

Justino, Patricia; Martorano, Bruno; Metzger, Laura

Working Paper

Welfare losses, preferences for redistribution, and political participation: Evidence from the United Kingdom's age of austerity

WIDER Working Paper, No. 2023/61

Provided in Cooperation with:

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

Suggested Citation: Justino, Patricia; Martorano, Bruno; Metzger, Laura (2023) : Welfare losses, preferences for redistribution, and political participation: Evidence from the United Kingdom's age of austerity, WIDER Working Paper, No. 2023/61, ISBN 978-92-9267-369-7, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, <https://doi.org/10.35188/UNU-WIDER/2023/369-7>

This Version is available at:

<https://hdl.handle.net/10419/283757>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WIDER Working Paper 2023/61

Welfare losses, preferences for redistribution, and political participation

Evidence from the United Kingdom's age of austerity

Patricia Justino,¹ Bruno Martorano,² and Laura Metzger³

May 2023

Abstract: This paper studies the effect of austerity on forms of political participation—including voting, appealing for reform, and peaceful protesting—and the role of preferences for redistribution in shaping the relationship between individual exposure to austerity and political participation. The paper focuses on the case of the United Kingdom (UK) where, between 2011 and 2019, wide-ranging austerity policies were introduced to deal with high public debt in the aftermath of the 2007–08 financial crisis. Cuts to government spending on public investment, services, and social protection, especially during the initial fiscal consolidation phase of 2011–15, led to significant welfare losses for the population. We provide evidence from observational microeconomic data and a large-scale online experiment in the UK showing that individual exposure to welfare losses from austerity increases political participation and strengthens preferences for government redistribution. The experimental data suggests that changes in individual preferences for redistribution significantly shape the effect of austerity on political participation.

Key words: austerity, political participation, redistribution, expenditure cuts, welfare loss

JEL classification: D0, H5, H6, I38

Acknowledgements: This paper is part of a broader UNU-WIDER project on the ‘Institutional Legacies of Violent Conflict’. The authors thank Francesco Iacolla, Alex Hunns, and Isaac Thornton for excellent research assistance, and Sten Ritterfeld for producing the treatment videos. The authors are grateful to Eleonora Nillesen, Andrea Ruggeri, and participants at the seminars at UNU-WIDER (Workshop on Institutional Legacies of Violent Conflict), Wageningen University, UNU-MERIT, and at the MSM Welcome Conference ‘Pathways to Inclusive and Sustainable Development’, University of Maastricht for very useful discussions and comments.

This study is published jointly with UNU-MERIT in the respective Working Paper Series.

¹ UNU-WIDER, Helsinki, justino@wider.unu.edu; ² UNU-MERIT and Maastricht University, Maastricht, bruno.martorano@maastrichtuniversity.nl; ³ Radboud University, Nijmegen, laura.metzger@ru.nl

This study has been prepared within the UNU-WIDER project [Institutional legacies of violent conflict](#).

Copyright © UNU 2023

UNU-WIDER employs a fair use policy for reasonable reproduction of UNU copyrighted content—such as the reproduction of a table or a figure, and/or text not exceeding 400 words—with due acknowledgement of the original source, without requiring explicit permission from the copyright holder.

Information and requests: publications@wider.unu.edu

ISSN 1798-7237 ISBN 978-92-9267-369-7

<https://doi.org/10.35188/UNU-WIDER/2023/369-7>

Typescript prepared by Siméon Rapin.

United Nations University World Institute for Development Economics Research provides economic analysis and policy advice with the aim of promoting sustainable and equitable development. The Institute began operations in 1985 in Helsinki, Finland, as the first research and training centre of the United Nations University. Today it is a unique blend of think tank, research institute, and UN agency—providing a range of services from policy advice to governments as well as freely available original research.

The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland and Sweden, as well as earmarked contributions for specific projects from a variety of donors.

Katajanokanlaituri 6 B, 00160 Helsinki, Finland

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

1 Introduction

The relationship between welfare losses and political outcomes has received wide attention in the social sciences. A large body of work has studied the effect of economic shocks—mainly due to globalization—on voting outcomes (Margalit 2011; Feigenbaum and Hall 2015), political polarization (Autor et al. 2020), and political preferences (Iacoella et al. 2019; Ahlquist et al. 2020; Caselli et al. 2020; Dippel et al. 2021). Recent studies have also explored the link between austerity policies and political fragmentation in Europe since the financial crisis of 2007–08 (Rüdiger and Karyotis 2014; Fetzner 2019; Gabriel et al. 2022; Wiedemann 2022), and across time (Ponticelli and Voth 2020; Alesina et al. 2021; Hübscher et al. 2021). There are two important questions that have received less attention in the literature. First, while most of the existing literature has focused on the effects of austerity on voting outcomes, less attention has been paid to political mobilization. In particular, the literature looks mainly at the consequences of austerity on voting preferences and less at voting turnout which is a key ingredient of democracy. Moreover, it hardly pays attention to other forms of political participation that are important and distinct tools used by citizens to demand change outside election cycles, such as appealing for political reform (e.g., via written or oral appeals to political representatives, participating or organizing petitions and other citizen-driven campaigns) and engaging in demonstrations and protests.¹ Second, despite a growing interest in the political costs of austerity, few studies focus on causal mechanisms which may determine political participation under austerity. One important, but understudied, mechanism refers to changes in preferences for redistribution. Understanding the role of redistributive preferences in shaping the relationship between austerity and political participation is crucial to recognize and explain what citizens demand from their government in times of crisis and why (Justino and Martorano 2019; Harrison 2021).²

Against this background, this paper answers two research questions. First, we study the effect of austerity on political participation by analysing the political effects of the recent austerity programme in the United Kingdom (UK) following the 2007–08 financial crisis. We focus on three forms of political participation: voting, appealing for reform, and peaceful protesting. Second, we explore the role of individual preferences for redistribution in shaping the relationship between individual exposure to austerity and political participation. The recent experience with austerity policies in the UK offers an important setting to study these questions. Like most European countries, the British government accumulated considerable public debt as a response to dealing with the 2007–08 global financial crisis. In 2008, national public debt was around 37 per cent of the UK's GDP. By the end of 2012, it reached 70 per cent of the country's GDP. To lower public debt, the government implemented a set of austerity initiatives. Key policies of the first 2011–15 austerity plan included an increase in consumption taxes from 17.5 to 20 per cent, public sector pay freeze, and £32 billion in welfare spending cuts (Van Reenen 2015). Cuts were particularly steep in 2010 and 2012, when real public investment dropped by 40 per cent (Van Reenen 2015). The British government ended austerity in September 2019, after the second five-year plan (2015–19). However, in face of a looming recession and a public-debt-to-GDP ratio above 90 per cent, the current government under Rishi Sunak plans to reinstate austerity from 2023, aiming for annual deficit reductions of £60 billion through tax increases and public spending cuts. Media outlets

¹ Ponticelli and Voth (2020) use cross-sectional data to study the relationship between austerity and social unrest in several advanced OECD countries between 1919 and 2008. The role of other forms of appeal for political reforms has been less studied.

² For a discussion in the context of Brexit specifically, see also <https://blogs.lse.ac.uk/brexit/2019/10/17/long-read-debunking-myths-on-links-between-austerity-and-brexit/>.

provocatively referred to these plans as ‘austerity on steroids’;³ and, shortly after the government’s announcement, thousands of citizens in London demonstrated against austerity, demanding general elections to end the Tory government and ‘tax the rich not the poor’.⁴ This increase in protests has been unprecedented in the recent history of the UK (see Figure 3). Anecdotal accounts link the rise in protests in the UK to austerity and a growing demand for more redistributive policies. However, there is to date limited causal evidence on the effects of austerity on political participation and the role of redistributive preferences in shaping those effects. Even though anti-austerity and redistributive calls have been figuring prominently in street protests, many other social changes afoot in the UK (such as anti-migration sentiments, Brexit and, more recently, the COVID-19 pandemic) might confound a direct link between the two phenomena.

The breadth and duration of the UK’s post-crisis austerity policies has attracted attention and opposition from different groups. For instance, a press release of the United Nations Human Rights Office in 2019 deplored that fiscal consolidation increased inequality and poverty in the UK and that the British Government broke the social contract by no longer providing a basic social safety net for the population.⁵ More recently, leading economists and public academic voices stated that austerity has damaged the British economy’s productive capacity and the state’s ability to deal with new crises such as COVID-19 and climate change.⁶ British citizens as well continue to express grievances against austerity in street protests and grassroots campaigns known as the anti-austerity movement. A growing body of academic literature lends credibility to this debate by documenting the significant costs of austerity to society. Beatty and Fothergill (2016) calculate that average welfare losses from reduced spending on welfare and public services accumulated to £690 per year per working-age adult between 2010 and 2017. Innes and Tetlow (2015) show that local government units, the Local Authority Districts (LADs), had to reduce per-person spending by 23 per cent in real terms between 2010 and 2015 due to cuts in government transfers. Importantly, spending cuts varied much across LADs and hit poorer areas disproportionately hard (Innes and Tetlow 2015; Fetzer 2019), thus distributing the costs of fiscal consolidation unequally across citizens and local administrations. In addition to direct welfare losses, austerity had also knock-on effects on economic growth, which was reduced by 2 per cent between 2010 and 2012 (Van Reenen 2015), crime (Giulietti and McConnell 2022), hate crimes against migrants (Bray et al. 2022), excess mortality (Walsh et al. 2022), and food insecurity (Jenkins et al. 2021).⁷

³ ‘UK Braces for New Austerity with Little Left for Jeremy Hunt, Rishi Sunak to Cut’. *Bloomberg*. Available at: <https://www.bloomberg.com/news/features/2022-11-16/uk-braces-for-new-austerity-with-little-left-for-jeremy-hunt-rishi-sunak-to-cut?leadSource=verify%20wall> (accessed 18 January 2022).

⁴ “‘Tax the Rich’: Thousands March in London Anti-Austerity Rally – Video”. *The Guardian*. Available at: <https://www.theguardian.com/uk-news/video/2022/nov/05/tax-the-rich-thousands-march-in-london-anti-austerity-rally-video> (accessed 18 January 2022).

⁵ ‘UN Expert Laments UK’s “Doubling Down on Failed Anti-Poor Policies”’. OHCHR Press Release. Available at: <https://www.ohchr.org/en/press-releases/2019/05/un-expert-laments-uks-doubling-down-failed-anti-poor-policies> (accessed 18 January 2022).

⁶ ‘Top Economists Warn the UK Not to repeat Austerity After the Covid-19 Crisis’. *The New Statesman*. Available at: <https://www.newstatesman.com/long-reads/2020/05/top-economists-warn-uk-not-repeat-austerity-after-covid-19-crisis> (accessed 18 January 2022).

⁷ While these studies illustrate reductions in living standards, especially for vulnerable population groups, empirical evidence on aggregate distributional effects of austerity in the UK is scarce. Great Britain’s Equality and Human Rights Commission (EHCR) reported in 2018 that households in the two bottom deciles had lost approximately 10 per cent of their net income because of austerity (the most vulnerable groups experienced losses above 20 per cent), whilst higher income households were much less affected (EHCR 2018). Regarding the experiences of other countries, a working paper by Ball et al. (2013) shows for 17 OECD countries over the period 1978–2009 that fiscal consolidation

In this paper, we investigate whether exposure to this period of austerity affected the political participation of UK citizens and whether changes in redistributive preferences may explain those effects. To do so, we first make use of observational panel data to examine how citizens respond to austerity at the level of Local Authority Districts (LADs). LADs are local government bodies and the final link in the chain responsible for implementing austerity policies. Data on financial welfare losses caused by austerity per LAD (our main explanatory variable) comes from Beatty and Fothergill (2016). We match these welfare losses to political participation (voting, protesting, and appealing) using data from the UK Parliament House of Commons Library, and Google’s Global Database for Events, Language and Tone (GDELT).⁸

A challenge in researching the relationship between austerity, political participation, and individual preferences for redistribution with observational data is the lack of a counterfactual, i.e. we cannot assess what would have happened in the absence of austerity. This limits opportunities to investigate the causal impact of austerity on political participation and its determinants. To generate such causal evidence, we conduct a large representative online experiment that explores the impact of individual exposure to austerity on political participation and preferences for redistribution in the UK. We leverage the experiment to scrutinize findings from the observational data analysis and study the causal impact of exposure to austerity on individual political participation. The experiment mimics exposure to austerity by showing participants a professionally produced, 3-minute video on UK austerity policies and their socioeconomic implications. Using simple language and visuals, the video informs participants how UK austerity came about and what core policies it entailed. It then illustrates and summarizes evidence on the costs that austerity has inflicted on British society, especially on citizens with low-income levels. The control group watches an unrelated video about weather forecast technologies in Europe. Since we cannot simulate protests or elections in the experiment, we generate the data for individual political participation from survey questions on voting preferences and stated willingness to join a peaceful protest against austerity. In addition, we elicit participants’ willingness to sign a real petition for or against austerity—which we physically sent to a Member of Parliament—to complement the self-reported data. In the observational data and the experiment, we find evidence that exposure to austerity mobilizes democratic participation through voting in elections and appealing for political reforms with the government but has no effect on protests.

We then proceed to study the role of redistributive preferences in explaining these results.⁹ There are important reasons why redistributive preferences may mediate the effect of austerity exposure to political participation. First, austerity redistributes income between groups. Ripple effects of this redistribution, like rising inequality and, generally, direct, or indirect exposure to hardship, can change people’s social preferences and the kind of government policies they are willing to

raised inequality, decreased wage income shares, and increased long-term unemployment. Their analysis further suggests that spending cuts have had, on average, larger distributional effects than tax increases.

⁸ The GDELT Project is a ‘Big Data’ source employing an algorithm to process and organize information on events worldwide, including protests and demands for political reform, from digitized newspapers and news agencies, as well as from web-based news aggregators.

⁹ Preferences for redistribution are of course only one of several relevant channels through which austerity may affect political participation. Other variables that may serve as mediators include trust in political institutions (Biten et al. 2022; Bosco and Verney 2012; Hernández and Kriesi 2016; Hübscher et al. 2021; Marsh and Mikhaylov 2014; Talving 2017) and perceptions of capacity to affect the political process (Harrison 2022). We focus on redistributive preferences in this paper, as this mechanism has remained unexplored in the literature but appears to have a particularly important role in the case of the UK.

support.¹⁰ There is a large but inconclusive theoretical and empirical literature linking inequality and preferences for redistribution (see Ciani et al. 2021 for an overview and summary). By contrast, there is much less research on the impact of preferences for redistribution and political participation (one exception is Justino and Martorano 2019), specifically in the context of austerity. Second, survey data from the UK shows that post-2010 austerity coincides with increased support for government redistribution. The British Election Study (BES) reveals that preferences for reducing inequality rose markedly after 2010 compared to the previous decade (see Figure A1, in Appendix A). Similarly, the British Social Attitudes Survey¹¹ shows that, by 2017, 48 per cent of citizens supported more public spending through higher taxation and 42 per cent agreed that the government should redistribute income from wealthier to poorer citizens (Park et al. 2012; Clery et al. 2017; Phillips et al. 2018). This compares to 31 per cent of citizens supporting more public spending through higher taxation in 2010, and 37 per cent agreeing that the government should redistribute income from the wealthier to the less affluent (Park et al. 2012). Before 2010, support for government spending and redistribution was falling. Third, a study by Brown et al. (2022) shows that local spending reductions between 2011 and 2015 strengthened support for government redistribution from high-income households, especially for services that these households might benefit from themselves. The experiment we conduct establishes that exposure to austerity causally increases individual preferences for redistribution in the form of government spending and taxing higher incomes and that redistributive preferences explain between 8 and 11 per cent of the effect of austerity exposure on political participation.

Our research contributes to the growing literature focusing on the political consequences of austerity in three main ways (Rüdiger and Karyotis 2014; Alesina et al. 2021; Fetzer 2019; Ponticelli and Voth 2020; Galofré-Vilà et al. 2021; Hübscher et al. 2021; Gabriel et al. 2022; Wiedemann 2022). First, we add to this literature by showing that welfare losses due to austerity encourage political participation, which is in line with the predictions of pioneering studies of Runciman (1966) and Gurr (1970). Specifically, we provide directly comparable evidence of the impact of austerity on the full spectrum of political participation. Exposure to austerity mobilizes democratic participation not only through voting in elections but also via appealing for political reforms with the government. Second, we build a bridge between this literature and microeconomic research on the social and economic costs of austerity through the focus on redistributive preferences. Understanding why (and the way through which) welfare losses affect people's decision to engage politically is very important for ensuring the proper functioning of democracy (Fetzer 2019). Finally, we add to a small set of new studies that explore the causal impact of post-financial crisis austerity on socioeconomic outcomes as well as political participation and democracy (e.g., Fetzer 2019; Bray et al. 2022; Gabriel et al. 2022; Hübscher et al. 2022; Wiedemann 2022). Exploring causal determinants of political participation can help us understand what citizens demand from their government in times of crisis and why they demand it, thus providing important insights into how economic crises might affect democratic participation.

2 Observational data and key trends

The unit of analysis in this first part of the study is the Local Authority District (LAD). LADs are the geographic area for which local government bodies are responsible and comprise district

¹⁰ This happened, de facto, during austerity. For instance, trading off the political costs of different measures, the British Government shielded pensions during austerity and cut social housing benefits (two thirds of people affected were disabled) and spending on education instead.

