robust to excluding the 1993-1996 period.

Figure 3: How much the Sun readership declined in Merseyside

Notice: left: average Sun readership in Merseyside per year based on BSA; right: predictions of logistic diff-in-diffs surrounded by 95 % confidence intervals.

els reported in table A.1 in the appendix). We estimate that the Hillsborough disaster cost the Sun about half its readership in Merseyside. While before the Sun’s false reports about the disaster around 18 percent of Merseyside respondents reported reading the Sun on a daily basis, after the disaster the percentage declined to around 10 percent. Notice also that the Sun readership remains remarkably stable in the remaining English constituencies as indicated by the flat slope of the blue line in figure 3. In summary, we find a sharp decrease of Sun readership in Merseyside after the Hillsborough disaster.

5.1.2 Parallel trends assumption

Difference-in-differences (DiD) designs only constitute a valid identification strategy if the parallel trends assumption is fulfilled. In the optimal scenario we would compare Merseyside after the Hillsborough disaster to a counterfactual Merseyside which has not experienced the Hillsborough disaster. But obviously we can only observe Merseyside post 1989 after having experienced the Hillsborough disaster (also called the *fundamental problem of causal inference* in Holland 1986: 947). A comparison of Merseyside before and after the Hillsborough disaster does not provide a credible counterfactual since several time-varying conditions might be responsible for such changes. Therefore we create credible counterfactuals to Merseyside by relying on other districts in England. The crucial assumption then standing behind the validity of our DiD design is that the treated unit (*Merseyside*) would have followed the same

trend as the untreated units (*remaining England*) if it had never experienced the treatment (*Hillsborough disaster*). While we can never be certain that this assumption is truly fulfilled, observing parallel trends in the outcome variable prior to treatment suggests that the parallel trends assumption is unlikely to be violated.

Figure 4 reports the key insights into the parallel trend assumptions prior to the Hillsborough disaster. The upper panel in figure 4 maps eurosceptic attitudes for the whole of England based on BSA data. Here we simply want to show that prior to the Hillsborough disaster the Merseyside region was not a pro-EU outlier. On the contrary, according to the BSA, Merseyside was a rather typical eurosceptic region in England with almost half of its population (49.4%) supporting leaving the EU/EEC. Also notice that eurosceptic attitudes were typical for the adjacent regions surrounding Merseyside (Greater Manchester, Lancashire, Cheshire). The map also underpins the face validity for our measure of euroscepticism, with London, the South of England, and the Northern boarder regions to Scotland being the most in favor of EU integration.

The lower panel in figure 4 plots the percentage of respondents supporting leaving the EU for Merseyside and the control units across time. Notice that we cannot rely on the entire sample of English counties covered in the BSA since several counties are not included in each annual cross-section provided by the BSA. Obviously we cannot test the parallel trend assumptions for counties which we do not observe for the entire period. Thus, we only include counties in our analyses which are included for the entire period we analyze. The trends between Merseyside and the remainder of England are remarkably parallel before the Hillsborough disaster, only in 1984 Merseyside experienced a slightly sharper increase in euroscepticism. Notice, however, that excluding 1983 and 1984 from our analyses does not change our findings. In general we can conclude that the remaining counties in the BSA constitute a credible counterfactual for Merseyside.

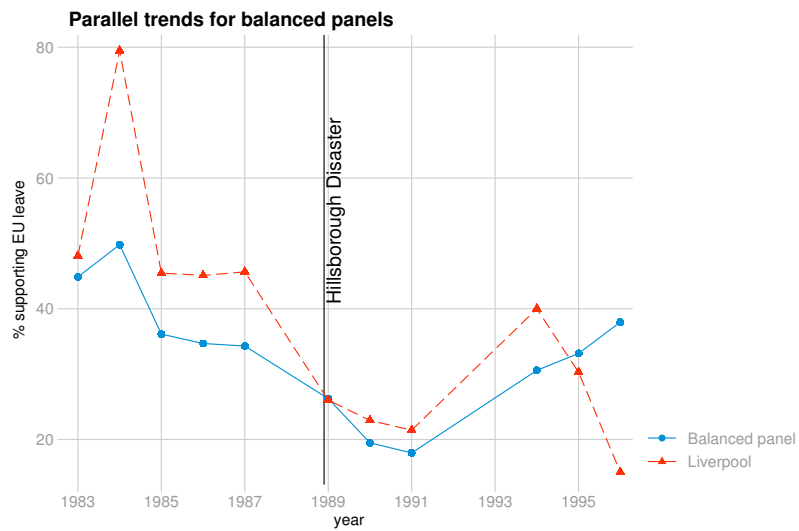
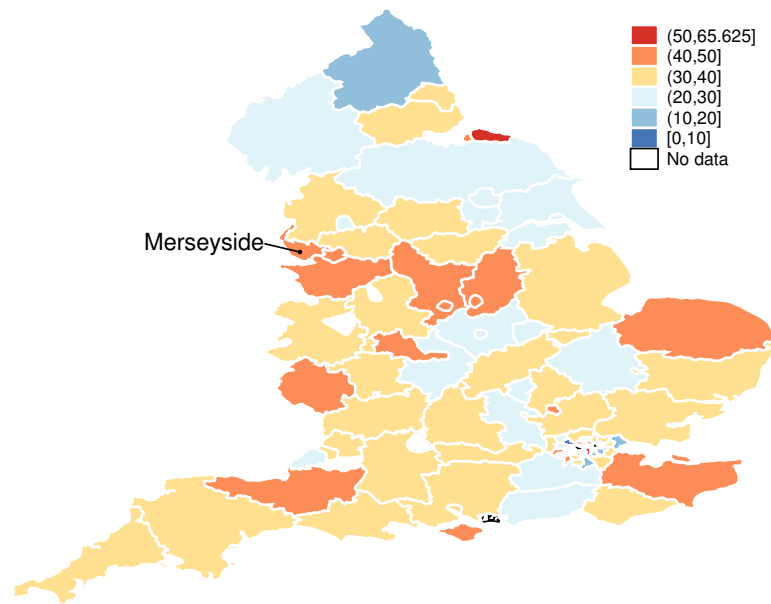
5.2 The effect of the Sun boycott on euroscepticism in Merseyside

