

# Who Cares?

## Attitudes Towards Redistribution and Fiscal Austerity

Sarah Brown\*

University of Sheffield

Alexandros Kontonikas<sup>†</sup>

University of Essex

Alberto Montagnoli<sup>‡</sup>

University of Sheffield

Mirko Moro<sup>§</sup>

University of Stirling

Dafni Papoutsaki<sup>¶</sup>

Institute for Employment Studies

Willem Sas<sup>||</sup>

University of Stirling

### Abstract

Large fiscal consolidations may affect social and political attitudes, with potentially large shifts in voting behaviour as a result. In this paper, we present new evidence showing that austerity improves attitudes towards redistribution, especially for the relatively well-off. Matching social attitudes surveys over the period 2009 to 2015 with local area-level spending cuts in England, we can rely on spatial and temporal variation at the local level. Since the cuts were imposed by the central government, moreover, we can compute a plausibly exogenous measure of austerity shocks. Our theoretical model unpacks our main results, and proposes three mechanisms to explain the heterogeneity in support for redistribution: ‘altruism’, ‘appreciation’ (for the relatively rich) and ‘disillusion’ (for the relatively poor). Exploiting the wealth of survey questions in our data set, we find evidence for all three channels.

**JEL Classification:** D30, D64, E62, H20, H30, H60.

**Keywords:** Austerity, Fiscal Policy, Fiscal Consolidation, Redistribution, Attitudes, Altruism.

**Acknowledgements:** Brown, Kontonikas, Montagnoli and Moro acknowledge the financial support from the Leverhulme Trust (‘Research Project Grants 2015’). Sas is grateful for the financial support from the ESRC (‘Between two Unions’ project).

This draft: December 9, 2020.

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\*Department of Economics, University of Sheffield. E-mail: sarah.brown@sheffield.ac.uk

<sup>†</sup>Essex Business School, University of Essex. E-mail: a.kontonikas@essex.ac.uk

<sup>‡</sup>Department of Economics, University of Sheffield. E-mail: a.montagnoli@sheffield.ac.uk

<sup>§</sup>Economics Division, University of Stirling. E-mail: mirko.moro@stir.ac.uk

<sup>¶</sup>Institute for Employment Studies. E-mail: dafni.papoutsaki@employment-studies.co.uk

<sup>||</sup>Economics Division, University of Stirling & Department of Economics, KU Leuven. E-mail: willem.sas@stir.ac.uk

# 1 Introduction

In the aftermath of the Great Recession of 2007-8, countries were experiencing rapidly deteriorating deficits and rising national debts. In response to this, fiscal stimulus was quickly replaced by *fiscal austerity*, a mix of tax hikes and government expenditure cuts, with the aim of consolidating national budget imbalances. In the UK the first mention of the term *austerity* can be traced in the speech given by the Prime Minister David Cameron to the Conservative Party forum in Cheltenham on 26 April 2009.<sup>1</sup> In the following year the Chancellor of the Exchequers during June 2010 budget speech to the house of Commons provided more detailed on the *austerity* plan; his plan was to eliminate the structural current budget deficit; his ambition was twofold, firstly to “achieve cyclically-adjusted current balance by the end of the rolling, five-year forecast period” and second to reduce the public debt (as a fraction of GDP). Importantly, the plan was to achieve both of its goals through substantial reductions in public expenditure.<sup>2</sup> Fig. C.1 – which shows the frequency of Google searches for the words “austerity”, “austerity measures” and “United Kingdom austerity programme”– underscores the degree to which the notion was popularised in the UK following the economic measures implemented by the coalition government.

The debate that preceded and followed the adoption of these packages is plagued with controversies. However, the issues raised by austerity go beyond the discussion as to whether, and when, it is an appropriate macroeconomic policy. Large fiscal consolidations may have additional effects on the social and political attitudes and preferences of electorates and their voting behaviour (Alesina et al. 1998). Evidence from cross-country analyses seems to suggest that these consequences are limited (Alesina et al. 2012, Buti et al. 2010), whereas recent papers employing quasi-experimental identification strategies show that austerity may have contributed to political processes as well, such as the Brexit vote in the UK (Fetzer 2018).

This paper presents new evidence of the social and political effects of austerity by investigating whether austerity shocks are linked with changes in attitudes towards redis-

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<sup>1</sup>In his speech he said “the age of irresponsibility is giving way to the age of austerity” as reported here <https://conservative-speeches.sayit.mysociety.org/speech/601367>.

<sup>2</sup>This was to be achieved by a combination of public spending reductions and tax increases amounting to £110 billion. The end of the forecast period was 2015–16. The OECD “Restoring Public Finances” gives a detailed account of the measures.

tribution in England. Simple standard models may predict austerity to reduce support to redistribution as tax raises and spending cuts erode income. However, it is also plausible to predict that austerity shocks may increase support for higher redistribution. The underlying mechanism might be altruistic ([Alesina & La Ferrara 2005](#), [Luttens & Valfort 2012](#)), or simply financial as redistribution becomes more appealing to those who lose from austerity ([Meltzer & Richard 1981](#)). We first model these preferences towards redistribution by explicitly adding mechanisms that are not solely driven by selfish concerns, and investigate how preferences may differ over the income distribution. We then test our theoretical predictions using repeated cross-sections from the British Social Attitudes Survey for the period 2009-2015, and matching these to a plausibly exogenous shock in spending at Local Authority level.

In the model, the only source of heterogeneity across individuals is given by income levels. Both high and low income types cast their vote in favour of more or less redistribution between income types, which is then implemented by the government. We remain agnostic as to the concrete transfer programs that could be considered here. Both income types are self-interested, yet we also consider more sophisticated preferences. Altruism is included, so that the outcomes of the other type enter into the preference structure as well, following [Andreoni \(1990\)](#) and [Andreoni & Miller \(2002\)](#). Moreover, austerity measures often make the income losses of other individuals more salient which will reinforce this channel. Third, and extending the standard model of altruism further, we consider the possibility that individuals increasingly ‘wake up’ to the reality of austerity measures as these become more salient and start biting, whereas below a certain threshold austerity stays under the radar. The assumption is that this ‘reality check’ will be greater for higher income types, since these are to some degree better protected against austerity and will as a result be more surprised once the threshold is hit.

The main testable predictions of our model are the following. In the absence of austerity, high-income groups are typically less supportive of redistribution than low-income groups. As soon as austerity measures kick in and become salient, however, attitudes towards redistribution will turn positive for the high income group, yet remain neutral for the low income group. This is the cumulative result of two coinciding mechanisms. The first is a standard altruism component, and follows directly from our assumptions on

preferences. As austerity increases and incomes erode, the altruistic motive of transferring income to those who are losing out is strengthened. This effect has been previously documented in the redistribution literature, and this in the more general context of any income loss, and is shown to be stronger the higher an individual's income. Other channels reinforcing this altruist motive in our specific context of austerity may have to do with a partial sense of shame, as e.g. the amount of food banks goes up in the locality of high income areas.

The second mechanism, however, is less straightforward. Here, individuals who earn more are in a sense “waking up” to the harsh reality of austerity and would like to mitigate this. This may still be because of selfish concerns. Cuts in social care will affect long term care for example, which may impact higher income groups sooner – as they may need to carry the burden of care for their elderly – or later – as they may need to save more for their own care or even sell their house after retirement. The relatively poorer subgroups, inversely, are not affected by this trend as much, as they were already squarely on the receiving end of redistribution and aware of their position. On the contrary, the austerity measures may even have a negative effect on the lower income groups' attitudes to redistribution, which can be interpreted as a further erosion of trust in political institutions. This, together with the drop in altruist support, then explains the neutral response on the low income side, as it cancels out the self-interested positive effect of austerity on redistributive preferences.

We test the predictions from our model by matching attitudes reported in social attitudes surveys in England over the period 2009 to 2015 with local area-level spending cuts. We exploit the spatial and temporal variation of spending cuts at the Local Authority level by computing a plausibly exogenous measure of austerity shocks.

Focusing on Local Authorities is not only useful because it provides spatial variation for empirical identification, but it provides a salient measure of austerity. Local Authorities are in charge of decisions that affect sensitive areas such as social care and housing benefits. Moreover, the austerity packages approved by the Central Government in the UK from 2010 onwards were enacted in effect by a robust and steady decline in funding to Local Authorities (IFS report). This paper exploits the sharp change in the trend of Local Authority spending that occurred just after the 2009/10 financial year. Per capita spending

at Local Authority level has been growing steadily for over a decade before turning negative after 2009 (see Figure 3). We constructed a measure of unexpected cuts at Local Authority level – the austerity shock – by computing the difference between real spending at per capita level with the level of spending in the same authority in year 2009, the year in which the spending peaked, i.e., the year before austerity measures were introduced.

We show that this measure is linked, on average, with more favourable views towards redistribution. Consistent with our model, we show that more positive attitudes are driven by relative richer household and house owners. Note that, in the absence of austerity, these groups are less supportive of redistribution, in line with the literature. In other words, austerity changes the attitudes of wealthier people. This finding is robust to several specifications.

We confirm that the observed changes in attributes are driven by the mechanisms identified in the theoretical model: altruism and appreciation (or dissatisfaction for the poor). When we focus on single categories of spending shocks, we find that attitudes change significantly for high income groups following unexpected cuts in social care, which may be linked with both altruism and appreciation. The change in attitudes is also significant when focusing on cuts to transport, environmental and cultural services, which may be more salient for more affluent respondents. We do not find any relationship between cuts to a residual category that consists of central services such as registry, tax collection and elections, which are not associated with redistributive issues and can be taken as a placebo test that validates our interpretation.