¹¹ See <https://www.bsa.natcen.ac.uk>.

councils and unitary authorities in England, Welsh unitary authorities, and Scottish council areas. They form the second lowest tier of government before parishes and were the final link in the chain responsible for implementing austerity policies between 2010 and 2019 (and will again be for 2023 going forward). Austerity directly affects LADs through cuts in government grants which, on average, make up at least one third of budgetary resources at the local level and, in some cases, much more. Other budgetary resources can be sought from raising local taxes but fundraising via these means is typically limited. Our sample comprises all 379 LADs in England, Wales, and Scotland, for which we build a balanced panel dataset spanning the period between 2000 and 2019.

2.1 Explanatory and dependent variables

Our proxy for austerity is the estimated financial losses in British pounds per working-age adult per LAD that originate from austerity-based cuts in welfare payments. Beatty and Fothergill (2013) construct this variable by quantifying the pecuniary impact of different welfare reforms on the population. The reforms were expected to yield fiscal savings of up to £18.9 billion per year between 2010 and 2015. On a per capita basis, this corresponds to a welfare loss of £470 per year and working-age adult (16–64). For the full period of austerity, from 2010 to 2019, the estimated welfare loss amounted to £651 per year and working-age adult.¹² These are substantial cuts considering that average gross disposable income per capita was £20,000 at the time. The welfare losses are estimated from data published in the Treasury’s annual Budget or Autumn Statement. Since national statistics mask large variation in the regional distribution of welfare losses, Beatty and Fothergill (2013) estimate the specific impact on local authorities using additional official statistics, including expenditure by local authorities, and the distribution of benefit claimants in each local authority district before 2011.¹³ Two updated versions of this variable are available (Beatty and Fothergill 2016). The first update is a calculation of the *realized* welfare losses for the first austerity plan (2011–15) based on local government net revenue and capital expenditure (provisional out-turns). The second update provides estimated financial losses per working-age adult per LAD for the period 2011 to 2019, extending the original measure by four years and including the second austerity plan (2016–19).¹⁴ In our analysis, we use the original measures (estimated financial losses between 2011 and 2015), first, because we expect citizens to immediately react to the announcement of austerity, even if the policies themselves have not yet been implemented. When people perceive that a policy threatens their interests or values, they may want to act to influence policy-making through political participation. Second, effective (realized) costs include the impact of policies implemented after our main period of analysis. Figure 1 displays welfare losses from austerity per working-age adult across LADs between 2010 and 2015 (right panel), alongside estimates of income deprivation in 2010 (left panel). The data shows that the financial impact of spending cuts varied considerably between areas and affected economically weaker local authorities disproportionately (Beatty and Fothergill 2013).

We analyse three forms of political participation: voting turnout, appealing for political reform, and protesting. Data on voting turnout is compiled after each election in every constituency in the

¹² Welfare losses are calculated for working adults because austerity measures mainly targeted this population group.

¹³ The estimate holds all other factors constant, which means that Beatty and Fothergill (2016) make no assumptions about the growth of the economy, employment levels, changes in claimant behaviour, or other related variables.

¹⁴ Pre-2015 reforms included housing benefit—local housing allowance; housing benefit—under-occupation (widely known as the ‘bedroom tax’); non-dependent deductions; household benefit cap; council tax benefit; disability living allowance; incapacity benefits; child benefit; tax credits; and one per cent up-rating. Post-2015 welfare reforms include universal credit tapers and thresholds; (additional changes in) tax credits; mortgage interest support; ‘pay to stay’; local housing allowance cap in the social rented sector; housing benefit for 18- to 21-year-olds; employment and support allowance; benefit cap; and benefit freeze.

country. Voting turnout is defined as the total number of voters in each election divided by the total number of eligible voters in a LAD. Constituency boundaries can change in-between elections and do not always coincide with the boundaries of LADs. We use data from the Election Centre in Oxford to match electoral data between constituencies and LADs for the period between 1973 and 2019.¹⁵ Figure 2 describes trends in voting turnout and voting preferences across LADs during austerity (2010 to 2019). We only consider voting in general elections, which have turnout rates above 60 per cent during this period (Figure 2). Participation rates in European and local elections are low unless local elections are held around the same time as national elections (Figure 2). The data shows an upward trend in voting turnout between 2010 and 2017.

Appealing for political reform is defined as the total number of any verbal, non-threatening appeals for political reform submitted by politicians, members of the civil society, or citizens in each LAD between 2000 and 2019. Protesting is defined as the total number of peaceful civilian demonstrations and other forms of collective action against the government in each LAD between 2000 and 2019. This information is extracted from the Global Database of Events, Language, and Tone (GDELT), the most comprehensive source of data on protests and appeals in Europe currently available (Leetaru and Schrodtt 2013). GDELT does not offer reliable information on the type and number of participants involved in such events, or the original news sources from which information is taken. Because we cannot identify what specific issue is addressed by a given appeal or protest, we consider all appeals and protests directed at any level or type of government institution in the UK in the period between 2000 and 2019.¹⁶

We match information on appeals and protests to the data on welfare losses from austerity by computing the total number of events in each category per year and per LAD. On average, there are 0.1 appeals and 2.4 protests per year between 2000 and 2019. Figure 3 shows that appeals and protests rose between 2010 and 2015. The average number of annual appeals and protests was 0.2 and 3.0, respectively, between 2011 and 2015. This period of more intense activity coincides with the first UK austerity plan.

2.2 Control variables

To match our unit of analysis, we aggregate all control variables at the LAD level. The variables account for factors that can simultaneously affect austerity and political participation. First, we control for average household income to reflect economic conditions in each LAD. Evidence shows that lower-income households have lower rates of political participation (Lawless and Fox 2001; Pacheco and Plutzer 2008; Solt 2008; Schlozman et al. 2012; Erikson 2015; Gallego 2015; Dalton 2017; Marx and Nguyen 2018; Aytac, et al. 2020), although this finding has recently been challenged by Jungkunz and Marx (2021).¹⁷

Second, we control for education levels in line with literature in economics and political science, which documents a positive relationship between education and political participation (Rosenstone and Hansen 1993; Verba et al. 1995; Delli and Keeter 1996; Hauser 2000; Grönlund and Milner 2006; Denny and Doyle 2008; Burden 2009; Chevalier and Doyle 2012). There are also valid theoretical arguments supporting the view that education is relevant for political participation (see

¹⁵ Further details about the Election Centre matching method can be found at: https://www.electionscentre.co.uk/?page_id=1051.

¹⁶ To avoid the risk of considering the same event more than once, we restrict the number of events measured per day to a maximum of one per location (identified as an area with the same latitude and longitude coordinates).

¹⁷ This study does not find short- or long-run effects of income on political participation in Germany, Netherlands, Spain, Switzerland, UK, and the USA.

Bömmel and Heineck 2020 for a discussion). We measure the level of education as the share of citizens in any LAD with at least a secondary degree.

Third, the link between race and political participation has received attention in the context of rising populism and polarization in Western societies (Fraga 2018). Group identity and shared interests (‘identity politics’) seem to play a role in explaining the political engagement of different groups (Fialho 2022). Relatedly, political participation can be influenced by people’s perceptions of the ability of ‘others’ to shape political outcomes (Howell and Fagan 1988; Bobo and Gilliam 1990; Fraga 2018). We code information on race as a dummy variable for white, self-identified ethnically British (=1) and non-British ethnic groups (=0) to calculate the share of the ethnically British population within each LAD.

Fifth, we consider the share of individuals employed in manufacturing in each LAD. In the UK, manufacturing workers have been historically associated with greater support for the Labour party, but recent evidence suggests that this support lessened in the run-up to the Brexit referendum (Alaimo and Solivetti 2019). Regardless of the orientation of the vote, the share of manufacturing jobs in an area appears to be significantly correlated with voting preferences.

The relationship between exposure to austerity, household income, education, and the share of manufacturing jobs can be endogenous because austerity-related spending cuts can affect all three variables—either immediately (for instance, via income effects) or with lagged effects (by, for instance, shaping decisions about education and employment across different age groups). To reduce possible endogeneity, we use each variable’s starting-year value for the entire period of observation instead of the contemporary values. For household income, this is the average value in each LAD in 2000. For education and manufacturing jobs, these are the shares of each variable in 2004, the first year for which the information is available.

2.3 Empirical approach and results

We assess the relationship between local exposure to austerity and political participation in two different periods. First, we analyse the impact of welfare losses from the first austerity plan (2011–15) on political participation between 2011 and 2015. Second, we consider the longer-term impact of the first austerity plan by including political participation up to 2019. We estimate the following model specification:

$$Y_{xit} = \beta_0 + \beta_1 Austerity_Loss_{xi} * Post2010_t + \beta_2 X_{xit} + \delta_x + \theta_{it} + \varepsilon_{xit} \quad (1)$$

Y_{xit} represents political participation, i.e., either voter turnout, appealing for political reform, or protesting in LAD x in region i in year t . *Austerity Loss* (natural logarithm) is our main variable of interest and is defined as the estimated financial losses per working-age adult per LAD between 2011 and 2015. *Austerity Loss* is a parametric constant, meaning that we exploit variation between and not within LADs. *Post2010* is a dummy variable which equals 1 for the years 2011 to 2019, and 0 for the years 2000 to 2010. The interaction term between *Austerity Loss* and *Post2010* yields the average differential effect of exposure to austerity on political participation since 2010. The vector of control variables is represented by X_{xit} and contains household income (natural logarithm), the share of white population, the share of the population with higher education as well as the share of manufacturing jobs. We add LAD fixed effects (δ_x) and region-year fixed effects (θ_{it}) to account for unobserved heterogeneity across areas and over time. All regressions are weighted by the LADs population in 2000.

2.4 Austerity and political participation

The regression results for the specification defined in Equation (1) are reported in Table 1. All results show that exposure to welfare losses from austerity is positively correlated with voting in general elections and appealing for political reforms. We do not find a statistically significant relationship between exposure to austerity and protests.

Panel A (no controls) and B (controls added) in Table 1 show the short-term relationship between exposure to austerity and political participation. Column 1 (Panel B) shows that welfare cuts are significantly associated with higher voter turnout in the 2015 elections. Computing the full in-sample distribution of the point estimate (0.025), the analysis shows that voter turnout increased on average by 7.3 percentage points in 2015 in areas more exposed to austerity. Exposure to austerity also significantly correlates with an increase in appealing for political reform. The coefficient is equal to 0.132 and statistically significant. Considering the full in-sample distribution of point estimates, the probability of appealing for political reform increased by 38.3 percentage points after 2010 on average (Column 2, Panel B).

The analysis presented in Panel C expands the time horizon to 2019 and assesses the longer-term effects of the first austerity plan (2011–15) on political participation. Column 1 confirms that spending cuts correlate with an increase in voter turnout and that the effect intensifies over time. The average effect size for the entire period is higher (9.2 percentage points) than the average effect size for the period 2011–15. While still positive and significant, the correlation between exposure to austerity and appealing for political reform weakens over time: the average effect size for the entire period is 31.6 percentage points. The weakening of the effect is possibly driven by a steep drop in formal appeals immediately after Brexit (Figure B2, Appendix B). Appealing for reform recovered in the years after the Brexit but not enough to raise the average. This suggests that alternative channels of political participation follow separate dynamics and that the effect of austerity on voting turnout is more persistent.

We probe the sensitivity of our results using four robustness tests (see Appendix C). First, we re-estimate our main specifications excluding all Scottish LADs. Scotland differs from the rest of the UK in several key aspects (Table C1, Appendix C). Historically, Scotland has been seeking independence from the UK and these efforts have gained new momentum during the era of austerity. Scottish citizens voted against Brexit (62 versus 38 per cent), setting themselves apart from voter preferences in England and Wales. In addition, while all councils across the UK are funded by a combination of central government grants, local taxes, and business taxes, the balance between these funding sources in Scotland varies. Scottish districts were less affected by cuts in central government transfers during austerity (10 per cent on average), and the Scottish parliament has strengthened the reliance of local councils on local taxation.¹⁸ Excluding Scotland *increases* the effect of exposure to austerity on all forms of political participation, including protests. In this model, the effect of austerity on protests in this model specification is statistically significant (Column 3, Table C1, Appendix C), suggesting that austerity has affected protests mostly in England and Wales where austerity was more severe.

Second, we re-estimate all regressions using the alternative measures of austerity by Beatty and Fothergill (2016): (i) the realized costs between 2011 and 2015, and (ii) the extended measure including the second austerity plan (2016–19). All three measures—the original measure we use in the main analysis (estimated costs between 2011 and 2015), the realized costs, and the extended measure including the second austerity plan—are highly correlated (0.97). Consequently, we obtain

¹⁸ See <https://www.instituteforgovernment.org.uk/explainer/local-government>.

very similar results when replacing our preferred austerity variable with these two alternative measures (Table C2, Appendix C).

Third, we replace our main dependent variable with alternative measures. Alternative data on voting turnout are obtained from the UK Household Longitudinal Survey (UKHLS) and refer to information on whether individuals voted in the past general election. Alternative data on appeals for political reform were extracted from the British Election Study (BES) and refer to information on whether individuals signed a petition (not on the internet). Individual-level data for both voting turnout and signing a petition from these alternative sources are aggregated at LAD level. Alternative data on protests were estimated from the Mass Mobilization Protest database. We use a dummy variable which equals 1 if a protest occurs in the LAD. All results are very similar to our baseline estimations (Table C3 in Appendix C).¹⁹

Fourth, we test the robustness of our main results by excluding population weights, using robust standard errors instead of clustering at the district level, and using a different specification of fixed effects. All main results remain unchanged (see Table C4, Appendix C).²⁰

3 Randomized survey experiment

The observational data analysis shows that exposure to austerity and political participation in the UK are significantly correlated. To provide causal evidence on this relationship and explore whether preferences for redistribution drive the effect of austerity on political participation, we conduct a large-scale, representative online experiment with a sample of 1,494 adults resident in the UK. In the experiment, we exogenously vary individual exposure to austerity to assess its causal impact on political participation and individual preferences for redistribution. Moreover, we test whether preferences for redistribution mediate the relationship between austerity and political participation.

3.1 Participant recruitment and sample

We recruited 1,494 individuals from the UK via Prolific, a research service company which manages a global pool of over 100,000 individuals and offers a digital platform for researchers to implement online studies.²¹ Our sample is representative of the national population in terms of age, sex, and ethnicity. Prolific stratifies the sample across age, sex, and ethnicity based on information from the UK Office of National Statistics.²² Table 2 shows that our sample is very similar to the UK census sample, including characteristics which were not part of the sampling

¹⁹ A detailed description of these alternative data sources and their advantages and disadvantages is provided underneath Table C3 in Appendix C.

²⁰ We also compare Voter Turnout at the national level to Voter Turnout at the European and the local council level, and also estimate party voting preferences in national, European, and local council elections for the Conservatives, Labour, Liberal Democrats, and UKIP. Results are reported in Appendix D.

²¹ The experiment was conducted in February 2022. Prolific is a crowdsourcing platform that allows researchers to recruit study participants and enables participants to earn money by participating in research studies (Peer et al 2022). Researchers can create and post studies and recruit participants who are paid and match specific study criteria for the study. Participants may not be representative of the general population as they self-select into the participant pool. This caveat holds true also for any non-random, convenient sample.

²² Website: <https://www.ons.gov.uk/>.

scheme (e.g., marital and employment status). However, participants in the Prolific sample are on average more educated than the broader population.

The recruitment call communicated that the estimated survey completion time was 15 minutes. On average, participants took 12 minutes to complete the survey. As per Prolific payment policies, participants received £15.85 per hour.

3.2 Questionnaire and experimental design

Figure 4 gives an overview of the experiment. The full questionnaire is provided in Appendix E. First, we ask respondents a set of demographic questions (age, ethnicity, gender identity, civil status, income, highest educational degree), which are aligned with the survey data we use for the observational study. Second, respondents answer questions about their employment situation and whether they, or someone in their household, has been on government support in the past 12 months and, if so, what kind of support they received (income support, job seeker's allowance, child benefit, universal credit, or other). Third, we ask respondents whether they have lived in the UK for most of their life (true for 93 per cent), whether they are a UK citizen (true for 93 per cent), and in what region they reside. The second and third sets of questions tell us whether an individual has lived in the UK during austerity and, if so, where. Fourth, we ask about people's ideological stance, interest in politics, trust in government, and concerns about national public policy issues, including jobs, government budget, financial stability, income inequality, taxes, health care, education, immigration, foreign affairs, corruption, the COVID pandemic, and climate change. These variables capture people's attitudes towards the government and government policy, which could influence how they respond to austerity in the experiment. Fifth, we ask participants whether they have ever heard of austerity (yes/no), followed up by a multiple-choice question testing their prior knowledge about austerity policies. Individual prior knowledge might colour individual responses to the information about austerity presented to the treatment groups.

After finalizing the pre-treatment questions, participants are randomly assigned to one of three experimental groups: Control group, treatment group 1, or treatment group 2. Both treatment groups expose participants to austerity in the UK by showing them a professionally produced video about the policies and their socioeconomic implications. Using clear, simple, and neutral language aided by visuals, the videos inform participants that austerity started as a response to the global financial crisis and then describe the core policies it entailed. The final part of the videos summarizes costs that austerity has inflicted on British society. We use a video treatment because recent research shows that videos convey information more effectively than text (Goldberg et al. 2019). In our context, a video is a more versatile means to convey the experience of austerity because it enables the use of vivid imagery, making the experimental treatment more palpable for participants.