After having outlined the credibility of our DiD design and the substantially large and statistically significant decrease of Sun readership in Merseyside, we now turn to the main findings

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Figure 4: Euroscepticism before Hillsborough disaster across the UK & parallel trends

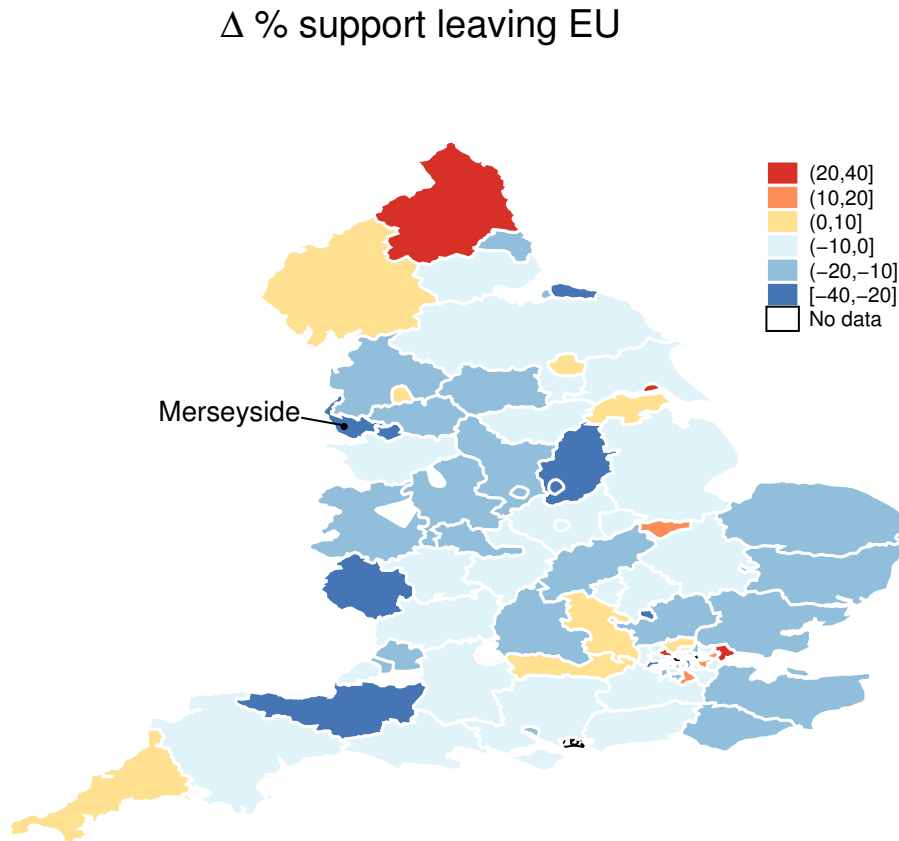
% support leaving EU before Hillsborough disaster



of our analyses.

Figure 6 displays the shift of euroscepticism in Merseyside in comparison to the remaining counties in England after the Hillsborough disaster. While a shift in favour of EU integration is

Figure 6: Shift in Euroscepticism after Hillsborough disaster



Note: Reported are differences in % support for leaving the EU in each UK county. Blueish colors show counties in which Euroscepticism *decreased*; reddish colors show counties in which Euroscepticism *increased*.

pronounced throughout the UK in the early and mid 1990s, it is clearly visible that Merseyside saw one of the biggest shifts in favor of continued EEC and EU membership. In contrast to the pre-Hillsborough situation Merseyside is a clear outlier after the disaster. Only four other regions (Greater Manchester, Somerset in South-East England, Herefordshire in East England & Nottinghamshire in Middle England) experienced a similar shift away from euroscepticism after the disaster. Yet while these regions experienced a similar shift on euroscepticism the Sun readership in these regions did not shift substantively after the Hillsborough Disaster.