To investigate these mechanisms further we leverage the richness of the survey. We identify several questions that we believe may underpin elements of altruism and appreciation. We find that wealthier respondents exposed to more austerity tend to agree more with the idea that the government should spend more on the poor and that the creation of the welfare state is one of the proudest achievements of Great Britain, which are in line with altruistic preferences and a renewed appreciation of redistributive policies, respectively. Inversely, we also detect an erosion of support for, and confidence in, the effectiveness of redistributive systems expressed by the relatively poorer income groups. This disillusion in the effectiveness of the welfare state is proxied by questions eliciting the belief of respondents that the system undermines people’s incentives to ‘stand on their

own feet’, or that people do not deserve help from social security programs to begin with.

## 2 The Model

Our stylised model captures the decision-making process of two types of individuals  $i$  with respect to interpersonal redistribution: a rich individual  $i = r$  and a poor individual  $i = p$ , with gross incomes  $Y_r > Y_p$ . The decision variable  $\lambda_i$  denotes the desired level of redistribution in the form of transfers between both income types, so that  $\sum_i \lambda_i = 0$ , implicitly organised by the government.<sup>3</sup> With  $0 < \alpha_i < 1$  the share of gross income  $Y_i$  directly or indirectly taken up by austerity measures,  $y_i$  represents income after austerity measures have been deducted from gross incomes, so that  $y_i = (1 - \alpha_i)Y_i$ . Without loss of generality, we assume that income losses from austerity are equally spread across income groups so that  $\alpha_p = \alpha_r$ , and  $\frac{d\alpha_p}{d\alpha_r} = 1$ . The utility of each individual can then be described as follows

$$U_i = v(y_i - \lambda_i) + \gamma_i a(y_{-i} - \lambda_{-i}) - \delta_i s(y'_i - \lambda_i), \quad (1)$$

with  $v(\cdot)$  and  $a(\cdot)$  increasing and concave functions,  $s(\cdot)$  increasing and convex, and all three having positive third derivatives. Both  $\gamma_i$  and  $\delta_i$  individual scaling factors with strictly positive support. The standard self-interested motives over disposable income ( $y_i - \lambda_i$ ) are captured by  $v(\cdot)$ , whilst  $a(\cdot)$  expresses a preference for altruism as it depends positively on the disposable income ( $y_{-i} - \lambda_{-i}$ ) of the other income type.<sup>4</sup> The convexity of  $s(\cdot)$  in Eq. (1) lastly, should be seen as an income-dependent aversion to austerity over the net share of austerity losses  $y'_i - \lambda_i$ , with  $y'_i = \alpha_i Y_i$ . Utility is thus directly affected by the size of the austerity measures in place, and this relative to gross incomes. The intuition is that, the richer individuals are, the more they will ‘wake up’ to the reality of austerity measures, and even overestimate their impact.<sup>5</sup> This shock-effect can happen for various reasons and will depend on the exact nature of the measures as well as their salience. The mechanism could be related to an exaggerated fear of losing income in the

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<sup>3</sup>For the sake of generality, we remain agnostic as to the actual redistributive policies introduced by the government. The amount captured by  $\lambda_i$  could for example be the result of net fiscal flows between individuals – deducting contributions and taxes from benefits received – summing to zero.

<sup>4</sup>Andreoni (1990) introduced this approach in the context of redistribution and charitable giving. See also Andreoni & Miller (2002).

<sup>5</sup>For simplicity, we start by assuming this is a continuous process. More likely there is a threshold level of austerity measures  $\alpha$  above which it becomes a focal point for the relatively rich. We extend our model in this direction in what follows, keeping all qualitative results.

short, medium or long-term because of the measures.<sup>6</sup> The salience of austerity can be expected to reinforce this channel, with for example the emergence of food banks across the country serving as a strong signal. [ADD media reference here @Mirko]

Deciding on desired levels of redistribution, expressed by net transfers  $\lambda_i$ , the optimisation problem of individual  $i$  then becomes

$$\max_{\lambda_i} U_i = v(y_i - \lambda_i) + \gamma_i a(y_{-i} - \lambda_{-i}) - \delta_i s(y'_i - \lambda_i), \quad (2)$$

with  $\sum_i \lambda_i = 0$ , so that we obtain the following first order condition for each individual  $i$

$$\Phi_i \equiv -v'(y_i - \lambda_i) - \gamma_i a'(y_{-i} - \lambda_{-i}) \frac{d\lambda_{-i}}{d\lambda_i} + \delta_i s'(y'_i - \lambda_i) = 0, \quad (3)$$

which implicitly characterises the equilibrium described in Lemma 1 below.

**Lemma 1.** *The Nash equilibrium  $(\lambda_i^*, \lambda_{-i}^*)$  defined by Eq. (3)  $\forall i$  is a unique maximum, with  $\lambda \equiv \lambda_r^* > \lambda_p^* = -\lambda$ .*

Analysing the equilibrium characterised by Lemma 1, and applying the implicit function theorem, we can then investigate the effects of a shift in austerity policies, characterised in Lemma 2.

**Lemma 2.** *In equilibrium, and ceteris paribus, sharper austerity measures cause a shift in attitudes towards redistribution  $\lambda_i$  of individual  $i$ , defined by*

$$\frac{d\lambda_i}{d\alpha_i} = - \left( \frac{v''(y_i - \lambda_i) Y_i - \gamma_i a''(y_{-i} - \lambda_{-i}) Y_{-i} + \delta_i s''(y'_i - \lambda_i) Y_i}{v''(y_i - \lambda_i) + \gamma_i a''(y_{-i} - \lambda_{-i}) - \delta_i s''(y'_i - \lambda_i)} \right). \quad (4)$$

Importantly, what we can deduce from Lemma 2 is that a net-contributing individual  $r$  will respond differently to shocks in austerity measures in equilibrium, as compared to a net-receiving individual  $p$ . We work this out further in the following lemmas.

**Lemma 3.** *For the rich, net-contributing individual, the condition for redistributive preferences to respond positively to austerity shocks can be written as*

$$\frac{d\lambda_r}{d\alpha_r} > 0 \Leftrightarrow \underbrace{v''(y_r - \lambda_r) Y_r}_{\text{Egoism (-)}} - \underbrace{\gamma_r a''(y_p - \lambda_p) Y_p}_{\text{Altruism (++)}} + \underbrace{\delta_r s''(y'_r - \lambda_r) Y_r}_{\text{Appreciation (++)}} > 0 \quad (5)$$

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<sup>6</sup>An example in our setting could be the introduced cuts in social care systems, which can stoke the (irrational) fear of having to sell one's house to finance elderly care. Another example would be the expectation of tax levies on capital (gains) to follow indirect tax increases.

From Eq. (5), we learn that the response of the net-contributing individual can be disentangled into three parts. The first part on the left hand side, which we have coined ‘egoism’, is negative. This is intuitive, as a drop in disposable income will make the rich individual less likely to give up part of her income. Second, the middle term in Eq. (5) is positive, and expresses a preference for altruism as the income of the poor individual is also hit by austerity. Third, and on the right hand side of Eq. (5), a last positive term captures what we termed ‘appreciation’. Here the rich individual is afraid to eventually fall on the net-receiving end of redistribution because of austerity, and hence starts to appreciate the redistribution inherent to the welfare system she funds. In a sense she not only ‘wakes up’ to the risks of income loss made salient by the austerity shock, but also – simultaneously and increasingly – values the social safety net in place to smooth out such income shocks.<sup>7</sup>

**Lemma 4.** *For the poor, net-receiving individual, the condition for redistributive preferences to respond positively to austerity shocks can be written as*

$$\frac{d\lambda_p}{d\alpha_p} > 0 \Leftrightarrow \underbrace{v''(y_p - \lambda_p) Y_p}_{\text{Egoism } (-)} - \underbrace{\gamma_p a''(y_r - \lambda_r) Y_r}_{\text{Altruism } (+)} + \underbrace{\delta_p s''(y'_p - \lambda_p) Y_p}_{\text{Disillusion } (+)} > 0 \quad (6)$$

From Eq. (6), we learn that the response of the net-receiving individual can also be disentangled into three parts. The first part on the left hand side, also coined ‘egoism’, is now even more negative than in Eq. (5). This is again intuitive, as a drop in disposable income will make the poor individual want to receive more transfers out of the redistributive system to compensate for the income losses (and hence set  $\lambda_p$  as negative as possible). Second, the middle term in Eq. (6) is less positive than in Eq. (5) as the income of the rich individual is less hit by austerity in absolute terms, so that altruism motives will be less pronounced. The third term on the right hand side of Eq. (6) is also less positive than in Eq. (5) and thus implies a smaller increase in appreciation of the welfare system. This could be because the relatively poor are less inclined to overestimate the effects of austerity as they have less to lose, yet it could also reflect what we will call ‘disillusion’. When austerity measures are ramped up, a poorer individual could start to lose faith in

<sup>7</sup>The underlying mechanism runs through the convexity of the third term  $-\delta_i s(y'_i - \lambda_i)$  in the utility function Eq. (1), which can be generalised as a function of our two terms of interest  $s(\alpha_i Y_i, \lambda_i)$ . All results in such a general framework go through, conditional on redistribution and austerity being complements, so that  $\frac{d^2 s(\cdot)}{d\alpha_i d\lambda_i} > 0$ , as well as  $\frac{ds(\cdot)}{d\lambda_i} > 0$  and  $\frac{ds(\cdot)}{d\alpha_i} < 0$ , which is intuitive.



the welfare system she already heavily relies on. As trust in political institutions slowly erodes, disillusion with redistribution sets in, and net-receivers will start supporting a ‘smaller’ government doling out smaller transfers.<sup>8</sup>

Comparing Lemma 3 with Lemma 4, and investigating the juxtaposition, then gives us the following proposition.