The video shown to treatment group 1 talks about the origin, design, and costs of austerity. We refer to this treatment as *Exposure to Austerity*. The video shown to treatment group 2 provides the same information as the video shown to treatment group 1, *plus* it elaborates on costs inflicted on citizens which are already in a precarious financial situation. Costs are illustrated with the cases of Rhea, Georg, and Lorna, three working-age adults in Britain who experienced cuts to their social protection benefits during austerity, which further worsened their economic situation. We will refer to this treatment as *Exposure to Austerity Deprived*. All information presented in the videos is real, accurate and originates from verified academic and journalistic sources which we make available to participants at the end of the experiment. Importantly, the information represents the type of experiences, information, and public discussion that citizens in the UK were exposed to during the period of austerity, and which had a true impact on their lives.

Both information treatments allow us to test the hypothesis that exposure to austerity has a causal effect on political participation. However, the information in treatment group 1 is not personalized and refers to austerity in the UK in the aggregate. This setting considers that not all citizens are equally affected by austerity: some may experience it from a distance. Treatment group 2 offers a more personalized experience of austerity and, hence, considers that some citizens may have been impacted by welfare cuts themselves or have been directly observing hardship in their communities. Designing the information treatments in this way enables us to differentiate between the effect of ‘merely’ providing information about austerity and its costs to society (treatment group 1), and the effect of creating a more personal and relatable experience of being exposed to austerity (treatment group 2) that is closer to lived realities. The alternative framing, in this case, should modify the criteria according to which a policy is perceived and judged (Scheufele 2000; Stantcheva 2022) and, eventually, affect the desire to take political action. Appendix F shows the scripts of the treatment videos.²³

To keep conditions constant across experimental groups, the control group watched an unrelated video about European weather forecast technology. This ensures comparable initial conditions across all groups since delivering information through a video may affect individual characteristics such as reducing the risk of uncertainty, having a priming effect, increasing attention, and generating emotional responses (Haaland et al. 2023). All videos are similar in length: 3:06 minutes for the control group, 2:26 minutes for treatment group 1, and 3:25 minutes for treatment group 2. To ensure that participants watch the video (are treated), we remove any technical features that enabled forwarding, playing back, or skipping the video. A few seconds after the video ends, the ‘next’ button appears on the survey page and participants can proceed with the survey.

After watching the videos, participants answer questions about political participation. These questions generate our first set of dependent variables that tightly align with the dependent variables of the observational study (voting, appealing for political reform, and peaceful protesting). In contrast to the observational data, where we cannot observe whether citizens vote, protest, or appeal for reform to oppose austerity specifically, we are now able to ask about respondents’ political participation due to austerity policies. The first two questions elicit stated preferences; the third question asks participants to reveal their preferences and sign a petition which is forwarded to two real members of Parliament.²⁴

1. *Voting*. ‘How likely would you be to vote for a candidate for public office because of their position on austerity?’ – Range: 1 (Definitely would not) to 4 (Definitely would)
2. *Protesting*. ‘If a peaceful protest against austerity policies was being held this week close to where you live, would you participate?’ Range: 1 (Definitely will not) to 5 (Definitely will)
3. *Appealing for political reform*. ‘You can also take action by signing a petition. We will submit each petition to two Members of Parliament who have either spoken for or against austerity policies in parliament. We will not tell them your name, just how many

²³ The videos are available here: <https://youtube.com/playlist?list=PLGO1JriFGwM6OykTgF8DGmZTq46lPLoAI>.

²⁴ We identified two real members of the parliament (MPs) who argued against austerity or for austerity policies in publicly available speeches held in parliament in the recent past. We contacted them via email briefly explaining the content of our study. We highlighted that participants had the opportunity to express their desire to demand from UK members of parliament to take a stand against austerity or for austerity policies. We reported to them the number of UK citizens who participated in our study and expressed such a desire. On behalf of the participants, we explicitly requested to the MP against austerity to take a stand against the erosion of the welfare state. We requested to the MP for austerity to stand against excessive budget deficits and public sector spending in relevant government debates.

people in our study support either of the two petitions below. We will send you proof of submitting the petition to the corresponding Member of Parliament in the next few weeks.’ Respondents could choose one of three answers:

- I want to sign the following petition AGAINST austerity policies. ‘Austerity policies affect all segments of the population and particularly hurt the most vulnerable groups. Spending cuts should be stopped. I am against austerity policies.’
- I want to sign the following petition FOR austerity policies. ‘Cuts are necessary to ensure economic sustainability. Benefits should be reserved for people who really need them such as old people and children. I support austerity policies.’
- I do not want to sign either of these petitions.

Next, we gather post-treatment data on individual preferences for redistribution, our second set of dependent variables. We ask the following questions:²⁵

- *Redistribution.* ‘The government should implement policies to reduce differences in income levels between the rich and the poor.’ Range: 1 (strongly disagree) to 5 (strongly agree).
- *Taxation and public spending.* ‘If the UK’s national budget deficit is too high, the government should raise taxes on the rich instead of cutting benefits for the poor.’ Range: 1 (strongly disagree) to 5 (strongly agree).
- *Government spending.* ‘Suppose you can decide over total UK government spending next year. How do you want to divide the budget in percentages between the following categories? (The total must sum up to 100%).’ Categories: health, education, defence and national security, welfare spending (e.g. income support or child benefits), social security, and public infrastructure.

We use these questions to investigate to what extent preferences for redistribution shape the relationship between exposure to austerity and political participation. First, we test whether exposure to austerity directly changes individual preferences for redistribution. Second, we run a mediation analysis to test whether redistribution preferences are a channel through which austerity affects political participation.

3.3 Data quality and descriptive statistics

In total, 1,494 people living in the UK participated in our survey experiment. We took several measures to ensure data quality. First, we excluded one participant who joined from outside of the UK according to GPS data. Second, we used an attention check implemented immediately before

²⁵ Questions on preferences for redistribution are taken from the relevant literature (e.g. Alesina and La Ferrara 2000) and adjusted for the purpose of our survey. The British Election Study (BES) post-electoral survey reports a similar question: ‘The government should take measures to reduce differences in income levels’. Regarding taxation, we took inspiration from the study of Kuziemko et al. (2015) who asked participants the following question: ‘As you may know, there have been proposals recently to decrease the federal deficit by raising income taxes on millionaires. Do you think income taxes on millionaires should be increased, stay the same or decreased?’. Questions about spending are similar to Alesina et al. (2018) but adapted to the UK context.

the treatment to test if participants devoted their full attention to the survey,²⁶ and informed respondents that their answer would not affect payment. Two participants reported that they did not pay attention to the survey. Although answering ‘no’ to this question might have happened by mistake, we excluded these two observations from the sample. We excluded one more participant who did not give permission to use their data. Fourteen additional participants were dropped from the analysis because they have missing information about one of the control variables. In total, we excluded 18 observations from the full sample, leaving us with 1,476 participants (Table 3). A balance test shows that excluding these observations does not affect the comparability of the experimental groups. Results are reported in Table G1 in Appendix G.

We observe a low spread in values for the average time taken to complete the survey. The mean (13 minutes) and median (12 minutes) are similar and 98 per cent of participants spent a reasonable time completing the survey (within 3 standard deviations of the mean). Excluding an additional 27 participants who took longer to complete the survey does not affect our main results (Table G2 in Appendix G).

3.4 Empirical strategy

We estimate the impact of *Exposure to Austerity* (treatment 1) and *Exposure to Austerity Deprived* (treatment 2) on our outcomes of interest using the following OLS regression:

$$y_i = \alpha_0 + \alpha_1 T_{ij} + \alpha_2 X_i + u_i \quad (2)$$

where i defines the individual and j the treatment status. Y indicates the outcomes of interest—political participation (voting, protesting, or signing a petition against austerity) or preferences for redistribution. The treatment dummy is represented by T and equals 1 for any treatment group and 0 for the control group. X represents the control variables, all measured prior to administering the treatment. These include demographic characteristics (sex, age bracket, ethnic background, marriage status, and whether they have lived in the UK for most of their life), socioeconomic characteristics (whether the respondent has a university or postgraduate degree, is in paid employment (full-time or part-time), and their income class),²⁷ levels of trust in the government, with values ranging from 1 (all the time) to 5 (never), and political ideology, proxied by a dummy variable equal to 1 if the respondent considers themselves as ‘left wing’ or ‘left center’ and 0 for the other political affiliation. Descriptive statistics for all control variables are reported in Table H1 in Appendix H. Regression results without controls and results without trust or political preferences are reported in Appendix I.

3.5 Main results

Table 4 presents the analysis of the impact of exposure to austerity on political participation, and Table 5 presents the analysis of the impact of exposure to austerity on individual preferences for redistribution. In both cases, we first estimate the effect of the pooled treatment sample (*Exposure to Austerity* + *Exposure to Austerity Deprived*) and then break it down by treatment group. Table 6 presents the results of the mediation analysis which tests whether preferences for redistribution could be a channel through which austerity affects political participation.

²⁶ This strategy was also intended to increase participants’ attention just before the informational treatment.

²⁷ Twelve classes are considered: less than 15,000; 15,000–24,999; 25,000–34,999; 35,000–44,999; 45,000–54,999; 55,000–64,999; 65,000–74,999; 75,000–84,999; 85,000–94,999; 95,000–104,999; 105,000–144,999; more than 145,000.

The results in Table 4 (Panel A) show that exposure to austerity increases individual willingness to vote and appeal for political change (sign a petition), but not the willingness to join a peaceful protest. The results confirm our findings from the observational data. One explanation for the null effect on protests could be that this form of political participation requires greater individual effort and commitment than voting or signing a petition. The experimental treatment might not have successfully (re)-created the right conditions to invite such a response. The pandemic and risk of contracting COVID-19 also still dominated public life when we implemented the experiment and might have affected answers about joining a public event. However, this result replicates the observational analysis, which suggested that exposure to austerity affected all forms of political participation except for protesting.

Disaggregating the results by treatment (Table 4, Panel B) shows that providing additional personalized information on how vulnerable population groups experience austerity magnifies the treatment impact. However, we do not find a statistically significant difference between the two treatments.

The results in Table 5 (Panel A) show that exposure to austerity increases individual preferences for redistribution across all three measures (government policies that reduces income differences between rich and poor, taxation and public spending, and government spending for welfare benefits and social security). Three results emerge when we separate the effects by treatment. First, providing additional personalized information about hardship for vulnerable citizens (treatment group 2) significantly increases support for government policies to reduce income differences between rich and poor (Column 1). Second, personalized information about hardship significantly drives support for taxing richer citizens rather than cutting social protection measures to reduce the budget deficit (Column 4). Third, personalized information about hardship has a larger positive effect on individual support for allocating more resources to welfare and social security spending than the aggregate information presented in treatment group 1, although this difference is not significant.

We also tested whether response to treatment differed conditional on pre-treatment measures of political ideology and trust in the government using an interaction term and do not find significant differences with regards to these characteristics (see Appendix K).

3.6 Mediation analysis

In this section, we explore whether changes in individual preferences for redistribution are a possible mechanism through which exposure to austerity (Table 5) increases political participation. We focus on voting and appealing for political reform and exclude protesting since we do not find a significant treatment effect on this variable, and focus on the ‘Government should reduce income inequality’ as our preferred measure of individual preferences for redistribution. This variable refers specifically to government redistribution and applies broadly rather than making references to specific policies. However, we also report the results for the other two measures of preferences for redistribution in the Appendix J.

As discussed earlier, preferences for redistribution are an important understudied channel through which exposure to austerity may affect political participation. First, austerity policies redistribute income between socioeconomic groups, which has been shown to change people’s social preferences and the kind of government policies they are willing to support. Second, a recent study by Brown et al. (2022) on the UK suggests that austerity can indeed change individual preferences for redistribution. Providing reliable evidence on preferences for redistribution as a mediator between austerity and political participation is challenging with observational data. The entire population has been exposed to austerity and there is no exogenous variation in this variable.

Identifying the share of political participation explained by austerity through a change in preferences for redistribution is not trivial with experimental data either. For this to work, preferences for redistribution have to be unaffected by both the treatment being administered and any other pre-intervention factors (Imai 2011). Instead of following the usual approach to mediation analysis (see Imai 2011 for a discussion), we follow an empirical strategy implemented by Heller et al. (2017), taking advantage of the fact that the mediator is independent of the treatment in the control group. First, we estimate the impact of the treatment (T), *Exposure to Austerity*, on the candidate mechanism (M), preferences for redistribution. Formally:

$$M_{ij} = \beta + \beta_1 T_{ij} + \beta_2 X_i + u_{ij} \quad (3)$$

where β_1 is the coefficient of interest which captures the effect of the treatment (exposure to austerity) on the mediator (preferences for redistribution). The analysis of the effect of *Exposure to Austerity* on preferences for distribution shows that treated individuals are more likely to support government policies to reduce income differences between rich and poor (i.e. income inequality). The analysis of the effect of *Exposure to Austerity* on preferences for distribution also shows that treated individuals are more likely to support increasing welfare and social security spending and raising taxes on richer citizens instead of cutting social protection to reduce a budget deficit (Table J1 in Appendix J). *Exposure to Austerity Deprived* significantly drives support for taxing richer citizens rather than cutting social protection measures to reduce the budget deficit (Table J1-Panel B in Appendix J). Last, *Exposure to Austerity Deprived* has a somewhat larger positive effect on preferences for allocating more resources to welfare and social security spending than *Exposure to Austerity*, although this difference is not significant (Table J1-Panel B in Appendix J).

Second, we estimate the impact of the mediator (M) on the outcome of interest (y), i.e. political participation. Formally:

$$y_{ij} = \gamma + \gamma_1 T_{ij} + \gamma_2 M_{ij} + \gamma_3 X_i + u_{ij} \quad (4)$$

Multiplying $\beta_1 * \gamma_2$ yields the indirect effect of the treatment T (exposure to austerity) on y (political participation) through M (preferences for redistribution). This approach is problematic, however, because two assumptions need to be satisfied for it to work (Imai et al. 2011). The first assumption is that the treatment is independent of potential mediators and outcomes. In a randomized study—such as ours—this assumption is satisfied. The second assumption is unlikely to hold, even in an experimental setting, because it requires that the mediator is statistically independent of the treatment (and other pre-intervention characteristics). Heller et al. (2017) propose a strategy, which partially mitigates this problem, and which we apply to our context, whereby the potential mediator must be independent of the treatment in the control group. In this approach, we re-estimate Equation (4) using data from the control group:

$$y_{ij} = \delta + \delta_1 M_{ij} + \delta_2 X_i + u_{ij} \quad \text{for all } (i) \text{ with } T_{ij} = 0. \quad (5)$$

The indirect effect of the treatment T (exposure to austerity) on y (political participation) through M (preferences for redistribution) is now given by $\beta_1 * \delta_1$. We obtain the share of political participation explained by austerity through a change in preferences for redistribution using $\beta_1 * \delta_1 / \alpha_1$. These estimations are shown in Table 6. Results suggest that preferences for redistribution are a relevant channel through which austerity impacts political participation. Column 3 shows that preferences for redistribution (*Government should reduce inequality*) mediate around 8 per cent of the effect of *Exposure to Austerity* on voting and around 11 per cent of its effect on petitioning for political reform. In addition, the effect of *Exposure to Austerity* on political participation is mediated by the increasing support for ‘raising taxes on richer citizens’ (Table J2 in Appendix J).

4 Discussion and conclusion

This study provides evidence from observational microeconomic data and a large-scale online experiment in the UK that exposure to austerity increases democratic participation through voting in elections and appealing to the government for political reforms, but not protesting. The results also show that exposure to austerity increases individual preferences for government redistribution via taxing higher incomes and spending more on welfare and social security. A mediation analysis based on the experimental data suggests that preferences for redistribution are a relevant determinant of political participation under austerity.

These findings have important policy implications. There has been a growing academic and public debate about the political costs of austerity in the UK and elsewhere, including its effect on democracy. Emerging studies show an association between welfare cuts, the erosion of social cohesion, and political fragmentation (see Guriev and Papaioannou 2022). Our results indicate that exposure to austerity increased political participation motivated by a demand for redistribution. Possibly UKIP effectively tapped into this sentiment, especially in areas where citizens felt left behind by the austerity policies of the incumbent government. However, voters' recognition of false claims about economic prosperity and the redistribution of resources earmarked for the EU back into the hands of British citizens after Brexit eventually eroded support for UKIP. In that spirit, the quick downfall of Prime Minister Liz Truss after 42 days in office might be another example of the inability of politics to understand citizens' preferences for redistribution. Her proposed agenda of cutting taxes on the rich did not appeal to ordinary citizens, including Brexit voters.²⁸

Our research findings provide new insights into the relationship between citizens and democratic governments during long-term crises. Current policy debates on the COVID-19 pandemic, the war against Ukraine, and the climate crisis across the population partly resemble the austerity debate, with some problems being of similar nature, especially growing calls for welfare redistribution to ensure the most vulnerable groups are not adversely affected further by these combined crises. Crises change preferences which in turn shape democratic participations. Governments may ignore such demands at their own peril.