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Thus it is unlikely that the Sun boycott spread into these regions and equally unlikely that the reason for the decrease of euroscepticism in these four regions was caused by the Hillsborough disaster.

Table 1 goes beyond such suggestive evidence and reports the main finding of our DiD models. Each model is based on the same identification strategy outlined above with the interaction between the Hillsborough disaster and Merseyside being the diff-in-diff estimand of interest. Each model uses a different set of controls reported in the bottom part of the table. The first model does not use any controls, while models (2) - (7) sequentially introduce region fixed effects, time fixed effects, squared time trends and the set of controls outlined above.

Table 1: Did Euroscepticism decrease after Hillsborough in Merseyside? Yes.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU bootstrap
Hillsborough	-0.126 (0.0140)	-0.0177 (0.0280)	-0.0805 (0.0208)	-0.102 (0.0156)	-0.00326 (0.0277)	-0.0940 (0.0190)	-0.0177 (0.0297)
Merseyside	0.121 (0.0507)	0.106 (0.0386)	0.104 (0.0399)	0.0893 (0.0386)	0.0797 (0.0293)	0.0768 (0.0308)	0.106 (0.0448)
Diff-in-diff	-0.138 (0.0509)	-0.126 (0.0376)	-0.124 (0.0379)	-0.127 (0.0435)	-0.114 (0.0337)	-0.113 (0.0336)	-0.126 (0.0430)
Constant	0.374 (0.0103)	0.550 (0.0262)	17241.3 (1690.8)	0.340 (0.0499)	0.208 (0.0776)	15632.4 (1621.3)	0.344 (0.0460)
Controls				✓	✓	✓	
Regional FEs		✓	✓		✓	✓	✓
Year FEs		✓			✓		✓
Year ²			✓			✓	
R^2	0.0206	0.0428	0.0382	0.0693	0.0906	0.0845	0.0428
N	9375	9375	9375	9337	9337	9337	9375
$N_{constituencies}$	232	232	232	232	232	232	232

Clustered standard errors by constituency;

Controls: age, gender, education, ethnicity, social class, party-ID;
region fixed effect & year fixed effects omitted from table.

Throughout all models we estimate a theoretically meaningful, large effect of Hillsborough on attitudes towards leaving the EEC/EU: After the Hillsborough disaster, Merseyside became less eurosceptic due to the absence of the Sun. Depending on the models we estimate, this effect ranges from 10 percentage-points to a 13 percentage-points decrease. Thus, we find a statistically significant and substantial drop of euroscepticism due to the Sun boycott in

Merseyside. This effect is comparable in its size to previous studies on media effects (e.g. Ladd and Lenz 2009). Notice that this effect is also comparable in its size and significance ones we add regional, time fixed effects and controls. A major concern when estimating DiD models is that such models usually do not correct for unit specific autocorrelation (Bertrand, Duflo, and Mullainathan 2004). To address this concern we follow Bertrand, Duflo, and Mullainathan (2004) and re-estimate our models using bootstrapped standard errors (model (7) in table 1). Comparing the standard errors reported in models (2) and (7) in table 1 suggests that indeed the estimates based on bootstrapping are larger and, thus, “more conservative”. However, our findings remain robust to using bootstrapped standard errors.

5.3 Robustness

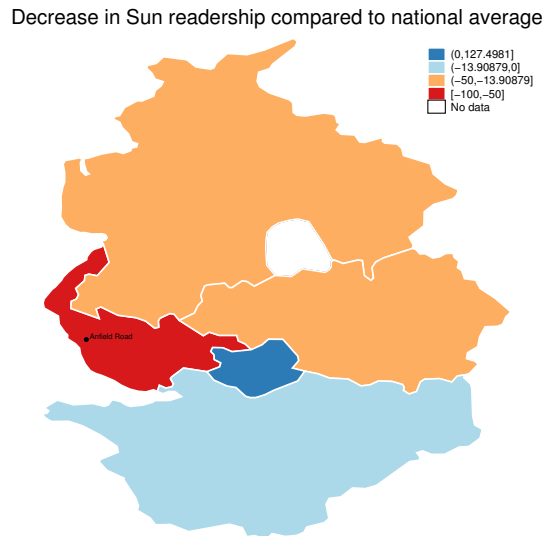
5.3.1 Alternative samples

Although table 1 reports robust findings across all models, a range of potential concerns remain to be addressed. First, estimates might change if we use the unbalanced panel of English constituencies, or the most comparable constituencies in the North instead of the balanced panel we use in table 1. Yet, re-estimating our models including either all observations in England (table B.2 in the Appendix), or respondents located in Northern constituencies only (table C.3 in the appendix) does not affect the findings reported above.