**Proposition 1.** *Expanding austerity measures across the board improves attitudes towards redistribution overall. This follows from a positive response for the rich, net-contributing individuals, and a neutral effect on the attitudes of the poor, net-receiving individuals, such that*

$$\frac{d\lambda_r}{d\alpha_r} \gg \frac{d\lambda_p}{d\alpha_p} \frac{d\alpha_p}{d\alpha_r} \approx 0, \quad (7)$$

with  $\frac{d\alpha_p}{d\alpha_r} = 1$  as before.

The intuition behind Proposition 1 is first of all that the egoism of the rich, net-contributing individual is a lot smaller than that of the poor individual. This follows from our concavity assumptions on  $v(\cdot)$ , which captures the real world observation that the marginal value of income is smaller the higher up the income distribution.<sup>9</sup> Second, the altruism of the rich individual will be a lot more pronounced than that of the poor individual, for much the same reasons and as expressed by the concavity of  $a(\cdot)$ . This is again intuitive: since poor individuals are more self-interested, they will care less about the income of richer people, and vice versa for the latter. Third, the disillusion of poorer individuals, and their eroding trust in redistributive policies, will be less pronounced than the appreciation of such policies by the rich. Since the rich have a lot more to lose from austerity measures, the behavioural response of waking up to its potential consequences will be large.

Summing up, we thus have a fairly weak negative effect on attitudes in favour of redistribution for the rich in Eq. (5), and two very pronounced positive ones. On the other end of the income distribution there is a fairly strong selfish response in favour of redistribution in Eq. (6), but this is mitigated by the other two negative effects which, as they are less pronounced, will more likely neutralise the first effect rather than make the

<sup>8</sup>More argumentation as well as empirical evidence is provided by [Rodrik \(2018\)](#) and [Guiso et al. \(2017\)](#), or by [Borck \(2007\)](#) specifically with respect to redistributive taxation.

<sup>9</sup>Experimental results summarised in [Fehr & Schmidt \(2006\)](#) point in this direction as well. See also [Andreoni et al. \(2017\)](#).

total sum fully negative. This will be the case under reasonable assumptions on parameter values in Eq. (1), and will depend crucially on the relative importance of each of the preference elements characterised in Lemma 2 and Lemma 3. We specify in Corollary 1.

**Corollary 1.** *The degree to which the shift in attitudes towards redistribution will be different for the rich, net-contributing individual as opposed to the poor, net-receiving individual depends on the relative magnitude of  $\gamma_i$  and  $\delta_i$ , expressing the relative weight of non-selfish factors.*

Suppose now that the relative importance  $\delta_i$  of disillusion and appreciation depends positively on the severity of austerity measures. This would be an intuitive extension to the baseline model, as both psychological effects can in a sense be considered secondary to pure self-interest and altruism. [ADD sources] If, moreover, this positive relationship  $\delta_i(\alpha_i)$  is staggered around a threshold value for austerity  $\bar{\alpha}$ , we can simply write overall utility expressed by Eq. (1) as follows

$$U_i = v(y_i - \lambda_i) + \mathbb{1}_E \gamma_i a(y_{-i} - \lambda_{-i}) - \mathbb{1}_E \delta_i s(y'_i - \lambda_i), \quad (8)$$

with

$$\mathbb{1}_E(\alpha_i, \bar{\alpha}) = \begin{cases} 1, & \text{if } \alpha_i > \bar{\alpha} \\ 0, & \text{otherwise} \end{cases}. \quad (9)$$

Studying the equilibrium in this more specific setting, we arrive at Proposition 2.

**Proposition 2.** *If the importance of altruism  $\gamma_i$  and disillusion/appreciation  $\delta_i$  depends on the level of austerity measures  $\alpha_i$ , there is always a threshold value  $\bar{\alpha}$  above which a radical shift in attitudes for the high income type occurs: from (extremely) against to in favour of redistribution. Support for redistribution of the lower income type, conversely, will simply level off.*

**Corollary 2.** *If the level of austerity does not pass the threshold value  $\bar{\alpha}$  defined in Proposition 2, the low income type will be in favour of redistribution, and the high income type against.*

**Corollary 3.** *If either  $\gamma_i$  or  $\delta_i$  depend on the level of austerity measures  $\alpha_i$ , passing the threshold value  $\bar{\alpha}$  can lead to a radical shift in attitudes for the rich, net-contributing individual: from (extremely) against to in favour of more redistribution. The opposite can be true for the poor, net-receiving individual.*

### 3 Attitudes towards redistribution in England

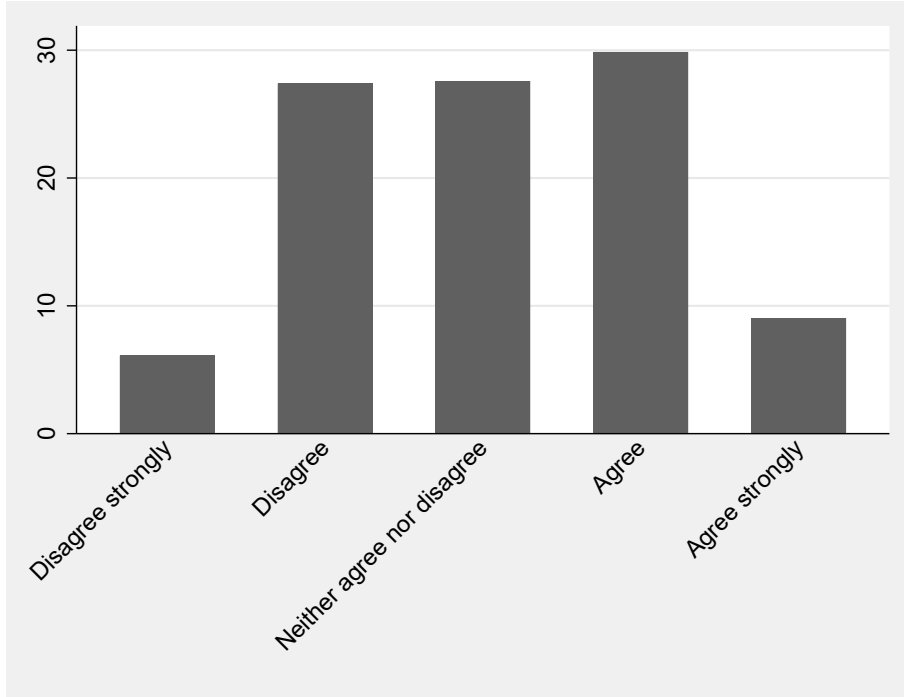
To test the propositions arising from our model, we created a unique dataset of local spending and attitudes in support of redistribution in the UK covering the period 2009-2015 by matching geocoded responses from a special license version of the British Social Attitudes (BSA) survey (National Centre for Social Research 2018) to a measure of *austerity shock* at Local Authority level. This section provides detail on both the BSA and the ONS data used to compute the local-area level austerity. The BSA is a repeated cross-sections survey aimed at capturing the change in social attitudes in Britain over time. It is conducted every year, on a sample of about 3000 individuals. The survey gather information on a series of individual characteristics as well as opinions/political attitudes. In this paper we include waves between years 2009-2015 which are matched to the austerity shock at Local Authority level. The BSA survey sample includes respondents from all over Great Britain. However in this analysis we restrict our sample to the respondents living in England. This is due to the fact that we are investigating the effects of changes in spending at the Local Authority level, and Local Authority structures between the constituent countries of Britain are different. The exact level of geographical disaggregation of the BSA survey dataset available to us is in Unitary authorities, Metropolitan Districts, Counties, and London.

The focus of this paper is on the effects of the austerity measures on preferences regarding redistribution. The variable that captures attitudes of respondents to redistribution is the answer to the following question:

*“Should the Government redistribute income from those that are well off to those who are less well off?”.*

The question has five possible answers, namely; Agree Strongly, Agree, Neither Agree nor Disagree, Disagree, Disagree Strongly. The categories of the response variables are recoded such that *Strongly Disagree* is assigned the lowest value of 1 and *Strongly Agree* the highest of 5. Figure 1 shows that about 39% of the individuals in our sample are supportive of redistribution (either agree or strongly agree with the statement), while a slightly smaller percentage (33%) is not. A large portion (28%) of respondent is indifferent (neither agree nor disagree with the statement).

Figure 1: Should the Government redistribute income?



The BSA comes with a rich array of respondents characteristics that we will exploit in our analysis as controls in different models. Demographic characteristics include age, gender, race, disability status, marital status, number of children in the household, and number of adults in the household. Socio-economic characteristics include income, employment status, education level and socio-economic status. The dataset includes also whether the respondent claims benefits and the home ownership status (which includes whether she rents a house provided by the Local Authority).

Table 1 reports the descriptive statistics of the set of control variables. Female represents 55% of the sample, which is predominantly white. 57% of the sample lives with a partner, either due to marriage or cohabitation. 50% of the sample has low education, while the percentages of intermediately and highly educated individuals are both about 24%. Even though 55% of the sample is employed, a similar percent of individuals (or their partners) in the sample is receiving some type of benefit (which include children benefits) or tax credit. 68% of the individuals own their house or hold a mortgage. One quarter of the sample reports that they suffer from at least one type of disability.