References

- Aguilar, E. E. and A. C. Pacek. 2000. "Macroeconomic Conditions, Voter Turnout, and the Working Class/Economically Disadvantaged Party Vote in Developing Countries." *Comparative Political Studies* 33 (8): 995–1017. <https://doi.org/10.1177/0010414000033008001>
- Alaimo, L. S. and L. M. Solivetti. 2019. "Territorial Determinants of the Brexit Vote." *Social Indicators Research* 144 (2): 647–667. <https://doi.org/10.1007/s11205-019-02066-3>
- Alesina, A. and E. La Ferrara. 2000. "Participation in Heterogeneous Communities." *The Quarterly Journal of Economics*, Vol. 115(3), 847–904. <https://doi.org/10.1162/003355300554935>
- Alesina, A., S. Stantcheva and E. Teso. 2018. "Intergenerational Mobility and Preferences for Redistribution." *American Economic Review* 108 (2): 521–54. <https://doi.org/10.1257/aer.20162015>

²⁸ See <https://www.bbc.com/news/uk-63838387> and <https://www.express.co.uk/news/politics/1685171/brexit-news-liz-truss-conservative-labour-party-labour-immigration-businesses-economy-vn>.

- Alesina, A., C. Favero and F. Giavazzi. 2019. "Effects of Austerity: Expenditure- and Tax-Based Approaches." *Journal of Economic Perspectives* 33 (2): 141–62. <https://doi.org/10.1257/jep.33.2.141>
- Alesina, A., D. Furceri, G. Ciminelli and G. Saponaro. 2021. "Austerity and Elections." Technical report, International Monetary Fund, Washington D. C. <https://doi.org/10.5089/9781513573724.001>
- Autor D., Dorn, D., Hanson, G. and Kaveh, M. 2020. "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." *American Economic Review* 110 (10): 3139–3183. <https://doi.org/10.1257/aer.20170011>
- Aytaç, S E., E. G. Rau and S. Stokes. 2020. "Beyond Opportunity Costs: Campaign Messages, Anger and Turnout among the Unemployed." *British Journal of Political Science* 50 (4): 1325–1339. <https://doi.org/10.1017/S0007123418000248>
- Ball, L.M., D. Furceri, M.D. Leigh and M.P. Loungani. 2013. "The Distributional Effects of Fiscal Consolidation." International Monetary Fund, Washington D. C. <https://doi.org/10.5089/9781475551945.001>
- Beatty, C. and S. Fothergill. 2013. "Hitting the Poorest Places Hardest: The Local and Regional Impact of Welfare Reform." Technical Report, Sheffield Hallam University. <https://doi.org/10.7190/cresr.2017.6378897426>
- Beatty, C. and S. Fothergill. 2016. "The Uneven Impact of Welfare Reform the Financial Losses to Places and People." Technical Report, Sheffield Hallam University. <https://doi.org/10.7190/cresr.2017.5563239352>
- Biten, M., K.T. and W. van der Brug. 2022. "How Does Fiscal Austerity Affect Trust in the European Union? Analyzing the Role of Responsibility Attribution." *Journal of European Public Policy*. <https://doi.org/10.1080/13501763.2022.2060282>
- Bobo, L. and F.D. Gilliam. 1990. "Race, Sociopolitical Participation, and Black Empowerment." *American Political Science Review* 84 (2): 377–393. <https://doi.org/10.2307/1963525>
- Bray, K., B.N. and J. Wildman. 2022. "Austerity, Welfare Cuts and Hate Crime: Evidence from the UK's Age of Austerity." *Journal of Urban Economics* 103439. <https://doi.org/10.1016/j.jue.2022.103439>
- Brown, S., A. Kontonikas, A. Montagnoli, M. Moro, D. Papoutsaki and W. Sas. 2021. "Who Cares? Attitudes Towards Redistribution and Fiscal Austerity." CESifo Working Paper, No. 9393, Center for Economic Studies and ifo Institute (CESifo), Munich. <https://doi.org/10.2139/ssrn.3959447>
- Burden, B. C. 2009. "The Dynamic Effects of Education on Voter Turnout." *Electoral Studies* 28 (4): 540–549. <https://doi.org/10.1016/j.electstud.2009.05.027>
- Bömmel, N. and G. Heineck. 2020. "Revisiting the Causal Effect of Education on Political Participation and Interest." IZA Discussion Paper Series, IZA DP No.13954, December 2020. <https://doi.org/10.2139/ssrn.3751847>
- Chevalier, A. and O. Doyle. 2012. "Schooling and Voter Turnout: Is there an American Exception?" IZA Discussion Paper Series, IZA DP No. 6539, May 2012. <https://doi.org/10.2139/ssrn.2056729>
- Ciani, E., L. Fréget and T. Manfredi. 2021. "Learning About Inequality and Demand for Redistribution: A Meta-Analysis of In-Survey Informational Experiments." *OECD Papers on Well-being and Inequalities*, No. 02, OECD Publishing, Paris. <https://doi.org/10.1787/8876ec48-en>
- Clark, D. H., and P. M. Regan. 2018. "Mass Mobilization Protest Data." The Mass Mobilization Project. URL: <https://www.binghamton.edu/massmobilization/about.html>.
- Clery, E., J. Curtice and R. Harding. 2017. *British Social Attitudes: The 34th Report*, London: The National Centre for Social Research,
- Dalton, R. J. 2017. *The Participation Gap: Social Status and Political Inequality*. Oxford: Oxford University Press. <https://doi.org/10.1093/oso/9780198733607.001.0001>

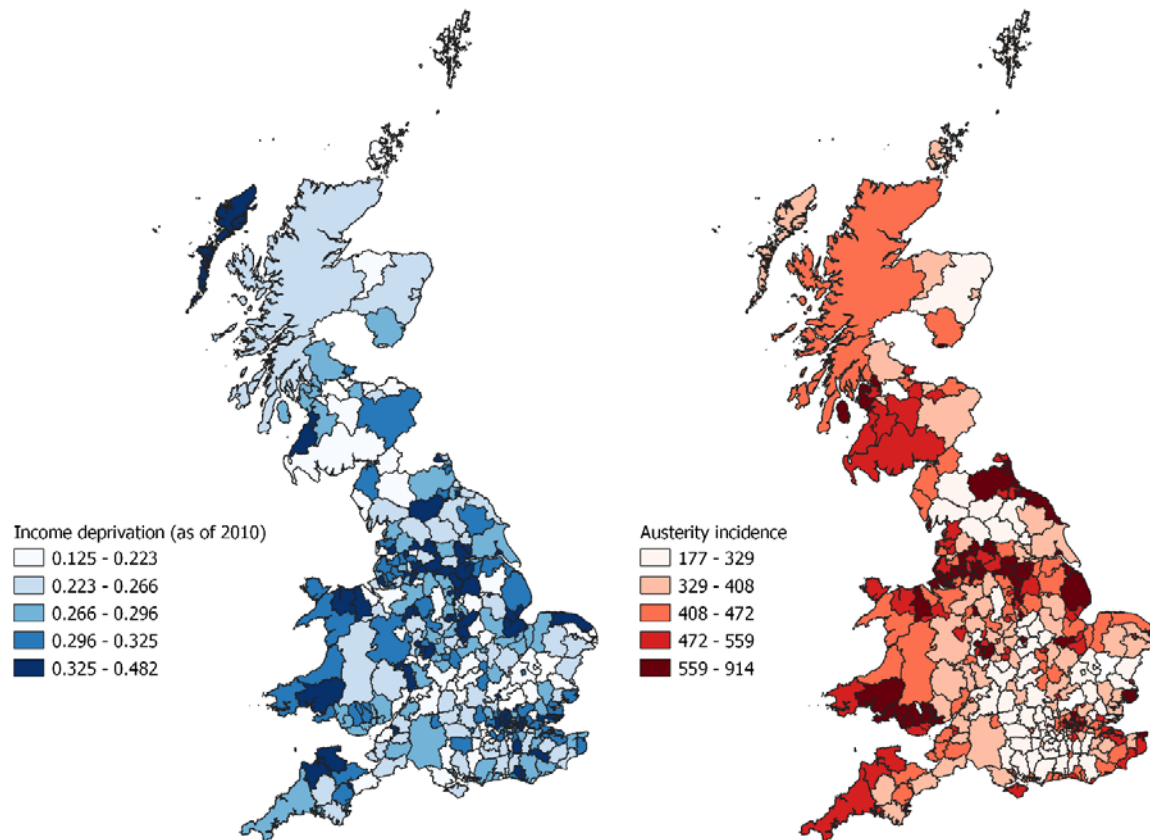
- Delli Caprini, M. X. and S. Keeter. 1996. *What Americans Know About Politics and Why It Matters* (1st ed.). New Haven, London: Yale University Press.
- Denny, K. and O. Doyle. 2008. "Political Interest, Cognitive Ability and Personality: Determinants of Voter Turnout in Britain." *British Journal of Political Science* 38 (2): 291-310. <https://doi.org/10.1017/S000712340800015X>
- Emmenegger, P., P. Marx and D. Schraff. 2016. "Off to a Bad Start: Unemployment and Political Interest during Early Adulthood." *The Journal of Politics* 79 (1): 315–28. <https://doi.org/10.1086/688226>
- Erikson, R. S. 2015. "Income Inequality and Policy Responsiveness." *Annual Review of Political Science* 18: 11-29. <https://doi.org/10.1146/annurev-polisci-020614-094706>
- Fetzer, T. 2019. "Did Austerity Cause Brexit?" *American Economic Review* 109 (11): 3849–86. <https://doi.org/10.1257/aer.20181164>
- Fialho, F.M. 2022. "Race and Non-Electoral Political Participation in Brazil, South Africa, and the United States." *Journal of Race, Ethnicity, and Politics* 7 (2): 262-293. <https://doi.org/10.1017/rep.2021.29>
- Fraga, B.L. 2018. *The Turnout Gap: Race, Ethnicity, and Political Inequality in a Diversifying America*. Cambridge M. A.: Cambridge University Press. <https://doi.org/10.1017/9781108566483>
- Funk, P. 2016. "How Accurate Are Surveyed Preferences for Public Policies? Evidence from a Unique Institutional Setup." *Review of Economics and Statistics* 98 (3): 442-454. https://doi.org/10.1162/REST_a_00585
- Gabriel, R.D., M. Klein and A. S. Pessoa. 2022. "The Political Costs of Austerity." *Sveriges Riksbank Working Paper Series*, No. 418, November 2022.
- Gallego, A. 2015. *Unequal Political Participation Worldwide*. Cambridge, M. A.: Cambridge University Press. <https://doi.org/10.1017/CBO9781139151726>
- Galofré-Vilà, G., C. M. Meissner, M. McKee, and D. Stuckler (2021). Austerity and the rise of the nazi party. *The Journal of Economic History* 81(1), 81–113. <https://doi.org/10.1017/S0022050720000601>
- Giulietti, C. and B. McConnell. 2022. "Kicking You When You're Already Down: The Multipronged Impact of Austerity on Crime." *The ESRC Centre for Population Change Working Paper Series*, Working Paper 104, November 2022
- Goldberg, M.H., S. van der Linden, M.T. Ballew, S.A. Rosenthal, A. Gustafson and A. Leiserowitz. 2019. "The Experience of Consensus: Video as an Effective Medium to Communicate Scientific Agreement on Climate Change." *Science Communication* 41 (5): 659-673. <https://doi.org/10.1177/1075547019874361>
- Grasso, M.T. and M. Giugni. 2016. "Protest Participation and Economic Crisis: The Conditioning Role of Political Opportunities." *European Journal of Political Research* 55 (4): 663-680. <https://doi.org/10.1111/1475-6765.12153>
- Guriev, S. and E. Papaioannou. 2022. "The Political Economy of Populism." *Journal of Economic Literature* 60 (3): 753-832. <https://doi.org/10.1257/jel.20201595>
- Gurr, T.R. 1970. *Why Men Rebel*. Princeton, NJ: Princeton University Press.
- Haaland, I., C. Roth and J. Wohlfart. 2023. "Designing Information Provision Experiments." *Journal of Economic Literature*, 61(1): 4-40. <https://doi.org/10.1257/jel.20211658>
- Harrison, K. 2020. "Can't, Won't and What's the Point? A Theory of the UK Public's Muted Response to Austerity", *Representation* 57 (2), 159-174. <https://doi.org/10.1080/00344893.2020.1728367>
- Hauser, S. M. 2000. "Education, Ability, and Civic Engagement in the Contemporary United States." *Social Science Research* 29 (4): 556-582. <https://doi.org/10.1006/ssre.2000.0681>
- Heller, S.B., A. K. Shah, J. Guryan, J. Ludwig, S. Mullainathan and H.A. Pollack. 2017. "Thinking, Fast and Slow? Some Field Experiments to Reduce Crime and Dropout in Chicago." *Quarterly Journal of Economics* 132 (1): 1-54. <https://doi.org/10.1093/qje/qjw033>

- Howell, S.E. and D. Fagan. 1988. "Race and Trust in Government: Testing the Political Reality Model." *Public Opinion Quarterly* 52 (3): 343-350. <https://doi.org/10.1086/269111>
- Hübscher, E., T. Sattler and M. Wagner. 2021. "Voter Responses to Fiscal Austerity." *British Journal of Political Science* 51 (4): 1751-1760. <https://doi.org/10.1017/S0007123420000320>
- Imai, Kosuke, L. Keele, D. Tingley and T. Yamamoto. 2011. "Unpacking the Black Box of Causality: Learning about Causal Mechanisms from Experimental and Observational Studies." *American Political Science Review* 105 (4): 765-789. <https://doi.org/10.1017/S0003055411000414>
- Innes, D. and G. Tetlow. 2015. "Delivering Fiscal Squeeze by Cutting Local Government Spending." *Fiscal Studies* 36 (3): 303-325. <https://doi.org/10.1111/j.1475-5890.2015.12056>
- Jenkins, R.H., S. Aliabadi, E.P. Vamos, D. Taylor-Robinson, S. Wickham, C. Millett, C. and A.A. Lavery. 2021. "The Relationship Between Austerity and Food Insecurity in the UK: A Systematic Review." *eClinicalMedicine* 33: 100781. <https://doi.org/10.1016/j.eclinm.2021.100781>
- Jungkunz, S. and P. Marx. 2021. "Income Changes Do Not Influence Political Participation: Evidence from Comparative Panel Data." IZA Discussion Paper Series, IZA DP No. 14198, March 2021. <https://doi.org/10.2139/ssrn.3808461>
- Justino, P. and B. Martorano. 2019. "Redistributive Preferences and Protests in Latin America." *Journal of Conflict Resolution* 63 (9): 2128-2154. <https://doi.org/10.1177/0022002719827370>
- Kurer, T., S. Häusermann, B. Wüest and M. Enggist. 2019. "Economic Grievances and Political Protest." *European Journal of Political Research* 58 (3): 866-892. <https://doi.org/10.1111/1475-6765.12318>
- Kuziemko, I., M. I. Norton, E. Saez and S. Stantcheva. 2015. "How Elastic Are Preferences for Redistribution? Evidence from Randomized Survey Experiments." *American Economic Review* 105 (4): 1478-1508. <https://doi.org/10.1257/aer.20130360>
- Lawless, J. L. and R. L. Fox. 2001. "Political Participation of the Urban Poor." *Social Problems* 48 (3): 362-385. <https://doi.org/10.1525/sp.2001.48.3.362>
- Leetaru, K. and P.A. Schrodtt. 2013. "GDELT: Global Data on Events, Location, and Tone, 1979–2012." *ISA annual convention* 2 (4): 1-49.
- Margalit, Y. 2019. "Political Responses to Economic Shocks." *Annual Review of Political Science* 22 (1): 277-295. <https://doi.org/10.1146/annurev-polisci-050517-110713>
- Marx, P. and C. Nguyen. 2018. "Anti-Elite Parties and Political Inequality: How Challenges to the Political Mainstream Reduce Income Gaps in Internal Efficacy." *European Journal of Political Research* 57 (4): 919-940. <https://doi.org/10.1111/1475-6765.12258>
- Marx, P. 2020. "Anti-Elite Politics and Emotional Reactions to Socio-Economic Problems: Experimental Evidence on 'Pocketbook Anger' from France, Germany, and the United States." *British Journal of Sociology* 71 (4): 608-624. <https://doi.org/10.1111/1468-4446.12750>
- Pacheco, J.S. and E. Plutzer. 2008. "Political Participation and Cumulative Disadvantage: The Impact of Economic and Social Hardship on Young Citizens." *Journal of Social Issues* 64 (3): 571-593. <https://doi.org/10.1111/j.1540-4560.2008.00578.x>
- Park, A., E. Clery, J. Curtice, M. Phillips and D. Utting. 2012. *British Social Attitudes: The 29th Report*, London: The National Centre for Social Research. <https://doi.org/10.4135/9781446268292>
- Peer E, D. Rothschild, A. Gordon, Z. Evernden and E. Damer. 2022. "Data Quality of Platforms and Panels for Online Behavioral Research." *Behavioral Research Methods* 54 (4): 1643-1662. <https://doi.org/10.3758/s13428-021-01694-3>
- Phillips, D., J. Curtice, M. Phillips and J. Perry. 2018. *British Social Attitudes: The 35th Report*, London: The National Centre for Social Research.
- Ponticelli, J. and H.-J. Voth. 2020. "Austerity and Anarchy: Budget Cuts and Social Unrest in Europe, 1919–2008." *Journal of Comparative Economics* 48: 1-19. <https://doi.org/10.1016/j.jce.2019.09.007>