5.3.2 Spillover effects

Second, spillover effects into adjacent counties might be possible such that not only Merseyside but also adjacent counties might have experienced both a decrease in Sun readership and in euroscepticism. Since respondents in those counties are included in all counterfactual control groups, spillover effects might bias the estimates reported above.

However, figure 7 shows that adjacent counties neither experienced a similar decrease in Sun readership, nor did they experience a significant decrease in euroscepticism after the Hillsborough disaster (see figure 6).

Figure 7: Are there spillover effects to adjacent counties? No.

5.3.3 Spatial placebo

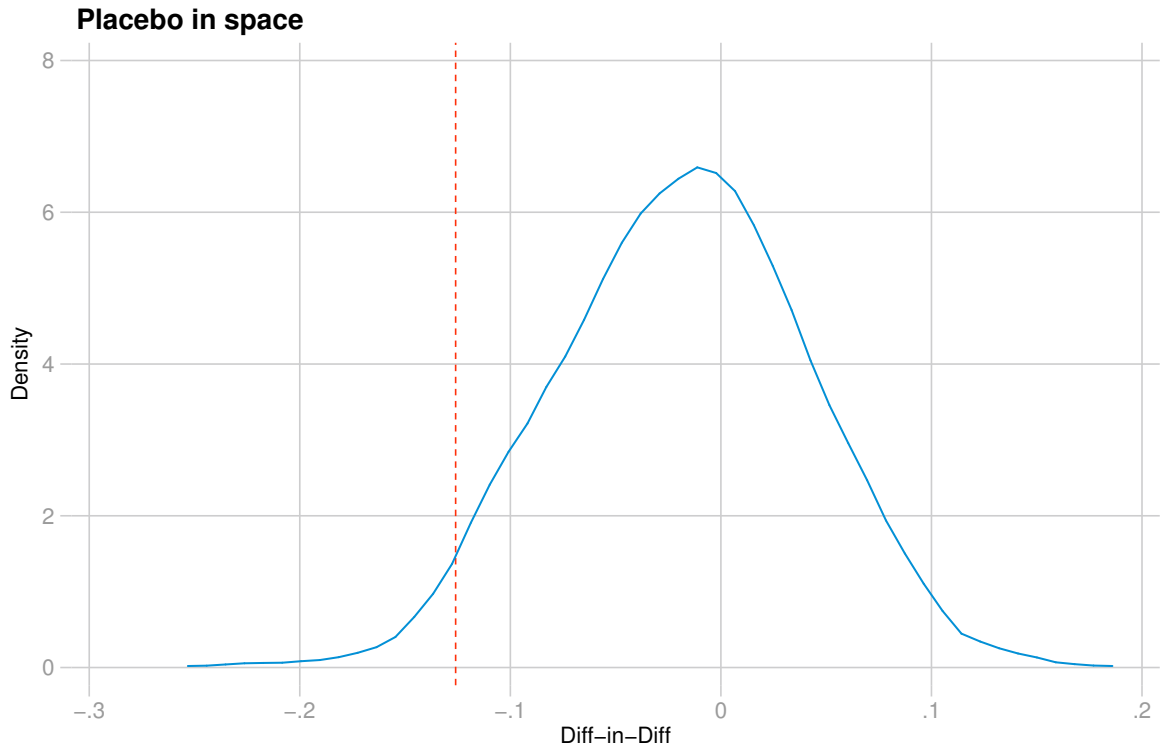
Third, in general the decrease of euroscepticism might not be unique to Merseyside, but driven by a more general trend against euroscepticism in England in the 1990s. For instance, as discussed above, at least four regions experienced a similar decrease in euroscepticism after the Hillsborough disaster. To address this concern we estimate a placebo test in space. More specifically, we randomly re-assigned the Hillsborough event into other constituencies in England. The upper panel in figure 8 reports the finding of this randomization test. The red vertical line reports the effect we found for Merseyside while the density plot reports the estimated effect for all 1000 permutations we estimated. It becomes strikingly evident that the Hillsborough effect for Merseyside remains distinct and is statistically different from the distribution of placebo effects we estimated.