Table 1: Summary statistics of control variables from the British Attitudes Survey

	Mean	Std. Dev.	Min	Max	Obs
Female	0.550	0.497	0	1	14,066
Male	0.450	0.497	0	1	14,066
Age: 18-24	0.051	0.219	0	1	14,066
Age: 25-34	0.141	0.348	0	1	14,066
Age: 35-44	0.194	0.396	0	1	14,066
Age: 45-54	0.187	0.390	0	1	14,066
Age: 55-59	0.084	0.277	0	1	14,066
Age: 60-64	0.094	0.291	0	1	14,066
Age: 65+	0.250	0.433	0	1	14,066
White	0.927	0.260	0	1	14,066
Income: Less than £14,000	0.273	0.445	0	1	14,066
Income: £15,000- £25,999	0.242	0.428	0	1	14,066
Income: £26,000-£43,999	0.230	0.421	0	1	14,066
Income: More than \$44,000	0.256	0.436	0	1	14,066
Owner	0.682	0.466	0	1	14,066
Renter	0.217	0.412	0	1	14,066
Social housing	0.101	0.301	0	1	14,066
No of Children	0.557	0.956	0	8	14,066
No of adults	1.796	0.741	1	7	14,066
Married/cohabit	0.471	0.499	0	1	14,066
Living as married	0.105	0.306	0	1	14,066
Separated/divorced	0.154	0.361	0	1	14,066
Widowed	0.094	0.291	0	1	14,066
Not married	0.178	0.382	0	1	14,066
Still in education	0.015	0.122	0	1	14,066
Low education	0.511	0.500	0	1	14,066
Intermediate education	0.239	0.426	0	1	14,066
High education	0.235	0.424	0	1	14,066
Employed	0.552	0.497	0	1	14,066
Unemployed	0.049	0.215	0	1	14,066
Inactive	0.378	0.485	0	1	14,066
Training	0.021	0.143	0	1	14,066
Disabled	0.300	0.458	0	1	14,066
Claiming benefits	0.638	0.481	0	1	14,066
Union Member	0.191	0.393	0	1	14,066
Religious	0.516	0.500	0	1	14,066

## 4 Local spending and austerity in England

The May 2010 UK General election resulted in the formation of a coalition Government between two parties, the Conservative party and the Liberal Democrats. The Government adopted an austerity programme aimed at consolidating the fiscal imbalance of the country with the aim of reducing the structural budget deficit by some 5.7% of national income . Over the next five years the Coalition undertook a series of public spending cuts at central and local government. The agreement included the “ring-fencing” of the National Health System, the single-payer health system that delivers health services in the UK, and education. Responsibility of delivering part of the planned cuts was effectively devolved to Local Authorities by cutting the grant made by the Central Government to Local Authorities. Local Authorities in the UK are much more reliant to central grants and transfers than others OECD countries given that they have very limited power to raise revenues and no faculty to borrow. While cuts included also Scotland and Northern Ireland, we will focus England as the systems and cuts are slightly different across the constituent countries of the UK. Local government expenditure comprises about one quarter of the total government expenditure and mostly administered by Local Authorities. Local Authorities are elected by their residents and are in charge of delivering important services for their population, including social care and housing benefits, local public transport, waste collection and disposal. This local dimension of austerity makes austerity itself more salient.

Constructing a measure of local austerity is challenging. The first problem relates to the definition of “spending” that is comparable over time. We build our dataset following a series of reports published by the Institute for Fiscal Studies e.g., ([Innes & Tetlow 2015a](#)), and [Innes & Tetlow \(2015b\)](#). The most relevant indicator of how Local Authority supports people in each area is the net service spending, i.e., the amount of expenditure on publicly-funded services. To keep the figure comparable over time, services such as education, public health, police, and fire and rescue need to be excluded as responsibilities have changed during the period considered. <sup>10</sup>

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<sup>10</sup>To be precise, some local services are not under the competence of Local Authorities, e.g., Police services, Fire and Rescue services, and National Parks are under different authorities which geographies does not fully overlap with Local Authorities ([Innes & Tetlow 2015a](#)). Over this time period, competences around education and public health were transferred between local and national government. As a result, the observed variation in education and public health does not always reflect actual changes in local spending, but reflects transfers between central and local government or other changes. Concerning education, after 2010, the Government allowed schools to apply for “Academy status”. Schools that became academies

This implies that our measure of local fiscal austerity includes information for the following six categories:

- Highways, roads and transport;
- Social Care for children and adults;
- Housing;
- Cultural and environmental Services;
- Planning and Development; and
- Central and Other Services.

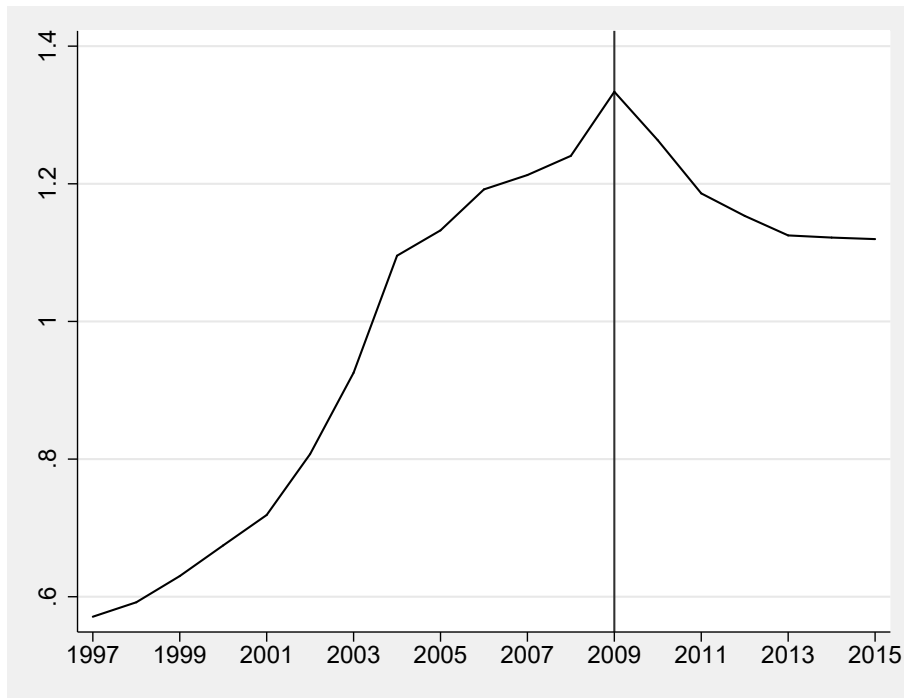
Table 2 describes these local services in detail.

To give an idea of the importance of the reductions of local government spending in these services over the period 2010-2015, we gathered data from the National Archives. We plot the amount of aggregate expenditure per capita by all English Local Authority level in Figure 3. The decline of Local Authority spending from 2010/11 onwards is in stark contrast with the previous trend. Until 2010-11, spending per capita was increasing in real terms every year. We will exploit this unexpected change to construct a measure of the austerity shock and estimate the causal effect of local-area austerity on attitudes to redistribution. Note that our formal analysis will restrict on the period 2009-2015 because data is not disaggregated by Local Authority before 2008. Further, it will include only the subsample of Local Authorities that can be matched with the BSA.

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were no longer dependent on the Local Authorities in which they reside for their financial support. Hence changes in Local Authority spending on education inevitably capture these transitions as well. We also excluded public health spending as Local authorities did not have any provision responsibilities before 2013.

Figure 2: Aggregate Local Authority real spending per capita in England, 1997-2015



Note: Authors' own calculation from ONS data.

The administration of local government in England is quite complex and comprises of single-tier and two-tier councils elected by their residents.<sup>11</sup> We match the BSA data with the lower tier areas and London. In order to be able to calculate the exact spending over those areas, we use population weights to calculate the approximate proportion of the larger area spending that corresponds to the smaller areas they overlap with. We calculate all spending in real terms and per capita for our analysis. In terms of geographical variation, our final merged dataset includes the spending information of 119 Local Authorities in England.

Figure [add figure showing spending in the English LAs in our dataset] illustrates the spending per capita, and its composition across the six spending categories (social care, housing, etc) over the 119 Local Authorities included in our final dataset. The decline in the spending is steady and noticeable. In 2009, Local Authorities were spending about £X per person on average across all the categories. The amount decreased to £X in 2015, a X% reduction. Panel (b) illustrates that although the decline is general across

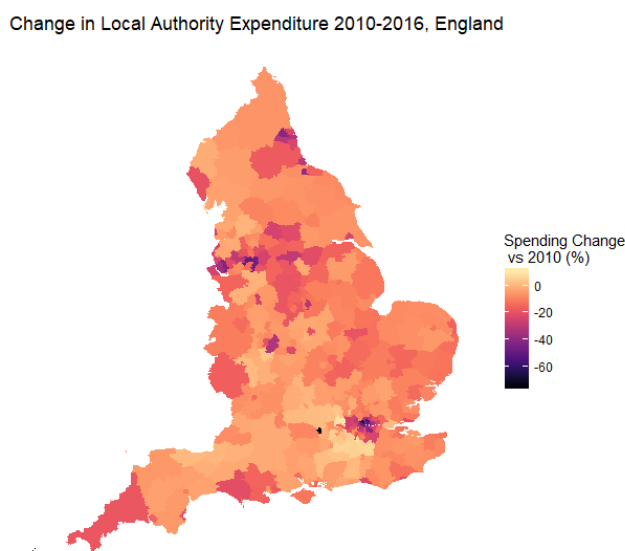
<sup>11</sup>Appendix B provides more information about the administration of the local government in England.



all categories, it has been relatively less pronounced for social care and housing, which make up 80% of the local spending. Between 2009 and 2015, social care and housing went down by about X%, while it declined by about X% for transport, by X% for planning and development, by X% for environment and cultural services.