- Pontusson, J. and D. Rueda. 2010. "The Politics of Inequality: Voter Mobilization and Left Parties in Advanced Industrial States." *Comparative Political Studies* 43 (6): 675–05. <https://doi.org/10.1177/0010414009358672>
- Rosenstone, S. J. 1982. "Economic Adversity and Voter Turnout." *American Journal of Political Science* 26 (1): 25-46. <https://doi.org/10.2307/2110837>
- Rosenstone, S. J. and J.M. Hansen. 1993. *Mobilization, Participation, and Democracy in America*. New York: Macmillan.
- Runciman, W.G. 1966. *Relative Deprivation and Social Justice*. Berkeley, CA: University of California Press.
- Rüdiger, W. and G. Karyotis. 2014. "Who Protests in Greece? Mass Opposition to Austerity." *British Journal of Political Science* 44 (3): 487- 513. <https://doi.org/10.1017/S0007123413000112>
- Schlozman, K. L., S. Verba and H. Brady. 2012. *The Unheavenly Chorus: Unequal Political Voice and the Broken Promise of American Democracy*. Princeton: Princeton University Press. <https://doi.org/10.23943/princeton/9780691154848.001.0001>
- Solt, F. 2008. "Economic Inequality and Democratic Political Engagement." *American Journal of Political Science* 52 (1): 48-60. <https://doi.org/10.1111/j.1540-5907.2007.00298.x>
- Stantcheva, S. 2022. "How To Run Surveys: A Guide to Creating Your Own Identifying Variation and Revealing the Invisible." National Bureau of Economic Research, Working Paper 30527. <https://doi.org/10.3386/w30527>
- Van Reenen, J. 2015. "Austerity: Growth Costs and Post-Election Plans.", Center for Economic Performance CEP 2015 Election Analysis Series, #EA020, London School of Economics.
- Verba, S., K.L. Schlozman and H. Brady. 1995. *Voice and Equality: Civic Voluntarism in American Politics* (4th ed.). Cambridge M. A.: Harvard University Press. <https://doi.org/10.2307/j.ctv1pnc1k7>
- Walsh, D., R. Dundas, G. McCartney, M. Gibson and R. Seaman. 2022. "Bearing the Burden of Austerity: How Do Changing Mortality Rates in the UK Compare Between Men and Women?", *Journal of Epidemiology Community Health* 76 (12): 1027-1033. <https://doi.org/10.1136/jech-2022-219645>
- Wiedemann, A. 2022. "The Electoral Consequences of Household Indebtedness under Austerity." *American Journal of Political Science* 00 (0): 1–18. <https://doi.org/10.1111/ajps.12708>

Figures and tables

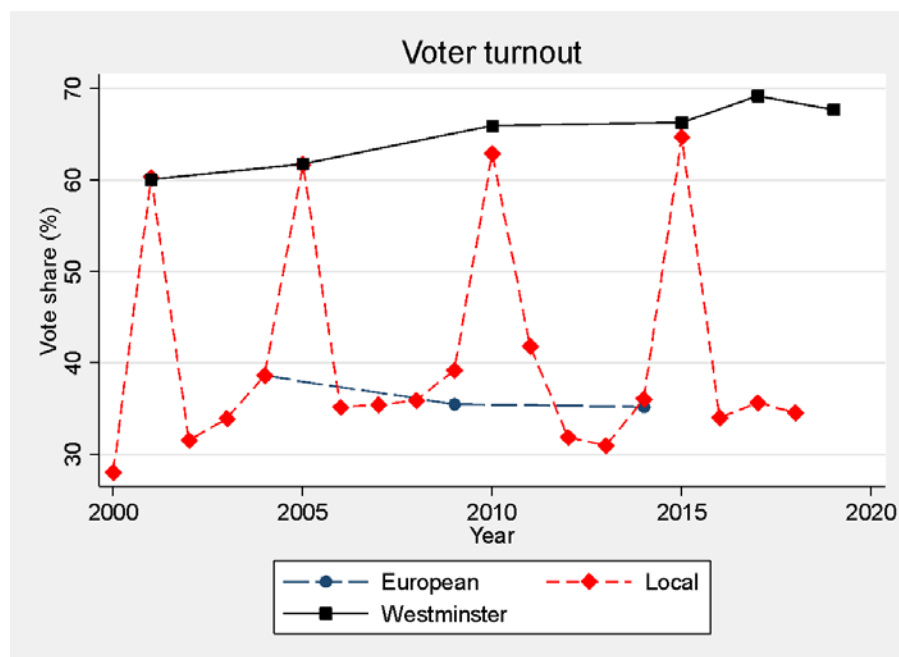
Figure 1: Income deprivation (as of 2010) and austerity incidence (between 2011 and 2015)



Note: income deprivation is estimated using UKHLS data and refers to 2010. Data are averaged and collapsed at the level of the Local Authority District. Exposure to austerity refers to financial welfare losses in British pounds per working age adult per Local Authority District as estimated by Beatty and Fothergill (2013).

Source: authors' calculations based on the UK Household Longitudinal Study (UKHLS) and Beatty and Fothergill (2013).

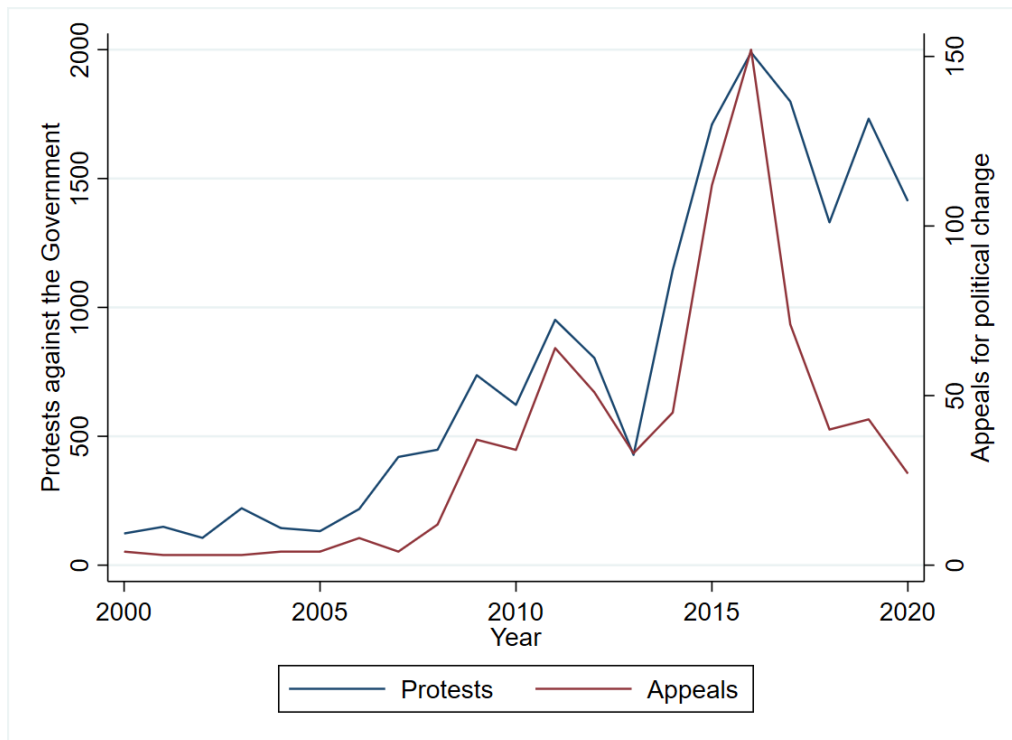
Figure 2: Voter turnout between 2000 and 2019



Note: data refer to electoral turnout per Local Authority Districts (LADs). Constituency boundaries can change in-between elections and do not always match LAD boundaries. To correct for this, we use data from the Election Centre, which has been matching electoral data between constituencies and LADs for the period between 1973 and 2019.

Source: authors' calculations based on data from the UK Parliament House of Commons Library.

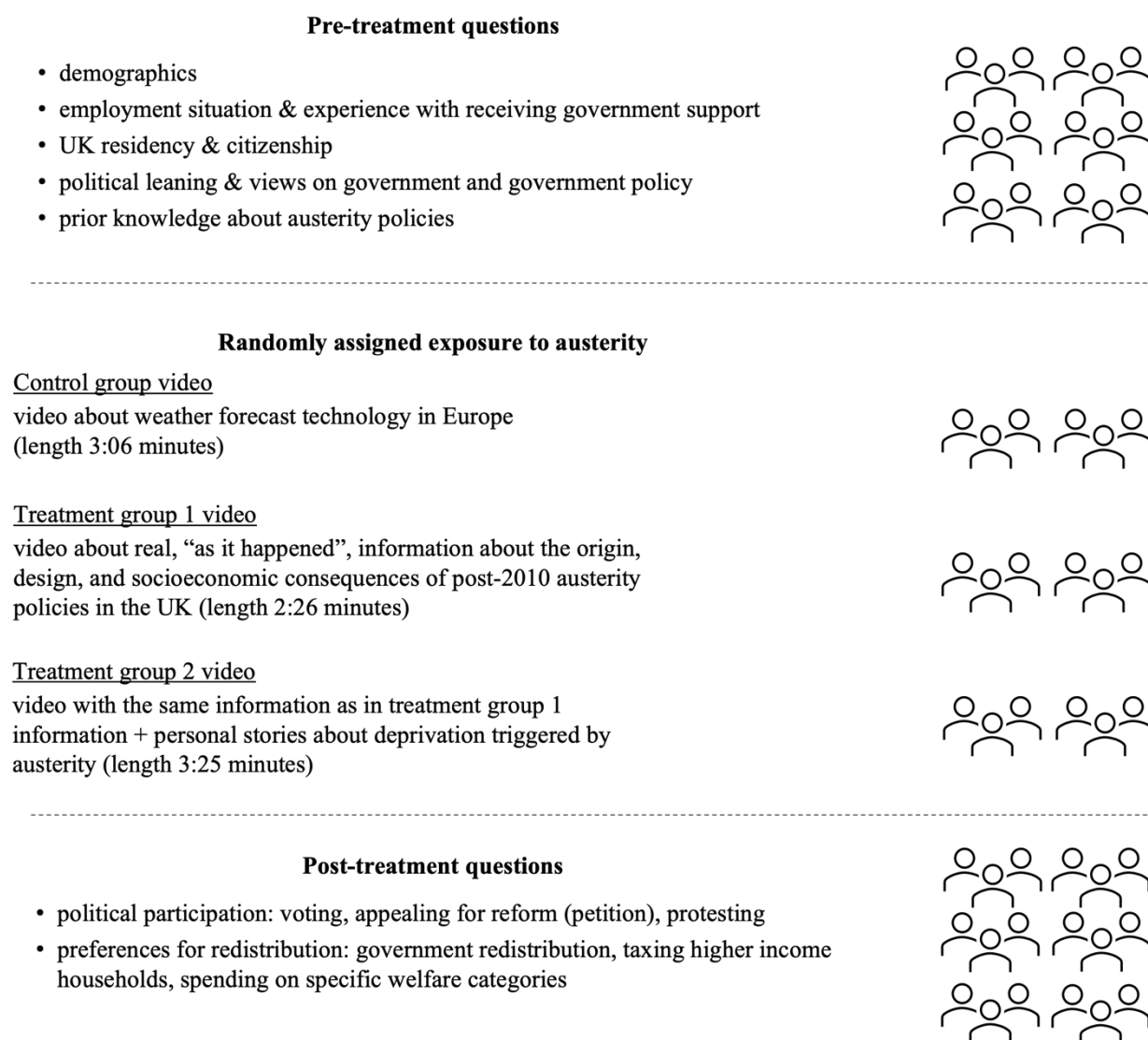
Figure 3: Appeals for political reform and protests between 2000 and 2019



Note: Figure 3 reports the average number of events and protests per 100,000 individuals in each LAD and year.

Source: authors' calculations based on data from Google's Global Database for Events, Language and Tone (GDELT) version 1.0.

Figure 4: Overview of survey experiment



Source: authors' elaboration.

Table 1: Austerity and political participation

	(1)	(2)	(3)
	Voter turnout	Appeals for political reform	Protests against the government
Panel A: 2000–2015 without controls			
Austerity*post 2010	0.016** (0.007)	0.059* (0.032)	-0.087 (0.078)
Observations	1,190	5,920	5,920
R-squared	0.937	0.386	0.475
Controls	No	No	No
District FE	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes
Panel B: 2000–2015 with controls			
Austerity*post 2010	0.025*** (0.006)	0.132*** (0.049)	-0.061 (0.090)
Observations	1,152	5,264	5,264
R-squared	0.942	0.407	0.476
Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes
Panel C: 2000–2019 with controls			
Austerity*post 2010	0.032*** (0.007)	0.109** (0.043)	-0.132 (0.087)
Observations	1,748	6,909	6,909
R-squared	0.933	0.363	0.501
Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes

Note: Table 1 reports the estimated correlation between austerity and political participation over the period between 2000 and 2019. Column 1 shows the results for voting turnout, which refers to the total number of voters in a given election over the total number of eligible voters per LAD. Column 2 reports the results for demand for political reform defined as a binary indicator with value one if any verbal and non-threatening appeals for political reform submitted by politicians, members of the civil society, or citizens occurred in the LDA. Column 3 refers to protesting, which is defined as a binary variable with value one if any civilian demonstrations and other collective actions against the government occurred in the LAD. *Austerity*post 2010* refers to the estimated financial losses per working-age adult per LAD for the period 2011–15. The regressions control for the (natural logarithm of) income, the share of white population, the share of the population with higher education, and the share of manufacturing jobs per LDA. The regressions also control for local authority district fixed effects and region-year fixed effects. Columns 1–3 are weighted by the LAD adult population in 2000. Standard errors (in parentheses) are clustered at LAD level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: authors' calculations.

Table 2: Comparison to other samples

Variable	Our sample	UK census
Female	0.510	0.510
Age		
18-24	0.096	0.123
25-44	0.388	0.356
45-64	0.395	0.334
65-74	0.111	0.114
75-84	0.011	0.073
UK citizen	0.929	1.000
Ethnic origin		
White	0.863	0.860
Asian	0.075	0.075
Other background	0.062	0.062
Other variables		
In paid employment	0.557	0.610
Married	0.447	0.465
University degree or higher	0.576	0.358

Source: authors' calculations based on Prolific survey in Column 1 and UK census sample in Column 2.

Table 3: Observations excluded from original sample

Groups of participants excluded	Number
Participants with GPS data outside of UK	1
Participants who did not pay attention	2
Participant who did not give the consent to use her/his data for scientific purposes	1
Participants who preferred not to report their ethnicity	14
Total participants excluded	18

Source: authors' calculations.

Table 4: Effect of *Exposure to Austerity* on political participation

Political participation:	Voting	Protesting	Petition against austerity
	(1)	(2)	(3)
Panel A:			
Treatment	0.128*** [0.039]	0.063 [0.059]	0.096*** [0.024]
Controls	Yes	Yes	Yes
Control group mean	3.758	2.321	0.395
Obs.	1,476	1,476	1,476
R-squared	0.084	0.184	0.230
Panel B:			
Treatment 1 (<i>Exposure to Austerity</i>)	0.098** [0.045]	0.046 [0.068]	0.077*** [0.028]
Treatment 2 (<i>Exposure to Austerity Deprived</i>)	0.157*** [0.045]	0.081 [0.068]	0.114*** [0.028]
Controls	Yes	Yes	Yes
p-value diff t1-t2	0.301	0.914	0.308
Obs.	1,476	1,476	1,476
R-squared	0.088	0.189	0.233

Note: 'Voting' refers to the probability that the respondent would 'Vote for a candidate for public office because of their position on austerity'. Answers range from 1 (definitely would not) to 4 (definitely would). 'Protesting' refers to an individual's willingness to protest against austerity. Answers range from 1 (definitely will not) to 5 (definitely will). 'Signing a petition AGAINST austerity' is a dummy variable. Control variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, and being 'left wing' or 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Source: authors' calculations.

Table 5: Effect of *Exposure to Austerity* on preferences for redistribution

Preferences for redistribution:	Government should reduce income inequality	Welfare spending (e.g., income support or child benefits)	Social security spending	Raising taxes on richer citizens to reduce budget deficit
	(1)	(2)	(3)	(4)
Panel A:				
Treatment	0.092*	1.771***	1.072***	0.102**
	[0.049]	[0.380]	[0.306]	[0.050]
Control group mean	4.144	15.521	12.990	4.208
Obs.	1,476	1,476	1,476	1,476
R-squared	0.192	0.077	0.044	0.171
Panel B:				
Treatment 1	0.031	1.559***	1.023***	0.064
	[0.057]	[0.439]	[0.354]	[0.058]
Treatment 2	0.154***	1.980***	1.121***	0.139**
	[0.057]	[0.438]	[0.353]	[0.058]
Control group mean	4.144	15.521	12.990	4.208
p-value diff t1-t2	0.031	0.338	0.783	0.193
Obs.	1,476	1,476	1,476	1,476
R-squared	0.195	0.077	0.044	0.172

Note: 'Government should reduce inequality' refers to the opinion of participants on the following statement: 'The government should implement policies to reduce differences in income levels between the rich and the poor?'. Answers range from 1 (strongly disagree) to 5 (strongly agree). Spending variables are continuous, reflecting respondents' preferred share of total budget being spent on that item. 'Raising taxes' refers to the opinion of participants on the following statement: 'If the UK's national budget deficit is too high, the government should raise taxes on the rich instead of cutting benefits for the poor'. Answers range from 1 (strongly disagree) to 5 (strongly agree). Control variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, being 'left wing' or 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Source: authors' calculations.