5.3.4 Excludability violations

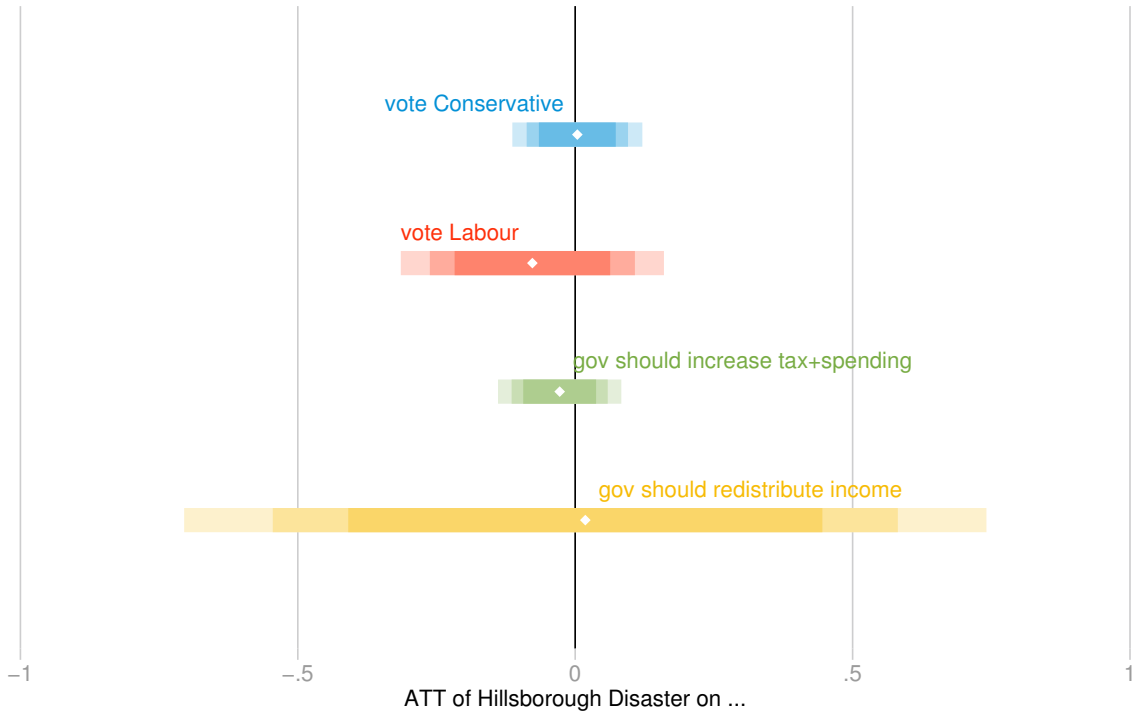
There are two potential alternative theoretical explanations, an increase in EU structural funds to Merseyside, and a decline in Conservative party support during the same time period, that could potentially explain our findings. We provide evidence against these two alternative hypotheses below.

It is well-known that during the 1990s Merseyside was dedicated a priority region for the

Figure 8: Placebo tests: placebo in space & change of voting patterns after Hillsborough



Excluding alternative explanations: voting & governmental spending



Note: Placebo in space based on 1000 permutations, reports an ATT=-0.126 with $SE(P)=0.006$.

receipt of EU structural funds (Objective 1 spending) by the UK government led by Conservative Prime Minister John Major. An increase in EU structural funds over and above what other regions received could hence potentially provide an alternative explanation for our findings. However, Merseyside was only dedicated a priority region for EU structural funds from 1994 onwards, for the 1994-1999, the 2000-2006, and the 2007-2013 funding rounds (Di Cataldo 2016). Before that, for the 1989-1993 funding round, Merseyside benefited from structural funds equally with other Northern cities. The increase in EU structural funds, albeit significant, therefore only affects the last three years of our analysis. Our results are in no way dependent on the inclusion of the 1994-1996 period, and are both substantially and statistically robust to the exclusion of those years. Furthermore, we also estimated interactive fixed effects models which should control for such unit specific changes in EU funding. Due to issues of overfitting our data we can only estimate such models when including the entire English sample, but again our findings remain robust to such an estimation strategy (model (7) in table B.2 in the Appendix).

Finally, during the beginning and mid 1990s, the UK saw a decline in Conservative party support and a shift to the Labour Party, first lead by the late John Smith and after the former's death, from 1994 onwards, by Tony Blair. Thanks to its industrial heritage and radical political tradition, Merseyside has always been a strong bastion of the UK Labour Party. A steeper drop in support for the governing Conservative Party in Merseyside than elsewhere in the beginning and mid 1990s could hence invalidate our research design by violating the exclusion restriction. However, as Figure 8 above shows, the differential decline in support for the Conservatives is no more pronounced in Merseyside than in other UK regions. In fact, the difference-in-differences estimate is a tightly estimated null. We can therefore rule out that it is a more pronounced decline in Conservative party support that could explain the differential increase in the observed EU support in Merseyside post 1989 rather than a decline in Sun readership as a function of the Hillsborough soccer disaster.

6 Discussion and conclusion

In this paper we provide robust empirical evidence that a sharp drop in Sun readership in a British county, Merseyside, due to an exogenous shock, the Hillsborough soccer disaster, lead to a large increase in pro-EU attitudes in that county during the 1990s, in comparison to other counties that were on similar trajectories before the shock. Our difference-in-differences results are robust to different specifications, the inclusion of control variables, and withstand demanding placebo tests. We estimate this effect to be on average 11 percentage-points in favour of remaining in the European Economic Area, and later in the European Union (based on the most conservative models 5 and 6 in Table 1), with the lower bound of the estimated 95% confidence interval indicating an effect of 5 percentage-points, and the upper bound an effect of as much as 18 percentage-points.