The geographical variation in spending cuts can be seen in figure ??, where the percentage change of spending per capita in England between 2010-11 and 2015-16 is plotted on a map. The darker colours indicate larger cuts. These differences are providing the geographical variation in cuts we exploit in the analysis to estimate the effects of austerity on redistribution preferences. In the same figure we also see that the rate of austerity cuts was more intense in Northern areas than in Southern areas.

Figure 3: Percent changes in spending across Local Authority over 2010-2015



Note: Authors' own calculation from ONS data

Roughly three-fifth of Local Authority spending is financed through central government grants while the remaining two-fifths is from revenues raised with local taxes on commercial and residential properties ([Department for Communities and Local Government 2014](#)).

The Central Government provides a series of grants to the Local Authorities. There are two big categories of grants: a grant that provide general funding and specific grants for particular services. ([Department for Communities and Local Government 2014](#)).

[Need to show trends in grants and taxes for England overall and for our Local Au-

thorities only].

As some spending categories are not comparable over time and thus not included in the analysis, the respective grants will also not be included in the analysis. Those are grants for education services and for adults with learning disabilities. Also, grants for the support of the police and the fire and rescue services are not included, as those services are not included in the analysis. The Formula Grant comprised of two Grants; the Business Rates Revenues Grant and the Revenue Support Grant. After 2013 the Local Authorities got to keep approximately 50% of their non-domestic rates revenues in the form of the Rate Retention Scheme Grant and the rest of the non-domestic rates revenues is redistributed to Local Authorities through the Revenue Support Grant and other grants ([Local Government Association 2015](#)). The Council Tax revenues collected by Local Authorities, cover for about one quarter of the LA spending. The Local Authorities have the right to increase Council Tax every year, up to specific percentage. Any increase higher than this has to be decided by a local referendum. Soon after the Central Government started cutting down expenses, it offered a Council Freeze Grant to Local Authorities if they did not increase the Council Tax. At the beginning this grant was so high that all Local Authorities accepted it and decided not to increase their rates. Every subsequent year the amount of the grant offered was lower, which led to fewer and fewer Local Authorities accepting it and not increasing their council tax rates ([Ministry of Housing, Communities and Local Government 2014](#)). The Business Rates, otherwise known as Non-Domestic Rates, are collected taxes on the properties of local businesses. In the past, all the revenues from these taxes would be given to the Central Government who would then redistribute them to the Local Authorities as a grant, given the specific needs of each Local Authority. This changed in April 2013, when the Central Government decided that a new scheme would be introduced, whereby Local Authorities would keep part of the income from the non-domestic rates, as it was believed that this would give an incentive to Local Authorities to support local businesses more. This change started being implemented in 2013 and it is still ongoing. This means that one part of the business rates is still going to the Central Government and then it is redistributed as a grant, and one part is kept by the Local Authorities themselves ([Local Government Association 2015](#)).

The reduction in spending portrayed in figure 3 was achieved by employing different

measures. The first important change was the provision of a freeze grant from the central government to Local Authorities so that they wouldn't increase their council tax (the tax paid by renters and homeowners on the basis of the property value) rates in nominal terms. This was implemented in 2011-2012 and as it matched on average the increase Local Authorities can impose without having a local referendum on the matter, a large proportion of Local Authorities accepted the grant. However, in the following three years the amount of the grant decreased and fewer Local Authorities chose to take it and increased the council tax rates instead. The second major policy change was regarding the Formula Grant. The Formula grant comprises of the Revenue Support Grant as well as some small percentage of Local Business Retention Rates. After 2013-14, the government introduced a new scheme whereby the Local Authorities got to withhold almost 50% of their Business Rates. The idea behind this policy was to incentivise Local Authorities to support local businesses even further. This scheme is currently still ongoing with the aim that Local Authorities will withhold 100% of their business rates in the future. Finally, the last major policy change that took place was the 10% cut of the council tax benefit introduced in 2013. The way this was implemented was by giving 90% of the previous amount of what was the council tax benefit in the form of a grant to the Local Authorities. This is not a ring fenced grant which means that Local Authorities are free to choose whether to allocate part of this money to other services as well.

Table 2: Examples of Services delivered by local government - England

Major service	Examples of what is delivered
Highways, Roads and Transport	Highways – construction and maintenance of non-trunk roads and bridges Street lighting Traffic management and road safety; new line parking services Public transport – concessionary fares; support to operators; co-ordination Airports; harbours and toll facilities
Social Care for Children and Adults	Children’s and families’ services – support; welfare; fostering; adoption Youth justice – secure accommodation; youth offender teams Services for older people – nursing; home; residential and day care; meals Services for people with a physical disability; sensory impairment; learning disabilities or mental health needs Asylum seekers Supported employment
Housing	Council housing (Housing Revenue Account) Housing strategy and advice; housing renewal. Housing benefits and welfare Homelessness
Cultural and environmental services	Culture and heritage – archives; museums and galleries; public entertainment Recreation and sport – sports development; indoor and outdoor sports and recreation facilities Open spaces – national and community parks; countryside; allotments Tourism – marketing and development; visitor information Libraries and information services Cemetery; cremation and mortuary services Community safety; consumer protection; coast protection; trading standards Environmental health – food safety; pollution & pest control; housing standards; public conveniences; licensing Agricultural and fisheries services Waste collection and disposal; street cleansing
Planning and development	Building and development control Planning policy – including conservation and listed buildings Environmental initiatives Economic and community development
Central and other services	Local tax collection Registration of births; deaths and marriages Elections – including registration of electors Emergency planning Local land charges Democratic representation Corporate management

<sup>1</sup> This is table 1.2a, page 18 from [Department for Communities and Local Government \(2014\)](#).

## 4.1 The austerity shock

Our empirical strategy will therefore exploit this geographical variation in spending cuts with the the sharp national decline in spending cuts to construct a measure of unexpected cuts at local level – the austerity shock. In order to compute the *austerity shock*, we subtract the amount of local spending in any given year from the outset of the austerity

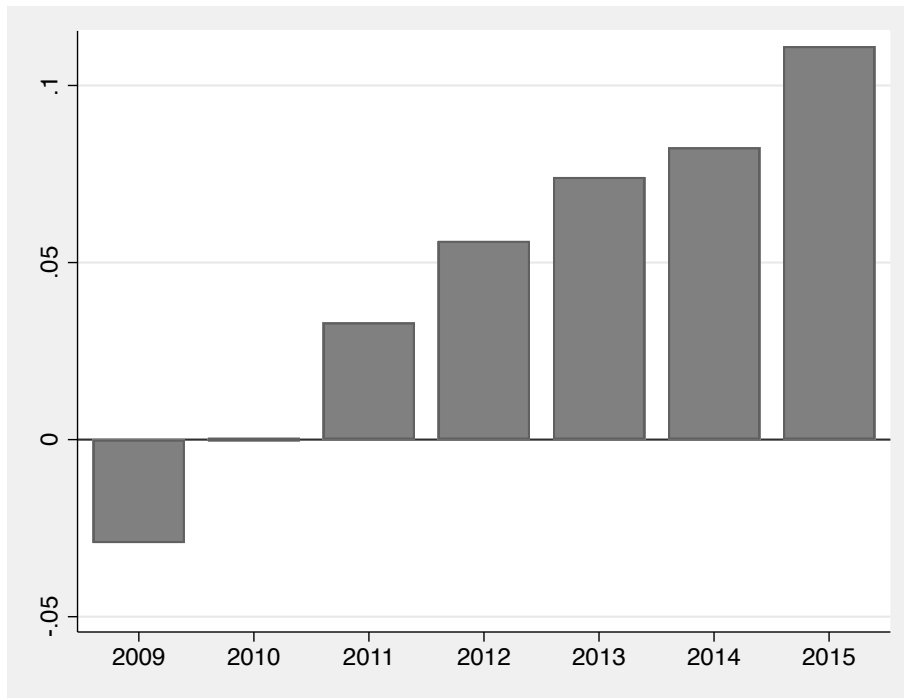
policy (year 2010) , which is therefore use as counterfactual spending. This means that we assume that individuals would expect their Local Authorities to spend at least as much as they did in 2010, i.e., before the austerity cuts came into place. This can be seen as a conservative approach to measure the shock as local spending was increasing in real terms up until that point. Measuring the shock is important to capture the losses perceived by individuals against their expectations.