Table 6: Mediation analysis, overall treatment – summary table of the estimated Equations (3), (4), and (5)

	Voting				Petition AGAINST austerity		
	Effect of treatment on candidate mediator (β_1)	Association of mediator with the outcome variable (δ_1)	Effect of treatment on outcome variable (α_1)	% treatment effect on the outcome explained by this mechanism ($\beta_1^* \delta_1 / \alpha_1$)	Association of mediator with the outcome variable (δ_1)	Effect of treatment on outcome variable (α_1)	% treatment effect on the outcome explained by this mechanism ($\beta_1^* \delta_1 / \alpha_1$)
Treatment	0.092* [0.049]	0.112*** [0.034]	0.128*** [0.039]	8.05	0.117*** [0.021]	0.096*** [0.024]	11.21
Treatment 1	0.031 [0.057]	0.112*** [0.034]	0.106** [0.045]	9.72	0.117*** [0.021]	0.082*** [0.028]	13.13
Treatment 2	0.154*** [0.057]	0.112*** [0.034]	0.153*** [0.045]	6.73	0.117*** [0.021]	0.111*** [0.028]	9.70

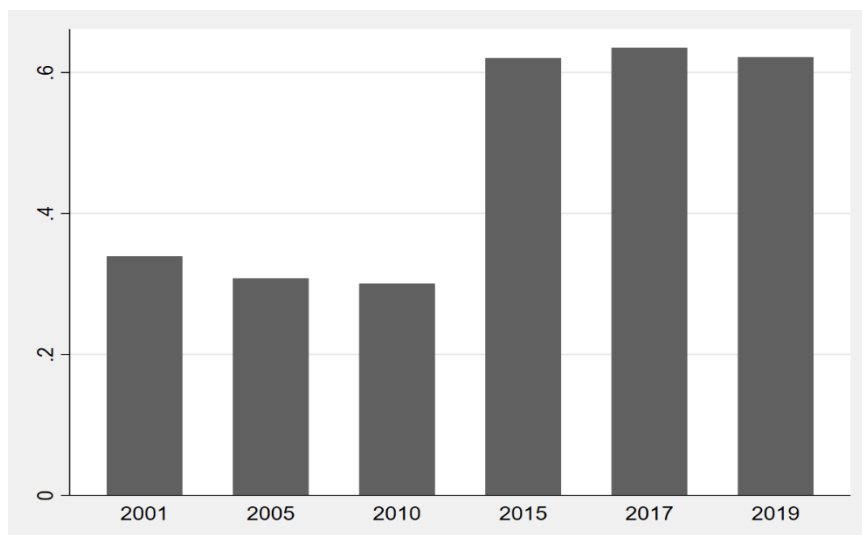
Note: 'Voting' refers to the probability that the respondent would 'Vote for a candidate for public office because of their position on austerity'. Answers range from 1 (definitely would not) to 4 (definitively would). 'Signing a petition AGAINST austerity' is a dummy variable. Control variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, and being 'left wing' / 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Source: authors' calculations.

Appendix A: Data description

This section briefly describes our data and provides some descriptive statistics.

Figure A1: Share of citizens who agreed or strongly agreed that the government should act to reduce inequality, 2001 - 2019



Source: authors' elaboration on the British Election Study (BES) post-electoral survey

Table A1: Data sources

Variable	Description	Source
Total financial loss due to austerity	Information on total financial loss due to austerity measures was calculated by Beatty and Fothergill (2013;2016) at LAD level as part of a project commissioned by OXFAM and the Joseph Rowntree Foundation	Beatty and Fothergill
Vote Turnout	Data on vote for the Conservative, Labour, and UKIP parties and turnout rates for the period 2000-2019 are obtained from the UK Parliament House of Commons Library. Match between constituency level data and LAD was possible thanks to the work of the Election Centre, affiliated with Nuffield College, Oxford.	UK Parliament House of Commons Library
Protest events	Data on protest events for the period 2000-2020 was obtained from GDELT Project, which monitors the world's broadcast, print, and web news from around the world to extrapolate information on different types of events and classify them based on the CAMEO framework. Within this dataset, we identified protest events directed towards the government and that made use of violence.	Election Centre The GDELT Project
Appeals	Data appeals for political change for the period 2000-2020 was obtained from GDELT Project, which monitors the world's broadcast, print, and web news from around the world to extrapolate information on different types of events and classify them based on the CAMEO framework.	The GDELT Project
Average income	Income data was obtained from the UK Household Longitudinal Survey (UKHLS) for the entire 2000-2020 period. UKHLS is a representative panel survey conducted by UKRI Economic and Research Council, ISER, and University of Essex. Individual-level data was collapsed at LAD-level.	UK Household Longitudinal Survey
Share of white population	We compile information on the population share identifying as ethnically British i.e., either English, Scottish, or Welsh) from the UK	UK Annual Population Survey

	Annual Population Survey (APS), a representative dataset collected by the Office of National Statistics (ONS). We recode this information into a dummy variable for British White and non-British White ethnic groups and average it at the LDA level to quantify the share of the self-identified ethnically British White population within each district.	
Share of population with higher education	Data on share of individuals with higher education, considered as individuals with more than secondary education, was obtained at LAD level from UK Annual Population Survey (APS), a representative dataset collected by the Office of National Statistics (ONS)	UK Annual Population Survey
Share of manufacturing jobs	Data on share of individuals working in the manufacturing sector was obtained at LAD level from UK Annual Population Survey (APS), a representative dataset collected by the Office of National Statistics (ONS).	UK Annual Population Survey
Population	Population figures for the year 2000 are used as a weight throughout the analysis. These figures are obtained from Census data estimates obtained from the UK Office of National Statistics	UK Census Data

Table A2: Descriptive statistics

	Obs	Mean	Std. dev	Min	Max
Voting turnout	1,812	65.29	5.83	41.71	81.06
Demand for political reform	7,959	0.09	1.57	0.00	76.00
Protests against the government	7,959	2.40	16.32	0.00	361.00
Austerity	7,770	447.71	120.97	177.00	914.00
(log) average income	7,518	108.14	59.73	6.77	241.11
Share of white population	7,959	8.21	4.62	0.30	17.83
Share of population with higher education	7,203	288.21	189.24	9.80	1692.60
Share of manufacturing jobs	7,182	149.32	105.47	1.80	640.50

Appendix B: DD dynamic version

As an additional exercise, we estimate a dynamic version of our main specification splitting the period after the implementation of austerity into individual post-period years. The rationale behind is to understand how austerity cuts affected political participation each year after the announcement of these measures. Figure B1 shows that the impact of austerity was positive and statistically significant in the 2015 and 2017 political elections. However, it was no longer statistically significant in the 2019 political elections. Figure B2 shows a positive association between austerity and demands for political reforms only in two years: 2012 and 2018. Both years are related to the initial period of the two austerity waves (2011-2015 and 2016-2019). Figure B3 confirms no association between austerity and protests.

Figure B1. Austerity and elections

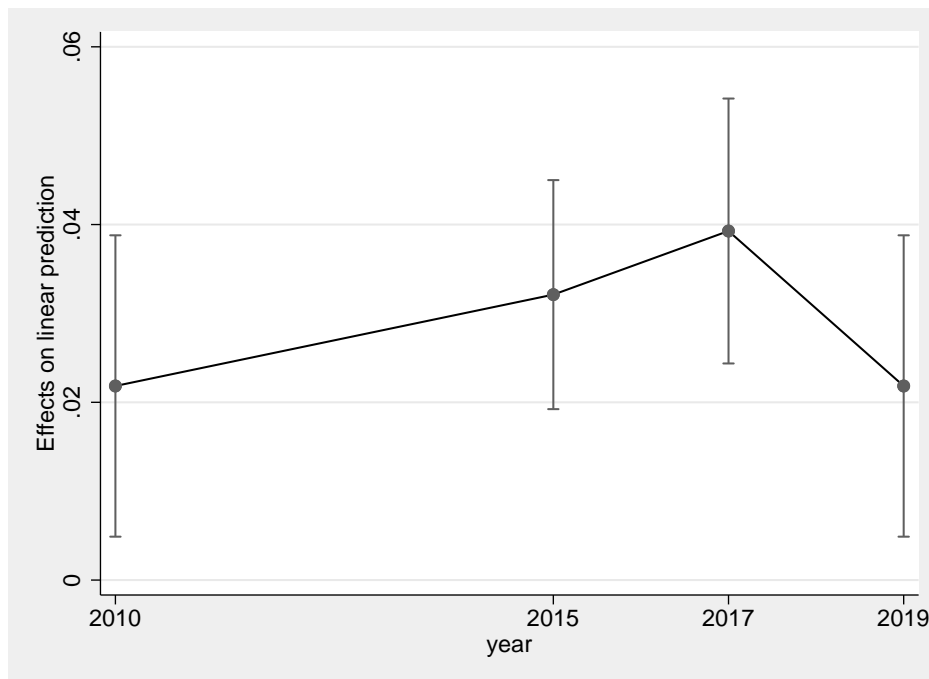


Figure B2: Austerity and demand for political reform

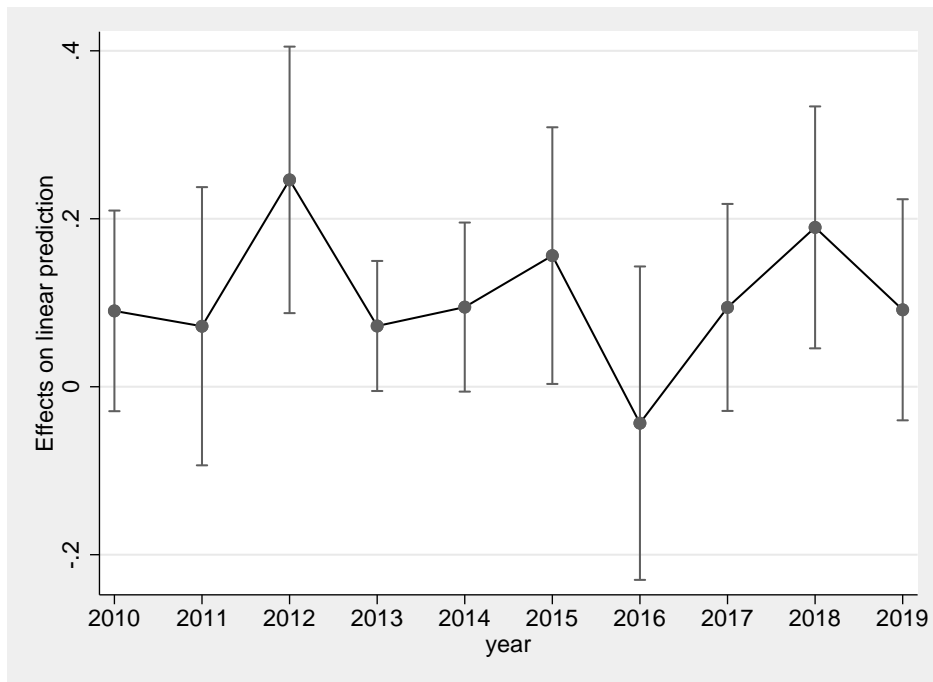
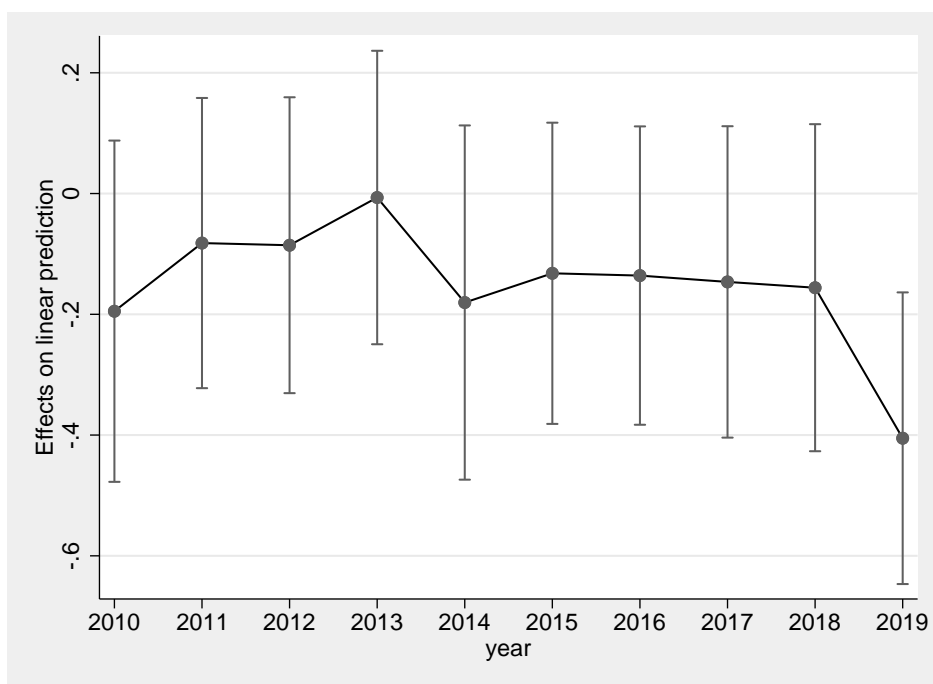


Figure B3: Austerity and protests



Appendix C: Robustness tests

Table C1: Excluding Scotland

	(1) Voter Turnout	(2) Appeals for political reform	(3) Protests against the government
Austerity*post 2010	0.033*** (0.007)	0.082** (0.040)	0.008** (0.004)
Observations	1,612	6,384	6,384
R-squared	0.933	0.341	0.233
Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes

Note: Table C1 reports results studying the link between Austerity and political participation over the period 2000 to 2019 excluding Scotland. *Austerity*post 2010* refers to the estimated financial losses per working age adult per LAD for the period 2011-2015. The regressions control for the (natural logarithm of) income, the share of white population, the share of the population with higher education and the share of manufacturing jobs per LAD. The regressions also control for local authority district fixed effects and region-year fixed effects. Columns 1-3 are weighted by the LAD adult population in 2000. Standard errors (in parentheses) are clustered at LAD level. *** p<0.01, ** p<0.05, * p<0.1.

Table C2: Alternative measures of austerity

	<u>2011–2015 - outturn</u>			<u>2011–2019 - estimated costs</u>		
	(1) Voter Turnout	(2) Appeals for political reform	(3) Protests against the government	(4) Voter Turnout	(5) Appeals for political reform	(6) Protests against the government
Austerity*post 2010	0.021*** (0.008)	0.099** (0.043)	0.005 (0.004)	0.026*** (0.008)	0.110** (0.047)	0.006 (0.004)
Observations	1,754	6,930	6,930	1,754	6,930	6,930
R-squared	0.932	0.363	0.239	0.933	0.363	0.239
Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Table C2 reports results studying the link between Austerity and political participation over the period 2000 to 2019 using alternative measures of Austerity. The regressions control for the (natural logarithm of) income, the share of white population, the share of the population with higher education and the share of manufacturing jobs per LDA. The regressions also control for local authority district fixed effects and region-year fixed effects. Columns 1-6 are weighted by the LAD adult population in 2000. Standard errors (in parentheses) are clustered at LAD level. *** p<0.01, ** p<0.05, * p<0.1.

Table C3: Alternative dependent variables

	(1) Voting	(2) Appeals for political reform	(3) Protests
Austerity*post 2010	0.098** (0.042)	0.036*** (0.014)	0.018 (0.026)
Observations	4,457	1,974	6,909
R-squared	0.384	0.077	0.497
Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes

Note: Table C3 reports results studying the link between Austerity and political participation over the period 2000 to 2019. Voting refers to information on whether individuals voted in past general election. Appeals for political reform refers to information on whether individuals signed a petition (not on the internet). Protests is a dummy variable with value one if a protest occurred in the LAD. *Austerity*post 2010* refers to the estimated financial losses per working age adult per LAD for the period 2011-2015. The regressions control for the (natural logarithm of) income, the share of white population, the share of the population with higher education and the share of manufacturing jobs per LDA. The regressions also control for local authority district fixed effects and region-year fixed effects. Columns 1-3 are weighted by the LAD adult population in 2000. Standard errors (in parentheses) are clustered at LAD level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Our alternative measures for voting and appealing are from the UK Household Longitudinal Survey (UKHLS) and the British Election Study (BES). These two surveys collect individual-level data about the social, economic, and political views and circumstances of British society. Because of social desirability bias, these surveys may inaccurately represent the population's political views, in particular if participants hold more controversial political views (Funk 2016).

Our alternative measure for protests is obtained from the Mass Mobilization Protest (MMP) database from Binghamton University (Clark and Regan 2018). This data explicitly focuses on protests against governments and is collected and revised by researchers, as opposed to the algorithm-based approach of GDELT. MPP, however, records considerably fewer protests and might underestimate protests activity. Furthermore, it provides inconsistent information on protest locations at the subnational level. To obtain precise location information, MPP relies on an API called Open Cage (<https://opencagedata.com/>). The API uses available information to calculate GPS coordinates that are as precise as possible for the protest, providing information on the quality of the coordinate. We only select observations with the highest quality possible and end up with a total of 578 protest events, of which 393 happened between the year 2000 and 2020.