Hence, the effect of removing a key Eurosceptic media outlet from consideration among half of its previous readership in a defined locality, was clearly non-trivial for attitude formation on the issue of continued EU membership. Although it is important to emphasize that the available data does not allow us to extrapolate to the 2016 EU referendum, based on the results of this paper, it is likely that the Sun's EU coverage has, at least, contributed to laying the groundwork for one of the most consequential policy decisions of the early 21st century. While the city of Liverpool voted overwhelmingly to remain in the European Union, other parts of Northern England, despite similarly strong Labour Party backing, voted to leave.⁷

This study therefore shows that, in favourable environments, sustained media campaigns on emerging issues can have large persuasive effects on public opinion, and that the media can influence citizens' attitudes on issues of real policy consequence. While the results of our study may be conditional on the type of issue on which papers decide to campaign, and the type of counter campaign, or more precisely, the existence and strength of such a counter campaign by other media outlets and political organisations, it provides evidence against the minimal media effects hypothesis. Under the favourable scope conditions that we specify in this paper, and that were present in this case, we conclude that a sustained media campaign can influenced public opinion in the desired direction.

⁷[Liverpool Echo](#)

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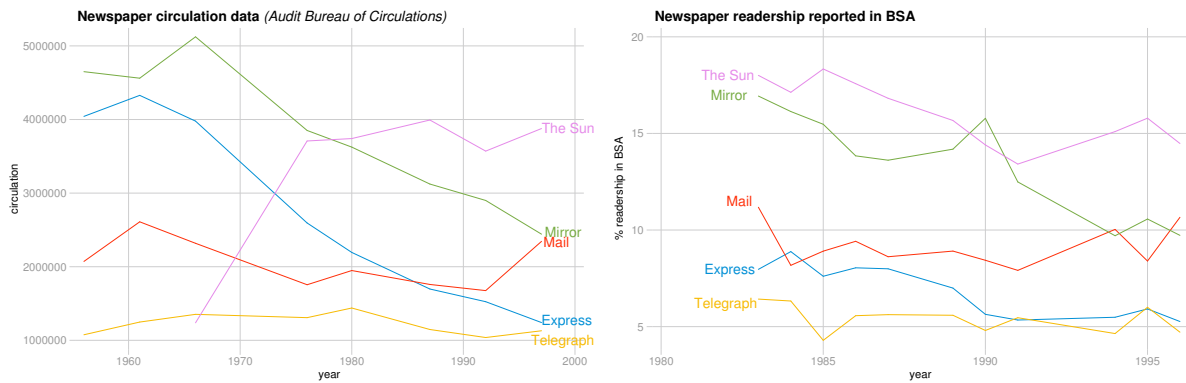
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A Sun circulation, readership & decline in Merseyside

Figure A.1 reports descriptives about the circulation and readership reported in the BSA of the five most sold newspaper in the UK until 1996. The top figures suggest that the trends of readership reported

Figure A.1: Newspaper readership in the UK, circulation (1950-1997; Top-5 in 1997) & readership in BSA



Notice: left: Audit Bureau of Circulations (UK); right: BSA.

in the BSA data (top figure on the right) seems to be comparable to the actual circulation trends (top figure on the left) across time.

A Sun circulation, readership & decline in Merseyside

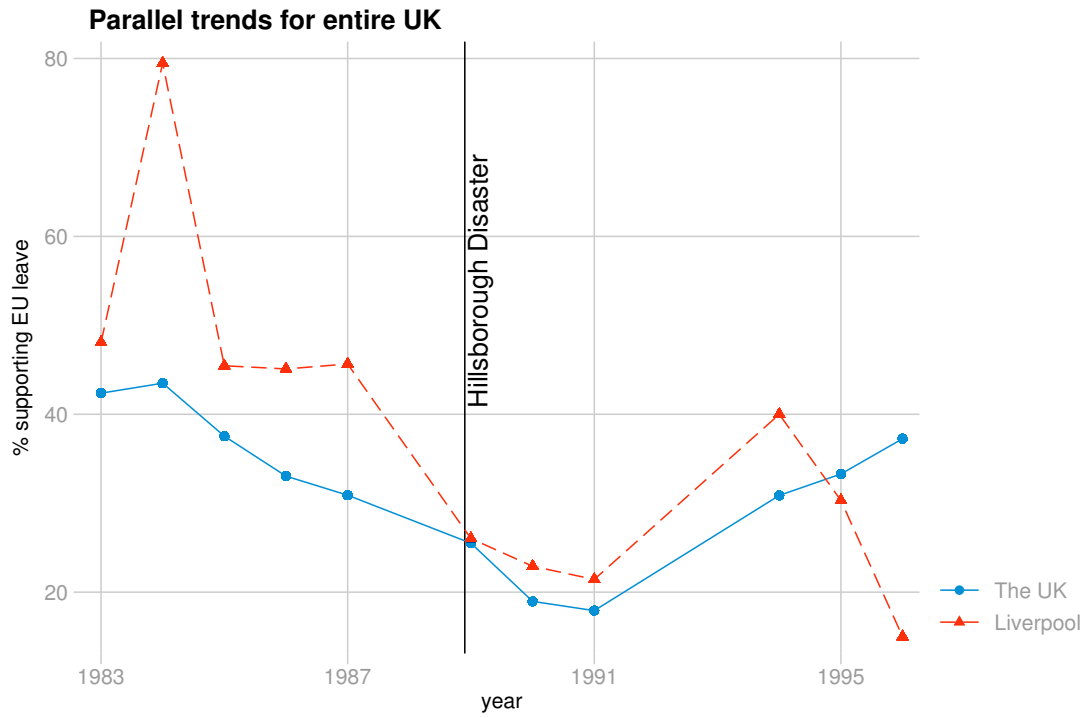
Table A.1: Did the Sun readership decrease after Hillsborough in Merseyside? Yes.