More formally, the *austerity shock* is computed as Eq. (10):

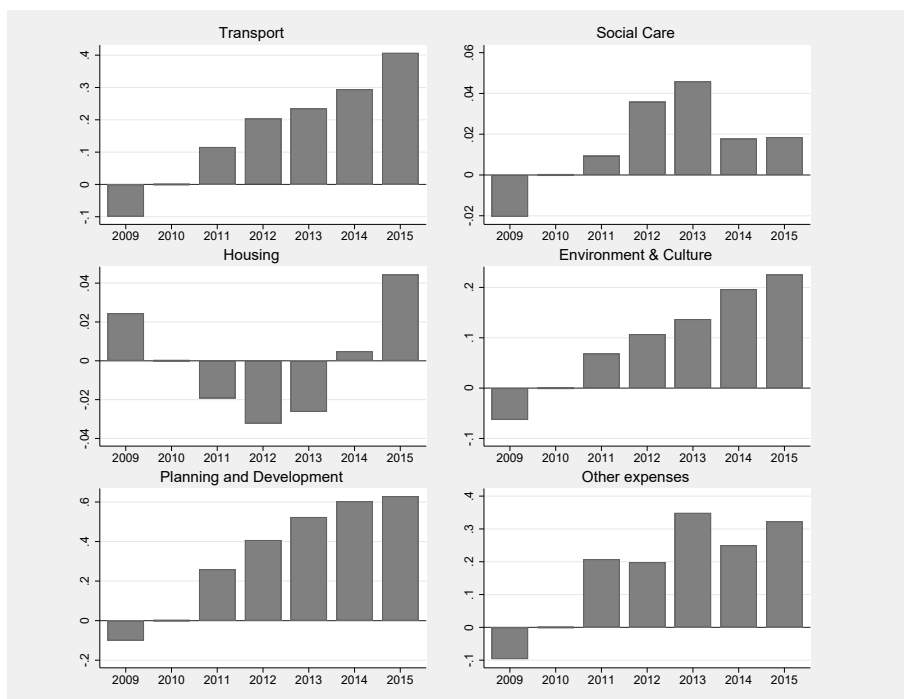
$$austerity_{g,t} = -(\ln(\text{Spending per capita})_{g,t} - \ln(\text{Spending per capita})_{g,t=2010-11}), \quad (10)$$

where  $g$  indicates the Local Authority, and  $t$  the current year. We calculate the spending per capita for every locality in order to capture distortions in spending due to changes in population size. In terms of the time dimension, we match the Local Authority spending from financial year (April  $year_t$  to March  $year_{t+1}$ ) to the BSA survey wave of  $year_t$ . We set *austerity* to be equal to the negative difference in spending so that as the value of the variable increases, the level of austerity increases, i.e., the greater the value, the greater the local spending shock. We compute this for each category of spending too.

Figure 4: Local austerity shock, 2009-2015



(a) Total effect of austerity shock



(b) Austerity shock across categories

Figure 4 serves to illustrate the increasing austerity in England. We average austerity

over the Local Authorities included in our dataset for each year over the period 2009-2015. The austerity shock is growing year on year, and it is positive every year for every category with the exception of housing.

Table 3 reports the summary statistics of total spending and austerity shock and their disaggregation by categories.

Table 3: Summary statistics of spending, austerity and local-area level variables

	Mean	St Dev	Min	Max
Austerity Shock	0.048	0.069	-0.151	0.357
Austerity Shock - Transport	0.171	0.239	-0.555	1.447
Austerity Shock - Social Care	0.015	0.083	-0.285	0.460
Austerity Shock - Housing	0.002	0.050	-0.180	0.272
Austerity Shock - Environment & Culture	0.098	0.134	-0.336	0.723
Austerity Shock - Planning and Development	0.336	0.453	-1.516	3.105
Austerity Shock - Other expenses	0.178	0.530	-1.437	5.653
Employment rate	71.841	4.822	54.200	83.200
Migration rate	0.117	0.095	0.021	0.400

## 4.2 Local-area level control variables

To control for potential confounders at local level some specifications include the employment and the migration rates. Both these measures are taken from the ONS regional statistics tables. The latter is based on the estimated number of non-foreign born divided by the estimated population at Local Authority level. The last two rows of Table ?? provides the descriptive statistics for these variables. Every specification will also include indicators of NUTS1 regions, i.e. nine government office regions, which are the administrative units in the Nomenclature of Territorial Units for Statistics (NUTS), a geocode standard used by the European statistics agency Eurostat for referencing the subdivisions countries for statistical purposes.

## 5 Results

We first start our analysis by documenting the general effect of austerity shock on attitudes to redistribution with ordered probit models of the following form:

$$y_{it}^* = \alpha A_{gt} + \mathbf{x}_{it}'\boldsymbol{\beta} + \mathbf{M}_{gt}'\boldsymbol{\gamma} + \delta + t + \epsilon_{it}, \quad \epsilon_i \sim N(0, 1), \quad \forall i = 1, \dots, N \quad (11)$$

to where, as customary,  $y_{it}^*$  is a latent continuous variable capturing attitudes which is assumed to be linearly dependent on a vector of independent variables and an error term  $\epsilon_{it}$  which follows a Normal distribution. Individuals are denoted by  $i$ , different waves by  $t$  (recall these are repeated cross-sections), and the sample size is  $N$ . The austerity shock are captured by the variable  $A$  which varies across Local Authorities  $g$  and over time  $t$ . The vector  $\mathbf{x}$  includes a series of demographic and person specific variables; gender, age, race, disability, number of children and number of adults in the household, marital status, educational level, employment status, income, benefit claims, house ownership, union membership, and religiosity. The vector  $\mathbf{M}$  includes the share of migrants in each Local Authority  $g$  at time  $t$ , and the employment rate at the Local Authority  $g$  at time  $t$ . Finally, year dummies ( $t$ ) and a set of NUTS1 region fixed effects ( $\delta$ ) are included in every regression. Standard errors are clustered at Local Authority level.

This baseline model will be augmented with interactions between austerity and income to test the predictions of our model. Table 4 reports the (average) marginal probability effects, i.e. the change in the probability of reporting a given response (*Strongly Agree, Agree, ...*) associated with the austerity shock.<sup>12</sup> Our initial analysis shows that the austerity shock change attitudes. Consistent with our model, people tend to become more supportive of redistribution after their area has been hit by austerity. This result is robust to the inclusion of a set of control variables, both local-area level characteristics and individual-level characteristics. The estimated marginal effects get smaller after the introduction of personal characteristics and Local Authority characteristics, while being still statistically significant at 5% level. The inclusion of household income dummies does not impact the size of the coefficient sensibly, but the marginal effect is less precisely estimated. We take this as indicative of potential heterogeneous effects. Our theoretical model is explicit about differential effects across the income distribution as it predicts that

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<sup>12</sup>The full set of estimates are reported in the Appendix and are in line with the literature and prior expectations. Male, older individuals, non-white, people with a reported disability, non-married, and highly educated individual are more supportive of redistribution compared to their alternative subgroups. Individuals who do not claim benefits are less supportive compared to people who claim. As we will discuss more in depth in the remainder of the paper, the baseline model shows that higher earners and people who own their home are less supportive of redistribution, on average.



attitudes change following austerity are different across different groups.

Table 4: Attitudes to redistribution and austerity

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model	-0.095*** (0.028)	-0.191*** (0.055)	-0.015** (0.007)	0.173*** (0.051)	0.128*** (0.037)
+ LA characteristics	-0.059** (0.026)	-0.118** (0.051)	-0.009* (0.005)	0.107** (0.047)	0.079** (0.035)
+ Individual characteristics	-0.050** (0.024)	-0.101** (0.049)	-0.008 (0.005)	0.091** (0.044)	0.067** (0.033)
+ Household income	-0.042* (0.025)	-0.084* (0.050)	-0.006 (0.005)	0.076* (0.045)	0.056* (0.034)
Observations	14067	14067	14067	14067	14067

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

We empirically test for these heterogeneous effects across the income distribution by adding the interaction between the austerity shock and each income dummy. We also run ordered probit models in which indicators for housing tenure (whether owning or living in social housing) are interacted with austerity shock (recall that renting is the reference category). In this case, we are interested in the attitude changes of home owners, that we take as a proxy for wealthier people. Table 5 is divided in two panels. The first panel (labelled “Baseline model”) shows the marginal effects for income and house tenure dummies computed after running the fully specified model in equation Eq. (11) (Table 4, row 3). In other words, this panel shows the “baseline” attitudes to redistribution for different income groups (with respect to the lowest income bracket) and people who owns their dwelling or live in social housing (with respect to people who rent). These results show that, when controlling for austerity, individuals in the highest income bracket (£44,000+) and those who own a home are less likely to support redistributive policies. Estimated effect are similar in models that do not include the austerity shock. In other words, the first panel

replicate the standard result: relatively richer people are, on average, less supportive of redistribution. The second panel in Table 5 tests our model predictions and reports average marginal effects from separate models in which (a) we include interactions between income dummies and (b) austerity shock is interacted with house tenure dummies. Now, and following the austerity shock, higher-income individuals are on average more likely to support redistribution compared to people who earn less. As austerity increase, higher income groups are more likely to agree to more redistribution compared to people who earn less than £14,000 as austerity increases. The shift in attitudes is also evident for home owners.

This shift in attitudes as austerity increases is consistent with the predictions from our theoretical model. For the rich, the shift is predicted by altruistic-motives, from the realisation of the impact of austerity on relatively poorer individuals and, more indirectly, on themselves. We refer to these two mechanisms as altruism and appreciation. The effects of austerity may become more vivid and salient in the immediate environment of richer individuals as the measures are ramped up. Food banks have been increasing in numbers all throughout England around the same time and collection points for food banks are to be found in many public places, shopping malls and supermarkets (Loopstra et al. 2018). Cuts on specific spending, say social care, may indirectly affect the well-being of richer individuals in different ways as well. For instance, they are realising that they may after all not be able to rely on public services for the care of their elderly or for their own care in the future.

In what follows, we empirically explore the presence of these two mechanisms by investigating the relationship between attitudes and unexpected spending cuts (shocks) on different categories (social care, transport, etc.) and by identifying other questions in the BSA that may be linked with the concept of altruism or appreciation or both. We begin by running ordered probit models of attitudes to redistribution on specific category of expenditure shocks (see panel *b* of Figure 4). Table 6 shows how the shock in social care changes the probability of supporting redistribution across the income groups and house tenure status. As with the previous table, the first panel of Table 6, labelled “Baseline model”, reports the average marginal effects of income and house tenure computed after running regressions of attitudes to redistribution on the social care shock and other con-

trols listed in Eq. (11). The second part of Table 6 confirms the mechanisms put forward. As unexpected social care cuts go up, richer individuals are more likely to support redistribution. In other words, richer individuals ‘wake up’ to the effect of the cuts in social care and realise that redistribution may be beneficial, now that it is being rolled back. Social care in England is provided by [can we add more info about social care?] To some extent then these results can be taken as evidence of appreciation as well.