Table C4: Alternative specifications excluding weights, using robust standard errors and alternative specification of fixed effects

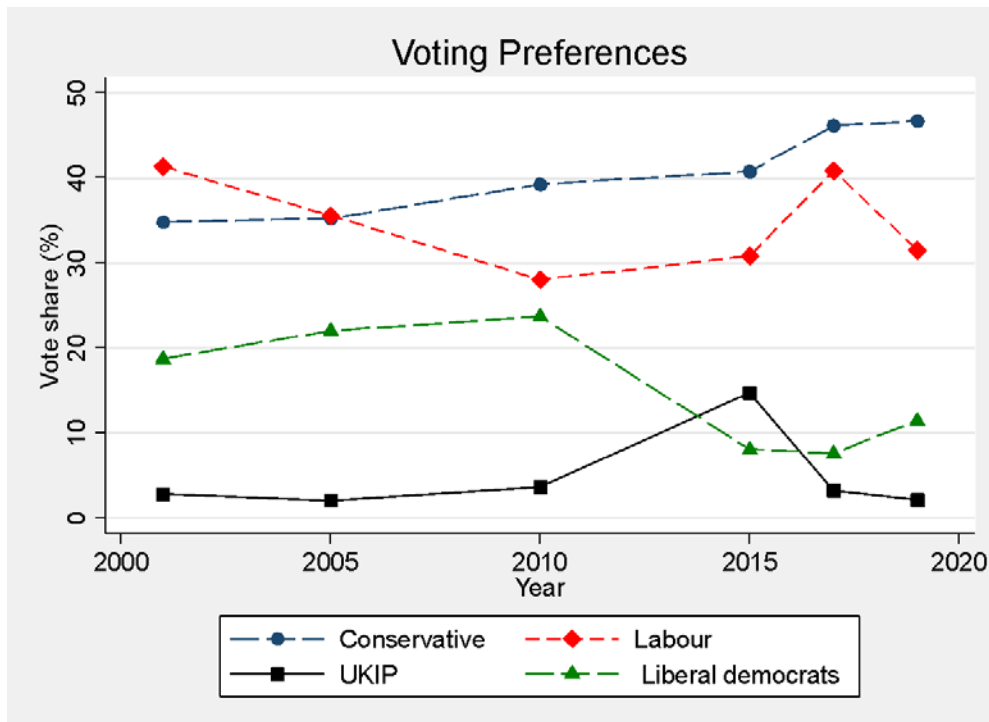
	<u>No weights</u>			<u>Robust standard errors</u>			<u>Year fixed effects</u>		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Voter Turnout	Appeals for political reform	Protests against the government	Voter Turnout	Appeals for political reform	Protests against the government	Voter Turnout	Appeals for political reform	Protests against the government
Austerity*post 2010	0.025*** (0.007)	0.062** (0.030)	-0.103 (0.076)	0.032*** (0.005)	0.109*** (0.028)	-0.132** (0.055)	0.044*** (0.008)	0.078* (0.043)	-0.064 (0.070)
Observations	1,748	6,909	6,909	1,748	6,909	6,909	1,748	6,909	6,909
R-squared	0.925	0.317	0.468	0.933	0.363	0.501	0.911	0.323	0.471
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region*Year FE	No	No	No	No	No	No	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No

Note: Table C4 reports results studying the link between Austerity and political participation over the period 2000 to 2019 using alternative specifications. *Austerity*post 2010* refers to the estimated financial losses per working age adult per LAD for the period 2011-2015. The regressions control for the (natural logarithm of) income, the share of white population, the share of the population with higher education and the share of manufacturing jobs per LDA. In columns 1-6, the regressions control for local authority district fixed effects and region-year fixed effects. In columns 7-9, the regressions control for local authority district fixed effects and year fixed effects. Columns 4-9 are weighted by the LAD adult population in 2000. Robust standard errors are in Columns 4-6 while standard errors clustered at LAD level are in Columns 1-3 and 7-9. *** p<0.01, ** p<0.05, * p<0.1.

Appendix D: Voting preferences

We also use voting preferences in an additional exercise to understand if changes in political participation were also associated with changes in political preferences. Data are from the UK Parliament House of Commons Library. Figure D1 shows voting in national election results for the main relevant parties, the Conservatives, Labour, the Liberal Democrats, and UKIP. Figure D1 describes important changes in party voting after 2010, showing that the Liberal Democrats lost ground, while support for UKIP steadily increased, in line with the data reported by Fetzer (2019). Yet, the political landscape changed again after 2015, when support for UKIP sharply drops, while the traditional parties, the Conservatives in particular, regained ground.

Figure D1: Voting preferences between 2000 and 2019



Note: data refer to voting preferences at the level of Local Authority Districts (LADs). Constituency boundaries can change in-between elections and do not always match the boundaries of LADs, our unit of analysis. To correct for this problem, we use data by the Election Centre, affiliated with Nuffield College, Oxford, that has been matching electoral data between constituencies and LADs for the 1973-2019 period.

Source: authors' elaboration based on data from the UK Parliament House of Commons Library.

Next, we compare *Voter Turnout* at the national level to *Voter Turnout* at the European and the local council level. We also estimate party voting preferences in national, European, and local council elections for the *Conservatives*, *Labour*, *Liberal Democrats* and *UKIP*. All regressions include local authority district fixed effects and year fixed effects. The results in Table D1 shows that austerity significantly drives *Voter Turnout* for national elections, but not for local or European elections. Regarding voting preferences, *Liberal Democrats* lost many voters during austerity, while the support for *Labour* and *UKIP* increased, potentially due to swing voters and people who otherwise might not have voted (Table D1). Conservatives were not affected by austerity at the national and local level, while they seem to have lost support at the European level (Table D1).

Table D2: Austerity and voting preferences

	(1) Turnout	(2) UKIP	(3) Conservatives	(4) Labour	(5) Liberal Democrats
National elections					
Austerity*post 2010	0.032*** (0.007)	0.035*** (0.007)	-0.032** (0.013)	0.038** (0.015)	-0.025* (0.014)
District FE	Yes	Yes	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,748	1,526	1,643	1,643	1,642
R-squared	0.933	0.877	0.955	0.962	0.929
Local elections					
Austerity*post 2010	-0.001 (0.020)	0.030*** (0.011)	-0.070*** (0.021)	0.050*** (0.014)	-0.032 (0.021)
District FE	Yes	Yes	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes	Yes	Yes
Observations	3,362	3,235	3,388	3,388	3,363
R-squared	0.882	0.835	0.887	0.942	0.861
European elections					
Austerity*post 2010	0.045*** (0.010)	0.010 (0.008)	-0.032*** (0.006)	0.052*** (0.009)	-0.004 (0.006)
Controls	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes
Region*Year FE	Yes	Yes	Yes	Yes	Yes
Observations	987	987	987	987	987
R-squared	0.880	0.975	0.980	0.979	0.947

Note: Table 1 reports results studying the link between Austerity and voting preferences over the period 2000 to 2019. *Austerity*post 2010* refers to the estimated financial losses per working age adult per LAD for the period 2011-2015. The regressions control for the (natural logarithm of) income, the share of white population, the share of the population with higher education and the share of manufacturing jobs per LDA. The regressions also control for local authority district fixed effects and region-year fixed effects. Columns 1-3 are weighted by the LAD adult population in 2000. Standard errors (in parentheses) are clustered at LAD level. *** p<0.01, ** p<0.05, * p<0.1.

Appendix E: Survey questionnaire

We have reported the answer options in italic below the question. Answers options are separated by a semicolon.

1. Welcome!

You are being asked to take part in a survey conducted by the University of Sussex and Maastricht University. All information provided in this survey is verified, and you will not receive false feedback of any kind. There are no right or wrong answers. We are interested in knowing your personal views about yourself and the world. Participation is voluntary. If you begin the survey, you may leave the survey at any time, although in this case you forfeit payment. We anticipate no costs apart from the time you spend completing the survey (20-25 minutes). You will be requested to watch a short video as part of this survey. For this, you need to have working speakers or headphones. Your study-related information will be kept confidential. Data collection, analysis and reporting will be anonymous and used for research purposes only. Your data will be kept separate from your Prolific ID to ensure anonymity. All data will be published in aggregate form only.

Upon completion of the survey, you will receive a monetary compensation for your time. If you have questions or remarks concerning this survey, please contact bruno.martorano@maastrichtuniversity.nl. At the end of the survey, you will have the opportunity to provide feedback on your experience.

2. Informed Consent

I hereby give permission to use my data for scientific purposes. I had enough time to decide whether I want to participate in the survey. I know that participation is voluntary and that I can abandon the survey any time. If I withdraw I forfeit any monetary compensation. I know that the data will be saved anonymously and only be made public in aggregate form. By proceeding to the next page, I agree to participate in this survey.

Yes; No

3. Survey and payment structure

Please read the information carefully. This survey comprises a set of questions about yourself and your view on government, politics, and societal issues in the UK. During the survey you will be asked to watch a short video. For this, you need to have working speakers or headphones. The information provided in the video is real and stems from one or several serious, publicly available, and validated sources. It will take approximately 20 to 25 minutes to complete the survey. Upon completion of the survey you will receive a compensation for your time. You will only receive the payment if you complete the survey. The survey counts as completed once you reach the last page displaying an automatic message that your response was recorded. You will not receive payment if you abandon the survey prior to completing it, which you are free to do any time. The payments will be processed within 3 weeks after the completion of the final survey.

4. How do you identify?

Male; Woman; Non-binary / third gender; Prefer to self-describe

5. What is your age?

18-24; 25-34; 35-44; 45-54; 55-64; 65-74; 75-84

6. What is your marital status?

Married; Legally recognised civil partnership; Single and never married or in a Civil Partnership; Divorced; Separated but legally married; Widowed; Other; Prefer not to say

7. What is the highest educational or school qualification you obtained?

(If you are currently enrolled, pick the highest degree received to date)

Higher degree level qualification (Masters, PhD or equivalent doctoral level qualification); Postgraduate academic below-Masters level qualification (e.g. Certificate or Diploma); Bachelors or equivalent first degree qualification; Post-secondary academic below-degree level qualification (up to 1 year, or 2 and more years); Post-secondary vocational training (up to 1 year, or 2 and more years); Completed secondary school; Completed primary school; Other; None of the above.

8. What is your current employment status?

In paid employment (full or part-time); Self employed; Unemployed; Retired; On maternity/ paternity leave; Looking after the family or home; In full-time education; Long-term sick or disabled; On a government training scheme; Unpaid worker in family business; Working in an apprenticeship; Doing something else.

9. Roughly, what is your total annual household income in British pounds after taxes?

Less than 15,000; 15,000 - 24,999; 25,000 - 34,999; 35,000 - 44,999; 45,000 - 54,999; 55,000 - 64,999; 65,000 - 74,999; 75,000 - 84,999; 85,000 - 94,999; 95,000 - 104,999; 105,000 - 144,999; More than 145,000

10. Has someone in your household, including you, received government support in the past 12 months? (Choose all that apply).

Income Support; Job Seeker's allowance; Child benefit; Universal Credit; Yes, other; No

11. Ethnic origin: Please specify your ethnicity

British/ English/ Scottish/ Welsh/ Northern Irish; Irish; Gypsy or Irish Traveller; Any other white background. Please describe; White and black Caribbean; White and black African; White and Asian; Any other mixed background. Please describe; Indian; Pakistani; Bangladeshi; Chinese; Any other Asian background. Please describe; Caribbean; African; Any other black background; Arab; Any other ethnic group. Please describe; Prefer not to say

12. Have you lived in the UK for most of your life?

Yes; No

13. Are you a UK citizen?

Yes; No

14. In which area in the UK do you live today?

▼ *Aberdeen City (3) ... Other, please specify: (385)*

15. How interested would you say you are in politics?

Very interested; Quite interested; Hardly interested; Not at all interested; I don't know

16. When it comes to most political issues, do consider yourself as...?

Left wing; Left of center; Center; Right of center; Right wing

17. What do you think has more to do with why a person is poor?

A lack of effort/ hard work on the person's part; A lack of talent of the person's part; The person being unlucky

18. What do you think has more to do with why a person is rich?

A person's effort/ hard work; A person's talent; The person being lucky

19. How often can you trust the government to do what is right?

All the time; Most of the time; Only some of the time; Rarely; Never

20. Thinking about national issues for a moment, which issue concerns you the most?

Jobs; Budget/ government spending; Income equality; Financial stability; Taxes; Health Care; Education; Foreign Affairs; Immigration; Environment/ climate change; Government corruption; COVID pandemic; Other; I don't know

21. Have you ever heard of austerity policies?

Yes; No

22. Please choose from the list of answers below to complete the sentence. Choose all answers that you think apply. Austerity policies can refer to government measures which involve...

...cutting public expenditure to reduce government debt; ...raising taxes to reduce government debt; ...increasing public expenditure to cushion hardship during an economic crisis; ...lowering taxes to raise household consumption; I don't know

23. It is vital for the quality of this survey that you devote your full attention to the questions we ask. In your honest opinion, have you devoted your full attention to this study so far? (Your answer to this question does not affect your payment)

Yes, I have devoted my full attention so far and have answered the questions thoroughly; No, I have not devoted my full attention so far and have not answered the questions thoroughly.

Please watch this video on weather forecast technology carefully.

Make sure your computer audio is working, so you can follow what is being said in the video. You will be able to advance the survey once the video is finished.

24.1 Choose all that apply. Data from space satellites...

...help us see the weather before it reaches us; ...cannot be used for forecasting weather; ...are combined with other data to make weather predictions; ...come from stationary and earth-orbiting satellites; ...come from stationary satellites; ...come from earth-orbiting satellites.

Please watch this video on UK austerity policies and their economic and social impact carefully.

Make sure your computer audio is working, so you can follow what is being said in the video. You will be able to advance the survey once the video is finished.

24.2 Choose all that apply. Austerity implied that the UK government:

cut welfare spending; raised taxes; lowered taxes; increased welfare spending

24.3 Compared to other countries UK austerity policies were:

Strict; less strict; about the same

Please watch this video on UK austerity policies and their economic and social impact.

Make sure your computer audio is working, so you can follow what is being said in the video. You will be able to advance the survey once the video is finished.

24.4 Choose all that apply. Austerity implied that the UK government:

cut welfare spending; raised taxes; lowered taxes; increased welfare spending

24.5 Compared to other countries UK austerity policies were:

Strict; less strict; about the same

25. The government should implement policies to reduce differences in income levels between the rich and the poor.

Strongly agree; agree; Neither agree nor disagree; disagree; strongly disagree

26. Suppose you can decide over total UK government spending next year. How do you want to divide the budget in percentages between the following categories? (The total must sum up to 100%)

Health: _____ ; Education: _____ ; Defense and national security: _____ ; Welfare spending (e.g., income support or child benefits): _____ ; Social security: _____ ; Public infrastructure: _____ ; Total: _____

27. Please indicate whether you agree or disagree with the following statement: 'If the UK's national budget deficit is too high, the government should raise taxes on the rich instead of cutting benefits for the poor.'

Strongly agree; agree; Neither agree nor disagree; disagree; strongly disagree

28. Now that you have learned about austerity. How likely would you be to do each of the following things?

Definitely would; Probably would; Probably would not; Definitely would not

- Vote for a candidate for public office because of their position on austerity
- Write letters, email, or phone public officials about austerity policies
- Meet with an elected official or their staff about austerity policies
- Attend a public speech against austerity policies
- Donate money to a non profit organization helping disadvantaged households in the UK
- Volunteer time to a non profit organization helping disadvantaged households in the UK

29. If a peaceful protest against austerity policies was being held this week close to where you live, would you participate?

Definitely will not; Probably will not; Might or might not; Probably will; Definitely will

30. You can also take action by signing a petition.

We will submit each petition to two Members of Parliament who have either spoken for or against austerity policies in parliament. We will not tell them your name, just how many people in our study support either of the two petitions below. We will send you proof of the petition's submission to the corresponding Member of Parliament in the next few weeks.

Would you like to sign a petition?

- I want to sign the following petition AGAINST austerity policies. 'Austerity policies affect all segments of the population and particularly hurt the most vulnerable groups. Spending cuts should be stopped. I am against austerity policies.'
- I want to sign the following petition FOR austerity policies. 'Cuts are necessary to ensure economic sustainability. Benefits should be reserved for people who really need them such as old people and children. I support austerity policies.'

I do not want to sign either of these petitions.

Appendix F: Informational treatments

VIDEO 1: Treatment austerity only

What is the U.K. austerity program? The global financial crisis of 2007 and of 2009 led to a severe economic crisis in the U.K. and many other countries. As a response, the U.K. government launched an austerity program in 2010. This U.K. austerity program was adopted to deal with the consequences of the economic crisis. Specifically, it was implemented to reduce budget deficits and public debt by cutting government spending and welfare benefits and raising taxes to increase revenue.

So what was the impact of the U.K. austerity program on the economy and society? Compared to other countries, U.K. austerity policies were very strict. For example, between 2010 and 2018, the U.K. government reduced spending in welfare payments, housing subsidies and social services across society by more than £30 billion. This translates to 15% less day to day government spending per citizen compared to the time before austerity.

Still, the U.K. Treasury pronounced austerity a success as the economy has grown by 18.3% since 2010, faster than France, Italy and Japan, whose austerity policies were not as strict. So why were austerity policies widely protested by the public? Researchers and experts, including British economists, point to the damage that austerity has dealt to society. The use of foodbanks almost doubled between 2013 and 2017.

Child poverty, including in families with working parents, rose to its highest level since before the Second World War. Infant mortality increased for the first time in two generations. What is more, lingering deep cuts to youth council services since 2010 are being linked to increasing crime and riots across different parts of the country. Under austerity, life expectancy in the UK fell and this trend has only recently reversed. Despite the formal announcement of the end of austerity in October 2018, its effects continue to reverberate throughout the country. All of this indicates that austerity has been compromising living standards and progress that the UK society has made over the past decades.

VIDEO 2: Treatment austerity and deprivation

What is the U.K. austerity program? The global financial crisis of 2007 and of 2009 led to a severe economic crisis in the U.K. and many other countries. As a response, the U.K. government launched an austerity programme in 2010. This U.K. austerity program was adopted to deal with the consequences of the economic crisis. Specifically, it was implemented to reduce budget deficits and public debt by cutting government spending and welfare benefits and raising taxes to increase revenue.