	(1)	(2)	(3)
	Sun reader	Sun reader	Sun reader
Hillsborough	-0.0121 (0.0116)	0.0291 (0.0204)	0.00483 (0.0169)
Merseyside	0.0120 (0.0345)	0.0860 (0.0320)	0.0814 (0.0309)
Diff-in-diff	-0.0745 (0.0399)	-0.0930 (0.0363)	-0.0907 (0.0342)
Constant	0.172 (0.00900)	0.197 (0.0270)	1928.6 (1398.6)
Regional FEs		✓	✓
Year FEs		✓	
Year ²			✓
R^2	0.00114	0.0178	0.0160
N	9196	9196	9196
$N_{constituencies}$	232	232	232

Clustered standard errors by constituency;
region fixed effect & year fixed effects omitted from table.

B Main analysis with entire UK sample

Figure B.3: Parallel trends, entire UK sample



B Main analysis with entire UK sample

Table B.2: Did Euroscepticism decrease after Hillsborough in Merseyside (**Entire UK sample**)? Yes.

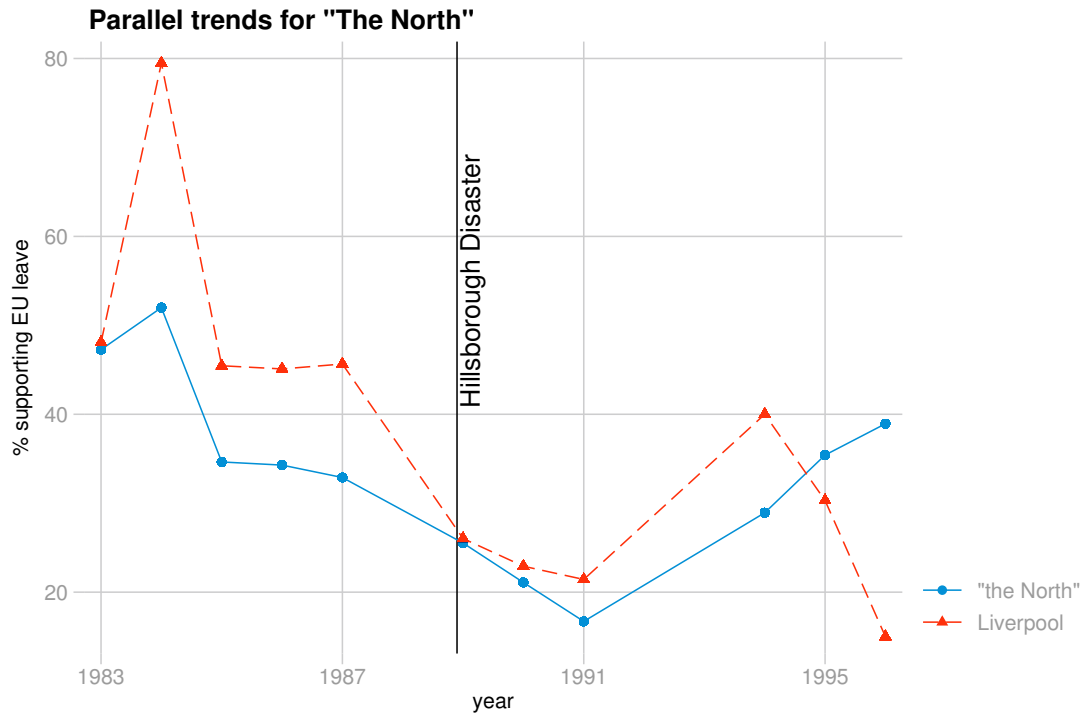
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU
Hillsborough	-0.105 (0.00984)	-0.0918 (0.00986)	-0.0213 (0.0189)	-0.0746 (0.0139)	-0.00534 (0.0186)	-0.0869 (0.0126)	-0.00996 (0.0192)
Merseyside	0.145 (0.0502)	0.107 (0.0389)	0.116 (0.0397)	0.114 (0.0397)	0.0938 (0.0312)	0.0899 (0.0311)	0.0729 (0.0293)
Diff-in-diff	-0.159 (0.0499)	-0.147 (0.0434)	-0.143 (0.0373)	-0.142 (0.0371)	-0.135 (0.0340)	-0.134 (0.0335)	-0.0969 (0.0365)
Constant	0.349 (0.00775)	0.282 (0.0349)	0.355 (0.0300)	16444.7 (1211.8)	0.175 (0.0501)	14486.7 (1188.1)	0.199 (0.0923)
Controls		✓			✓	✓	✓
Regional FEs			✓	✓	✓	✓	✓
Year FEs			✓		✓		✓
Year ²				✓		✓	
Interactive FEs							✓
R^2	0.0146	0.0635	0.0336	0.0316	0.0798	0.0763	0.0855
N	17923	17844	17923	17923	17844	17844	17844
$N_{constituencies}$	472	472	472	472	472	472	472