Second, appreciation is also apparent because shifts of attitudes to redistribution occur as well when looking separately at spending shocks in other categories that might be more salient for high income groups: transport, environmental and cultural services (these results are reported in the Appendix, see Table 7 and 8). It is intuitive to think that these services might be of particular importance for these groups and that a cut of these services may reveal effects of austerity that were not previously considered. Cuts on planning and development seems to affect attitudes of home owners, who shift their preferences in favour of redistribution as cuts go up, while there is no significant interaction across income groups. Housing spending shocks, on the other hand, do not seem to affect attitudes of different groups (Table 9 and Table 10). It might be argued that expenditure of services such as registry or tax collection may not be salient from a redistributive point of view, i.e., we would not expect attitudes to change when these expenses are cut unexpectedly. This is what Table 11 shows: attitudes to redistribution across income groups are not affected by shocks in central services expenses. We can cautiously take this as a placebo test and validation of our model and empirical strategy.

We further identify questions in the BSA that could reveal preferences towards altruism and appreciation. For instance, Table 12 reports estimates of ordered probit regressions of categorical responses to the question “*Should the Government spend more money for the poor?*”. We think that people agreeing with this statement would reveal more altruistic preferences and so we expect richer people to agree more with this statement if exposed to austerity shock. As in the previous case, the baseline model of attitudes on income and housing tenure (controlling for austerity shock and other characteristics) is represented in the first panel and shows that the richer and wealthier are on average less altruistic. However, as shown in the second panel of the table, austerity triggers a change in the attitudes for those individuals who earn more than £44,000. We take this as supportive

evidence of the altruistic mechanism. We test the appreciation mechanism by investigating whether austerity changes the way richer individuals agree that the creation of the Welfare State is one of the proudest achievements of Great Britain. Interestingly, and in line with our model, high income individuals are more likely to support this statement as austerity shock increases (Table 13).

Table 5: Austerity and attitudes to redistribution across income and housing tenure groups

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model (row 4 in Table 4)					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.012*** (0.002)	0.031*** (0.006)	0.007*** (0.001)	-0.026*** (0.005)	-0.024*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.057*** (0.007)	0.009*** (0.002)	-0.050*** (0.007)	-0.041*** (0.005)
More than £44,000	0.049*** (0.006)	0.099*** (0.010)	0.006** (0.003)	-0.091*** (0.010)	-0.064*** (0.005)
<i>House tenure (ref cat: renter)</i>					
Home owner	0.020*** (0.003)	0.044*** (0.007)	0.005*** (0.001)	-0.039*** (0.006)	-0.030*** (0.005)
Social housing	-0.006** (0.003)	-0.015** (0.007)	-0.004** (0.002)	0.013** (0.006)	0.012** (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.004 (0.022)	-0.011 (0.069)	-0.004 (0.023)	0.009 (0.053)	0.010 (0.061)
£15,000-£25,999	-0.031 (0.035)	-0.072 (0.081)	-0.010 (0.011)	0.064 (0.071)	0.049 (0.055)
£26,000-£43,999	-0.000 (0.033)	-0.000 (0.062)	-0.000 (0.000)	0.000 (0.059)	0.000 (0.036)
More than £44,000	-0.182*** (0.045)	-0.247*** (0.060)	0.050*** (0.017)	0.258*** (0.062)	0.122*** (0.032)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.076** (0.033)	-0.135** (0.057)	0.004 (0.003)	0.129** (0.055)	0.078** (0.034)
Renter	-0.000 (0.028)	-0.001 (0.075)	-0.000 (0.018)	0.001 (0.061)	0.001 (0.059)
Social housing	0.005 (0.021)	0.019 (0.075)	0.008 (0.032)	-0.013 (0.053)	-0.019 (0.075)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 6: Social care spending shock and attitudes to redistribution

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.012*** (0.002)	0.031*** (0.006)	0.007*** (0.002)	-0.026*** (0.005)	-0.024*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.058*** (0.007)	0.009*** (0.002)	-0.050*** (0.007)	-0.041*** (0.005)
More than £44,000	0.049*** (0.006)	0.100*** (0.010)	0.006** (0.003)	-0.091*** (0.010)	-0.064*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.020*** (0.003)	0.044*** (0.007)	0.005*** (0.001)	-0.039*** (0.006)	-0.030*** (0.005)
Social housing	-0.006** (0.003)	-0.015** (0.007)	-0.004** (0.002)	0.012** (0.006)	0.012** (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	0.013 (0.015)	0.040 (0.046)	0.013 (0.015)	-0.031 (0.036)	-0.035 (0.041)
£15,000-£25,999	-0.009 (0.024)	-0.022 (0.055)	-0.003 (0.007)	0.019 (0.049)	0.015 (0.038)
£26,000-£43,999	-0.012 (0.027)	-0.022 (0.051)	-0.000 (0.001)	0.021 (0.048)	0.013 (0.030)
More than £44,000	-0.110*** (0.037)	-0.149*** (0.054)	0.030*** (0.010)	0.156*** (0.054)	0.073** (0.030)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.034* (0.020)	-0.060* (0.035)	0.002 (0.002)	0.058* (0.034)	0.035* (0.021)
Renter	-0.001 (0.020)	-0.003 (0.053)	-0.001 (0.013)	0.003 (0.043)	0.003 (0.042)
Social housing	0.003 (0.014)	0.009 (0.051)	0.004 (0.022)	-0.007 (0.036)	-0.009 (0.051)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 7: Transport spending shock and attitudes to redistribution

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.012*** (0.002)	0.031*** (0.006)	0.007*** (0.002)	-0.026*** (0.005)	-0.024*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.058*** (0.007)	0.009*** (0.002)	-0.050*** (0.007)	-0.041*** (0.005)
More than £44,000	0.050*** (0.006)	0.100*** (0.010)	0.006** (0.003)	-0.091*** (0.010)	-0.064*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.020*** (0.003)	0.044*** (0.007)	0.005*** (0.001)	-0.039*** (0.006)	-0.030*** (0.005)
Social housing	-0.006** (0.003)	-0.015** (0.007)	-0.004** (0.002)	0.012** (0.006)	0.012** (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.000 (0.006)	-0.001 (0.019)	-0.000 (0.006)	0.001 (0.015)	0.001 (0.017)
£15,000-£25,999	-0.004 (0.010)	-0.010 (0.024)	-0.001 (0.003)	0.009 (0.021)	0.007 (0.017)
£26,000-£43,999	0.021* (0.012)	0.040* (0.023)	0.000 (0.001)	-0.037* (0.021)	-0.023* (0.013)
More than £44,000	-0.030** (0.014)	-0.041** (0.018)	0.008* (0.005)	0.043** (0.019)	0.020** (0.009)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.009 (0.009)	-0.016 (0.016)	0.000 (0.001)	0.015 (0.016)	0.009 (0.009)
Renter	0.011 (0.008)	0.029 (0.021)	0.007 (0.005)	-0.024 (0.017)	-0.023 (0.017)
Social housing	-0.007 (0.006)	-0.023 (0.022)	-0.010 (0.009)	0.016 (0.015)	0.023 (0.022)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 8: Environmental and cultural services spending shock and attitudes to redistribution

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.012*** (0.002)	0.031*** (0.006)	0.007*** (0.002)	-0.026*** (0.005)	-0.024*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.058*** (0.007)	0.009*** (0.002)	-0.050*** (0.007)	-0.041*** (0.005)
More than £44,000	0.050*** (0.006)	0.100*** (0.010)	0.006** (0.003)	-0.091*** (0.010)	-0.064*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.020*** (0.003)	0.044*** (0.007)	0.005*** (0.001)	-0.039*** (0.006)	-0.030*** (0.005)
Social housing	-0.006** (0.003)	-0.015** (0.007)	-0.004** (0.002)	0.013** (0.006)	0.012** (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	0.014 (0.012)	0.044 (0.037)	0.014 (0.012)	-0.034 (0.028)	-0.039 (0.032)
£15,000-£25,999	0.002 (0.018)	0.004 (0.042)	0.001 (0.006)	-0.003 (0.037)	-0.003 (0.029)
£26,000-£43,999	0.022 (0.016)	0.042 (0.031)	0.000 (0.001)	-0.039 (0.029)	-0.024 (0.018)
More than £44,000	-0.060*** (0.022)	-0.081*** (0.028)	0.016** (0.007)	0.085*** (0.030)	0.040*** (0.014)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.009 (0.014)	-0.015 (0.025)	0.000 (0.001)	0.014 (0.024)	0.009 (0.015)
Renter	0.008 (0.017)	0.022 (0.045)	0.005 (0.011)	-0.018 (0.037)	-0.017 (0.036)
Social housing	0.019 (0.013)	0.066 (0.044)	0.028 (0.019)	-0.047 (0.032)	-0.066 (0.044)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