So what was the impact of the U.K. austerity program on the economy and society? Compared to other countries, U.K. austerity policies were very strict. For example, between 2010 and 2018, the U.K. government reduced spending and welfare payments, housing subsidies and social services across society by more than 30 billion pounds. This translates to 15% less day to day government spending per citizen compared to the time before austerity.

Still, the U.K. Treasury pronounced austerity a success as the economy has grown by 18.3% since 2010, faster than France, Italy and Japan, whose austerity policies were not as strict. So why were austerity policies widely protested by the public? Researchers and experts, including British

economists, point to the damage that austerity has dealt to society. The use of foodbanks almost doubled between 2013 and 2017.

Child poverty, including in families with working parents, rose to its highest level since before the Second World War. Infant mortality increased for the first time in two generations. What is more, lingering deep cuts to youth council services since 2010 are being linked to increasing crime and riots across different parts of the country. Under austerity, life expectancy in the UK fell and this trend has only recently reversed, despite the formal announcement of the end of austerity in October 2018. Its effects continue to reverberate throughout the country. All of this indicates that austerity has been compromising living standards and progress that the UK society has made over the past decades.

Even worse, poorer UK citizens living in the most deprived local authorities are also the ones hit hardest by the billions in austerity cuts. There are countless examples. Rhea, a working single mother of three, was driven to the brink of homelessness due to reduced housing benefits. Changing eligibility requirements and stretched local authorities led to her case being unresolved for weeks. George, a single father and bus driver, was hit hard by reduced welfare support and delays in it being paid. This was enough to throw him into a vicious cycle of debt. Lorna, a mother and school dinner lady, could not send her son into school for a couple of days as she couldn't afford a packed lunch for him without government support available. Lorna decided to visit the foodbank for the first time. This made her feel very guilty and ashamed. These are just a few of many stories of poor UK citizens hit hard by austerity.

Appendix G: Quality tests

Table G1 reports the result of the balancing test. It shows that the comparability of experimental groups is not affected by the exclusions of 18 observations (as explained in section *Data quality and descriptive statistics*)

Table G1. Balancing test

	(1) Treatment	(2) Treatment 1	(3) Treatment 2
Female	-0.0109 (0.0248)	-0.0185 (0.0248)	0.00765 (0.0248)
Age group	0.0166* (0.00906)	0.0121 (0.00904)	0.00451 (0.00906)
Married	-0.0211 (0.0273)	-0.0437 (0.0272)	0.0225 (0.0273)
Asian (ethnicity)	-0.00179 (0.0485)	0.00322 (0.0484)	-0.00501 (0.0485)
Mixed Background (ethnicity)	0.00326 (0.0525)	-0.0484 (0.0524)	0.0517 (0.0525)
UK resident	0.0115 (0.0500)	-0.0391 (0.0499)	0.0506 (0.0500)
University	0.00716 (0.0260)	-0.0390 (0.0260)	0.0462* (0.0261)
Income group	0.00486 (0.00558)	0.00501 (0.00557)	-0.000149 (0.00558)
Fulltime employment	-0.0443* (0.0265)	0.00259 (0.0264)	-0.0469* (0.0265)
Trust in government	-0.00618 (0.0158)	-0.00879 (0.0158)	0.00261 (0.0158)
Left leaning	0.0189 (0.0261)	0.0173 (0.0260)	0.00155 (0.0261)
Constant	0.623*** (0.0817)	0.378*** (0.0816)	0.245*** (0.0818)
Observations	1,476	1,476	1,476
R-squared	0.006	0.005	0.007

We run an additional test to check the quality of our data. Immediately after the treatment videos, we asked participants two multiple choice questions to test their knowledge about the video content. First, we asked about the type of measures which were implemented by the UK government. Second, we asked about the stringency of UK austerity policies compared to other European countries. About 99% of respondents gave at least one correct response to the first question; 96% correctly answered the second question. Our results hold when we run a robustness

check, we run our baselines regressions on the sample of participants who gave at least one correct response to the first question and correctly answered the second (Table G2 in Appendix G).

Table G2. Main results excluding participants who took longer to complete the survey (Panel A) and those who did not reply correctly to at least one question (Panel B)

	Voting (1)	Protesting (2)	Petition AGAINST austerity (3)
Panel A			
Treatment	0.122*** [0.040]	0.062 [0.059]	0.092*** [0.025]
Control mean	3.758	2.321	0.395
Obs.	1,449	1,449	1,449
R-squared	0.087	0.184	0.232
Panel B			
Treatment	0.126*** [0.040]	0.059 [0.059]	0.103*** [0.025]
Control mean	3.758	2.321	0.395
Obs.	1,436	1,436	1,436
R-squared	0.087	0.189	0.228

Note: 'Voting' refers to the probability that the respondent would be to 'Vote for a candidate for public office because of their position on austerity'. Answers could range from 1 (Definitely would not) to 4 (Definitively would). 'Protesting' refers to the willing of the respondent to participate to a protest against austerity policies. Answers could range from 1 (Definitely will not) to 5 (Definitively will). 'Signing a petition AGAINST austerity' and 'Signing a petition FOR austerity' is a dummy variable. Standard errors in parentheses. *** p<0.01, ** p<0.05.

Appendix H: Prolific sample

Table H1. Descriptive statistics

Variable	Share
Female	0.510
Age	
18-24	0.096
25-34	0.198
35-44	0.190
45-54	0.161
55-64	0.234
65-74	0.111
75-84	0.011
UK citizen	0.929
Ethnic origin	
White	0.863
Asian	0.075
Mixed background	0.062
Income	
Less than 15,000	0.131
15,000 - 24,999	0.182
25,000 - 34,999	0.207
35,000 - 44,999	0.150
45,000 - 54,999	0.112
55,000 - 64,999	0.084
65,000 - 74,999	0.049
75,000 - 84,999	0.028
85,000 - 94,999	0.018
95,000 - 104,999	0.018
105,000 - 144,999	0.015
More than 145,000	0.007
In paid employment	0.557
Married	0.447
University degree or higher	0.576
Left leaning	0.474

Source: authors' elaboration on Prolific survey

Appendix I: Additional results online experiment

Table I1: Exposure to austerity on Political participation

	Voting	Protesting	Petition AGAINST austerity
	(1)	(2)	(3)
Panel A: without controls			
Treatment	0.123*** [0.040]	0.056 [0.064]	0.099*** [0.027]
Control mean	3.758	2.321	0.395
Obs.	1,490	1,490	1,490
R-squared	0.006	0.001	0.009
Panel B: without trust and political controls			
Treatment	0.134*** [0.040]	0.077 [0.063]	0.102*** [0.027]
Control mean	3.758	2.321	0.395
Obs.	1,476	1,476	1,476
R-squared	0.023	0.047	0.032

Note: 'Voting' refers to the probability that the respondent would be to 'Vote for a candidate for public office because of their position on austerity'. Answers could range from 1 (Definitely would not) to 4 (Definitively would). 'Protesting' refers to the willing of the respondent to participate to a protest against austerity policies. Answers could range from 1 (Definitely will not) to 5 (Definitively will). 'Signing a petition AGAINST austerity' is adummy variable. Standard errors in parentheses. *** p<0.01, ** p<0.05.

Table I2: Exposure to austerity on the Mediators

	Government should reduce inequality (1)	Welfare spending (2)	Social security spending (3)	Raising taxes (4)
Panel A: without controls				
Treatment	0.088 [0.054]	1.784*** [0.390]	1.154*** [0.308]	0.099* [0.054]
Control mean	4.144	15.521	12.990	4.208
Obs.	1,490	1,490	1,490	1,490
R-squared	0.002	0.014	0.009	0.002
Panel B: without trust and political controls				
Treatment	0.104* [0.054]	1.799*** [0.387]	1.101*** [0.309]	0.112** [0.054]
Control mean	4.144	15.521	12.990	4.208
Obs.	1,476	1,476	1,476	1,476
R-squared	0.033	0.042	0.021	0.027

Note: 'Government should reduce inequality' is a discrete variable ranging from 1 (strongly disagree) to 5 (strongly agree). 'Raising Taxes' refers to the opinion of participants on the following statement: 'if the UK's national budget deficit is too high, the government should raise taxes on the rich instead of cutting benefits for the poor'. Answers could range from 1 (strongly disagree) to 5 (strongly agree). Spending variables are continuous, reflecting respondents' preferred share of total budget being spent on that particular item. Standard errors in parentheses. *** p<0.01, ** p<0.05.

Appendix J: Mediation analysis

Table J1: *Exposure to Austerity* on redistributive preferences, pooled treatments

Preferences for redistribution:	Government should reduce income inequality	Welfare spending	Social security spending	Raising taxes on richer citizens to reduce budget deficit
	(1)	(2)	(3)	(4)
Panel A:				
Treatment	0.092*	1.771***	1.072***	0.102**
	[0.049]	[0.380]	[0.306]	[0.050]
Control group mean	4.144	15.521	12.990	4.208
Obs.	1,476	1,476	1,476	1,476
R-squared	0.192	0.077	0.044	0.171
Panel B:				
Treatment 1	0.031	1.559***	1.023***	0.064
	[0.057]	[0.439]	[0.354]	[0.058]
Treatment 2	0.154***	1.980***	1.121***	0.139**
	[0.057]	[0.438]	[0.353]	[0.058]
Control group mean	4.144	15.521	12.990	4.208
p-value diff t1-t2	0.031	0.338	0.783	0.193
Obs.	1,476	1,476	1,476	1,476
R-squared	0.195	0.077	0.044	0.172

Note: 'Government should reduce inequality' is a discrete variable ranging from 1 (strongly disagree) to 5 (strongly agree). 'Raising Taxes' refers to the opinion of participants on the following statement: 'if the UK's national budget deficit is too high, the government should raise taxes on the rich instead of cutting benefits for the poor'. Answers range from 1 (strongly disagree) to 5 (strongly agree). Spending variables are continuous, reflecting respondents' preferred share of total budget being spent on that particular item. Control variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, being 'left wing' or 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table J2. Mediation analysis – overall treatment considering the alternative mediators

	Voting			Protesting		Petition AGAINST austerity	
	Effect of treatment on candidate mediator	Association of mediator with the outcome variable	% treatment effect on the outcome explained by this mechanism	Association of mediator with the outcome variable	% treatment effect on the outcome explained by this mechanism	Association of mediator with the outcome variable	% treatment effect on the outcome explained by this mechanism
Government should reduce inequality	0.092* [0.049]	0.112*** [0.034]	8.05	0.303*** [0.049]	44.25	0.117*** [0.021]	11.21
Raising taxes on richer citizens ...	0.102** [0.050]	0.123*** [0.034]	9.80	0.218*** [0.051]	35.30	0.128*** [0.021]	13.60
Welfare spending	1.771*** [0.380]	-0.004 [0.005]	-5.53	0.014** [0.007]	39.36	0.001 [0.003]	1.84
Social security spending	1.072*** [0.306]	-0.005 [0.006]	-4.19	0.005 [0.009]	8.51	0.005 [0.004]	5.58

Note: 'Voting' refers to the probability that the respondent would be to 'Vote for a candidate for public office because of their position on austerity'. Answers range from 1 (Definitely would not) to 4 (Definitively would). 'Signing a petition AGAINST austerity' is a dummy variable. Control variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, being 'left wing' / 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table J3. Summary mediation analysis by treatment

		% treatment effect on voting explained by this mechanism	% treatment effect on protesting explained by this mechanism	% treatment effect on petition explained by this mechanism
Treatment	Government should reduce inequality	8.05	44.25	11.21
	Raising taxes on richer citizens to reduce budget deficit	9.80	35.30	13.60
	Welfare spending	-5.53	39.36	1.84
	Social security spending	-4.19	8.51	5.58
Treatment 1	Government should reduce inequality	9.72	43.56	13.13
	Raising taxes on richer citizens to reduce budget deficit	11.84	34.74	15.92
	Welfare spending	-6.68	38.74	2.16
	Social security spending	-5.06	8.38	6.54
Treatment 2	Government should reduce inequality	6.73	38.72	9.70
	Raising taxes on richer citizens to reduce budget deficit	8.20	30.88	11.76
	Welfare spending	-4.63	34.44	1.60
	Social security spending	-3.50	7.44	4.83

Table J4. Mediation analysis - including treatment in equation 4

	Voting			Protesting		Petition AGAINST austerity	
	Effect of treatment on candidate mediator	Association of mediator with the outcome variable	% treatment effect on the outcome explained by this mechanism	Association of mediator with the outcome variable	% treatment effect on the outcome explained by this mechanism	Association of mediator with the outcome variable	% treatment effect on the outcome explained by this mechanism
Government should reduce inequality	0.092* [0.049]	0.122*** [0.021]	8.77	0.313*** [0.030]	45.71	0.136*** [0.012]	13.03
Raising taxes on richer citizens ...	0.102** [0.050]	0.116*** [0.021]	9.24	0.245*** [0.031]	39.67	0.120*** [0.013]	12.75
Welfare spending	1.771*** [0.380]	0.003 [0.003]	4.15	0.019*** [0.004]	53.41	0.006*** [0.002]	11.07
Social security spending	1.072*** [0.306]	0.002 [0.003]	1.68	0.004 [0.005]	6.81	0.005** [0.002]	5.58

Note: 'Voting' refers to the probability that the respondent would be to 'Vote for a candidate for public office because of their position on austerity'. Answers range from 1 (Definitely would not) to 4 (Definitively would). 'Signing a petition AGAINST austerity' is a dummy variable. Control variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, being 'left wing' / 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table J5. Mediation analysis by treatment - including treatment in equation 4

		% treatment effect on voting explained by this mechanism	% treatment effect on protesting explained by this mechanism	% treatment effect on petition explained by this mechanism
Treatment	Government should reduce inequality	8.77	45.71	13.03
	Raising taxes on richer citizens to reduce budget deficit	9.24	39.67	12.75
	Welfare spending	4.15	53.41	11.07
	Social security spending	1.68	6.81	5.58
Treatment 1	Government should reduce inequality	10.59	44.99	15.26
	Raising taxes on richer citizens to reduce budget deficit	11.16	39.05	14.93
	Welfare spending	5.01	52.58	12.96
	Social security spending	2.02	6.70	6.54
Treatment 2	Government should reduce inequality	7.34	39.99	11.27
	Raising taxes on richer citizens to reduce budget deficit	7.73	34.71	11.03
	Welfare spending	3.47	46.73	9.57
	Social security spending	1.40	5.96	4.83

Appendix K: Heterogeneity analysis

Ideological position. In the analysis in Table K1, we investigate the interaction between someone's ideological position and their response to any of the two treatments. The data shows that individuals who categorize themselves as left-center are more likely to be politically active, but this effect is largely independent of the treatments itself, except for *Voting*. The treatments seem to particularly motivate this subgroup to vote, although the effects are comparatively small.

Table K1: Impact of *Exposure to Austerity* and *Exposure to Austerity Deprived* on political participation considering political position

	Voting (1)	Protesting (2)	Petition AGAINST austerity (3)
Treatment 1	-0.014 [0.062]	-0.047 [0.093]	0.051 [0.039]
Left-center	0.215*** [0.065]	0.713*** [0.097]	0.367*** [0.040]
Treatment 1 * Left-center	0.239*** [0.091]	0.196 [0.136]	0.055 [0.056]
Treatment 2	0.033 [0.062]	-0.002 [0.093]	0.072* [0.039]
Treatment 2 * Left-center	0.264*** [0.090]	0.177 [0.135]	0.089 [0.056]
Obs.	1,476	1,476	1,476
R-squared	0.092	0.186	0.232

Note: 'Voting' refers to the probability that the respondent would be to 'Vote for a candidate for public office because of their position on austerity'. Answers range from 1 (Definitely would not) to 4 (Definitely would). 'Protesting' refers to an individual's willingness to protest austerity. Answers range from 1 (Definitely will not) to 5 (Definitely will). 'Signing a petition AGAINST austerity' is a dummy variable. Controls variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, being 'left wing' or 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Trust in government. Table K2 shows the effect of *Exposure to Austerity* and *Exposure to Austerity Deprived* on political participation when considering trust in government. Overall, we do not find evidence that individuals who have higher trust in government respond to the treatments differently than those who have less trust.

Table K2: Impact of *Exposure to Austerity* and *Exposure to Austerity Deprived* on political participation considering trust

	Voting (1)	Protesting (2)	Petition AGAINST austerity (3)
Treatment 1	-0.120 [0.186]	-0.292 [0.279]	-0.116 [0.116]
Trust	-0.069* [0.039]	0.055 [0.059]	0.049** [0.024]
Treatment 1 * Trust	0.066 [0.055]	0.103 [0.082]	0.059* [0.034]
Treatment 2	-0.207 [0.187]	-0.146 [0.280]	0.033 [0.116]
Treatment 2 * Trust	0.110** [0.055]	0.069 [0.082]	0.024 [0.034]
Obs.	1,476	1,476	1,476
R-squared	0.088	0.185	0.233

Note: 'Voting' refers to the probability that the respondent would be to 'Vote for a candidate for public office because of their position on austerity'. Answers range from 1 (Definitely would not) to 4 (Definitely would). 'Protesting' refers to an individual's willingness to protest austerity. Answers range from 1 (Definitely will not) to 5 (Definitely will). 'Signing a petition AGAINST austerity' is a dummy variable. Controls variables include gender, age bracket, ethnic background, being married, living in the UK, university degree, being in paid employment (full or part-time), income class, trust in government, being 'left wing' or 'left center'. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.