Clustered standard errors by constituency;

Controls: age, gender, education, ethnicity, social class, party-ID;
region fixed effect & year fixed effects omitted from table.

C Main analysis with "The North" only

Figure C.4: Parallel trends, "The North" only



C Main analysis with “The North” only

Table C.3: Did Euroscepticism decrease after Hillsborough in Merseyside (**The North only**)? Yes.

	(1)	(2)	(3)	(4)	(5)	(6)
	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU
Hillsborough	-0.113 (0.0190)	-0.00955 (0.0342)	-0.0579 (0.0261)	-0.0900 (0.0186)	0.0105 (0.0372)	-0.0700 (0.0228)
Merseyside	0.128 (0.0516)	0.113 (0.0384)	0.111 (0.0396)	0.101 (0.0367)	0.0840 (0.0281)	0.0795 (0.0300)
Diff-in-diff	-0.144 (0.0574)	-0.103 (0.0456)	-0.0995 (0.0441)	-0.125 (0.0472)	-0.0918 (0.0382)	-0.0894 (0.0355)
Constant	0.366 (0.0138)	0.311 (0.0479)	19852.8 (2072.3)	0.238 (0.0425)	0.356 (0.0475)	16622.2 (2066.0)
Controls				✓	✓	✓
Regional FEs		✓	✓		✓	✓
Year FEs		✓			✓	
Year ²			✓			✓
R^2	0.0195	0.0488	0.0429	0.0826	0.104	0.0981
N	5606	5606	5606	5574	5574	5574
$N_{constituencies}$	189	189	189	189	189	189

Clustered standard errors by constituency;

Controls: age, gender, education, ethnicity, social class, party-ID;

region fixed effect & year fixed effects omitted from table.

D Placebo tests

D Placebo tests

Table D.4: Excluding alternative explanations

	(1)	(2)	(3)	(4)
	Vote Conservative	Vote Labour	Gov Spending	gov Redistribution
Merseyside	-0.0975 (0.0352)	0.158 (0.0508)	0.0635 (0.0285)	0.115 (0.221)
Hillsborough	0.0386 (0.0352)	-0.00556 (0.0309)	-0.0457 (0.0290)	-0.0581 (0.0774)
Diff-in-diff	0.00385 (0.0352)	-0.0772 (0.0712)	-0.0280 (0.0333)	0.0182 (0.217)
Constant	0.228 (0.0458)	0.438 (0.0453)	0.668 (0.0460)	3.330 (0.109)
Regional FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓
R^2	0.0275	0.0481	0.0323	0.0176
N	12163	12163	12163	7745
$N_{constituencies}$	233	233	233	227

Clustered standard errors by constituency;
region fixed effect & year fixed effects omitted from table.

D Placebo tests

Table D.5: Placebo test: Moving treatment into non-treated period shows no effect.

	(1)	(2)	(3)	(4)	(5)	(6)
	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU	Leave EU
placebotreat	-0.0596 (0.0179)	-0.165 (0.0248)	0.114 (0.0501)	-0.0268 (0.0169)	-0.0584 (0.0263)	0.127 (0.0462)
Merseyside	0.134 (0.0475)	0.106 (0.0398)	0.107 (0.0420)	0.0767 (0.0378)	0.0612 (0.0316)	0.0618 (0.0342)
Diff-in-diff	-0.0210 (0.128)	-0.00998 (0.126)	-0.0113 (0.127)	-0.0133 (0.105)	-0.00385 (0.104)	-0.00547 (0.105)
Constant	0.403 (0.0113)	0.591 (0.0175)	-61910.1 (38725.4)	0.255 (0.0453)	0.345 (0.0512)	-67631.8 (33367.3)
Controls				✓	✓	✓
Regional FEs		✓	✓		✓	✓
Year FEs		✓			✓	
Year ²			✓			✓
R^2	0.00583	0.0207	0.0164	0.0784	0.0885	0.0858
N	5091	5091	5091	5075	5075	5075
$N_{constituencies}$	136	136	136	136	136	136

Clustered standard errors by constituency;

Controls: age, gender, education, ethnicity, social class, party-ID;

region fixed effect & year fixed effects omitted from table.