Table 9: Planning and development spending shock and attitudes to redistribution

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.012*** (0.002)	0.031*** (0.006)	0.007*** (0.002)	-0.026*** (0.005)	-0.024*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.058*** (0.007)	0.009*** (0.002)	-0.050*** (0.007)	-0.041*** (0.005)
More than £44,000	0.049*** (0.006)	0.099*** (0.010)	0.006** (0.003)	-0.091*** (0.009)	-0.064*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.021*** (0.003)	0.044*** (0.007)	0.005*** (0.001)	-0.040*** (0.006)	-0.030*** (0.005)
Social housing	-0.006** (0.003)	-0.015** (0.007)	-0.004** (0.002)	0.012** (0.006)	0.012** (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.002 (0.004)	-0.005 (0.011)	-0.002 (0.004)	0.004 (0.009)	0.004 (0.010)
£15,000-£25,999	-0.011** (0.004)	-0.024** (0.010)	-0.003** (0.002)	0.021** (0.009)	0.017** (0.007)
£26,000-£43,999	-0.007 (0.006)	-0.012 (0.011)	-0.000 (0.000)	0.012 (0.010)	0.007 (0.006)
More than £44,000	-0.012 (0.008)	-0.016 (0.011)	0.003 (0.002)	0.017 (0.012)	0.008 (0.006)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.010** (0.005)	-0.017** (0.008)	0.000 (0.000)	0.016** (0.008)	0.010** (0.005)
Renter	-0.002 (0.005)	-0.006 (0.013)	-0.002 (0.003)	0.005 (0.011)	0.005 (0.010)
Social housing	-0.003 (0.004)	-0.009 (0.015)	-0.004 (0.006)	0.007 (0.011)	0.009 (0.015)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 10: Housing spending shock and attitudes to redistribution

	(1)	(2)	(3)	(4)	(5)
	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.012*** (0.002)	0.031*** (0.006)	0.007*** (0.002)	-0.026*** (0.005)	-0.024*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.058*** (0.007)	0.009*** (0.002)	-0.050*** (0.007)	-0.041*** (0.005)
More than £44,000	0.049*** (0.006)	0.100*** (0.010)	0.006** (0.003)	-0.091*** (0.010)	-0.064*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.020*** (0.003)	0.044*** (0.007)	0.005*** (0.001)	-0.039*** (0.006)	-0.030*** (0.005)
Social housing	-0.006** (0.003)	-0.015** (0.007)	-0.004** (0.002)	0.013** (0.006)	0.012** (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.006 (0.027)	-0.018 (0.081)	-0.006 (0.027)	0.014 (0.063)	0.016 (0.072)
£15,000-£25,999	-0.057 (0.044)	-0.131 (0.101)	-0.018 (0.014)	0.115 (0.089)	0.090 (0.069)
£26,000-£43,999	-0.018 (0.060)	-0.034 (0.113)	-0.000 (0.001)	0.032 (0.107)	0.020 (0.066)
More than £44,000	-0.067 (0.071)	-0.093 (0.096)	0.019 (0.020)	0.097 (0.101)	0.045 (0.047)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.047 (0.042)	-0.084 (0.074)	0.002 (0.003)	0.080 (0.071)	0.049 (0.043)
Renter	-0.001 (0.042)	-0.002 (0.110)	-0.000 (0.027)	0.002 (0.091)	0.002 (0.088)
Social housing	-0.031 (0.033)	-0.107 (0.115)	-0.046 (0.048)	0.076 (0.082)	0.108 (0.114)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 11: Central services spending shock and attitudes to redistribution

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.011*** (0.002)	0.030*** (0.006)	0.006*** (0.001)	-0.025*** (0.005)	-0.023*** (0.005)
£26,000-£43,999	0.024*** (0.003)	0.056*** (0.007)	0.009*** (0.002)	-0.049*** (0.007)	-0.040*** (0.005)
More than £44,000	0.049*** (0.005)	0.098*** (0.009)	0.006** (0.003)	-0.090*** (0.009)	-0.063*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.021*** (0.003)	0.046*** (0.007)	0.005*** (0.002)	-0.041*** (0.006)	-0.031*** (0.005)
Social housing	-0.005* (0.003)	-0.014* (0.007)	-0.003* (0.002)	0.011* (0.006)	0.011* (0.006)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.002 (0.002)	-0.006 (0.008)	-0.002 (0.002)	0.005 (0.006)	0.005 (0.007)
£15,000-£25,999	0.003 (0.004)	0.007 (0.009)	0.001 (0.001)	-0.006 (0.008)	-0.005 (0.006)
£26,000-£43,999	0.003 (0.004)	0.006 (0.008)	0.000 (0.000)	-0.006 (0.007)	-0.004 (0.005)
More than £44,000	-0.004 (0.005)	-0.005 (0.008)	0.001 (0.002)	0.005 (0.008)	0.003 (0.004)
<i>(Austerity) x (House tenure)</i>					
Home ownership	0.000 (0.003)	0.000 (0.006)	-0.000 (0.000)	-0.000 (0.005)	-0.000 (0.003)
Renter	-0.003 (0.003)	-0.009 (0.008)	-0.002 (0.002)	0.007 (0.007)	0.007 (0.006)
Social housing	0.005* (0.003)	0.019* (0.011)	0.008* (0.005)	-0.014* (0.008)	-0.019* (0.011)
Observations	13,831	13,831	13,831	13,831	13,831
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 12: Should the Government spend more money for the poor?

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.014*** (0.003)	0.041*** (0.008)	0.002** (0.001)	-0.039*** (0.008)	-0.017*** (0.003)
£26,000-£43,999	0.022*** (0.003)	0.061*** (0.008)	0.000 (0.001)	-0.060*** (0.008)	-0.024*** (0.003)
More than £44,000	0.032*** (0.004)	0.083*** (0.012)	-0.003 (0.002)	-0.081*** (0.011)	-0.031*** (0.004)
<i>House tenure (ref cat: renter)</i>					
Home owner	0.023*** (0.002)	0.061*** (0.007)	-0.001 (0.001)	-0.059*** (0.007)	-0.024*** (0.003)
Social housing	-0.007*** (0.003)	-0.024*** (0.009)	-0.004** (0.002)	0.022*** (0.008)	0.012** (0.005)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	0.013 (0.016)	0.056 (0.072)	0.017 (0.022)	-0.052 (0.066)	-0.034 (0.044)
£15,000-£25,999	0.038 (0.034)	0.106 (0.093)	-0.001 (0.003)	-0.104 (0.091)	-0.039 (0.034)
£26,000-£43,999	0.040 (0.047)	0.083 (0.098)	-0.017 (0.020)	-0.083 (0.098)	-0.024 (0.027)
More than £44,000	-0.095* (0.049)	-0.151* (0.078)	0.054** (0.027)	0.155* (0.079)	0.037* (0.020)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.014 (0.032)	-0.029 (0.068)	0.005 (0.011)	0.029 (0.068)	0.009 (0.022)
Renter	0.042 (0.029)	0.126 (0.087)	0.011 (0.008)	-0.122 (0.083)	-0.057 (0.039)
Social housing	0.020 (0.023)	0.097 (0.113)	0.039 (0.046)	-0.087 (0.101)	-0.068 (0.081)
Observations	14,067	14,067	14,067	14,067	14,067
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 13: The creation of the Welfare State is one of the GB's proudest achievements

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.006*** (0.002)	0.012*** (0.004)	0.015*** (0.005)	-0.010*** (0.004)	-0.023*** (0.008)
£26,000-£43,999	0.006*** (0.002)	0.012*** (0.004)	0.016*** (0.006)	-0.011*** (0.004)	-0.024*** (0.008)
More than £44,000	0.006*** (0.002)	0.012*** (0.005)	0.016*** (0.006)	-0.010** (0.004)	-0.024*** (0.009)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.004** (0.002)	0.009** (0.003)	0.011** (0.004)	-0.007*** (0.003)	-0.017** (0.007)
Social housing	-0.003 (0.002)	-0.006 (0.004)	-0.009 (0.006)	0.005 (0.003)	0.013 (0.009)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	0.001 (0.013)	0.003 (0.031)	0.005 (0.054)	-0.002 (0.017)	-0.008 (0.081)
£15,000-£25,999	-0.026 (0.021)	-0.050 (0.041)	-0.064 (0.052)	0.043 (0.035)	0.098 (0.079)
£26,000-£43,999	0.009 (0.025)	0.017 (0.044)	0.018 (0.047)	-0.017 (0.043)	-0.027 (0.072)
More than £44,000	-0.064** (0.026)	-0.114*** (0.044)	-0.115*** (0.044)	0.121** (0.047)	0.173*** (0.067)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.019 (0.016)	-0.037 (0.031)	-0.049 (0.041)	0.032 (0.027)	0.073 (0.062)
Renter	0.009 (0.025)	0.016 (0.043)	0.016 (0.043)	-0.016 (0.044)	-0.025 (0.067)
Social housing	-0.041* (0.022)	-0.087* (0.045)	-0.132* (0.069)	0.056* (0.030)	0.204* (0.108)
Observations	11,925	11,925	11,925	11,925	11,925
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 14: Many people who get social security don't really deserve any help

	(1)	(2)	(3)	(4)	(5)
	Strongly disagree	Disagree	Neither	Agree	Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	-0.005** (0.003)	-0.015** (0.007)	-0.001* (0.001)	0.014** (0.006)	0.008** (0.004)
£26,000-£43,999	-0.006** (0.003)	-0.017** (0.008)	-0.001* (0.001)	0.015** (0.007)	0.009** (0.004)
More than £44,000	0.000 (0.003)	0.000 (0.008)	0.000 (0.000)	-0.000 (0.007)	-0.000 (0.004)
<i>Home ownership (ref cat: renter)</i>					
Home owner	-0.006** (0.003)	-0.017** (0.007)	-0.001** (0.000)	0.015** (0.006)	0.009** (0.004)
Social housing	0.001 (0.004)	0.003 (0.011)	0.000 (0.000)	-0.003 (0.009)	-0.002 (0.005)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.044** (0.022)	-0.116** (0.058)	-0.005 (0.004)	0.104** (0.052)	0.061** (0.030)
£15,000-£25,999	0.027 (0.027)	0.085 (0.085)	0.015 (0.014)	-0.075 (0.075)	-0.052 (0.051)
£26,000-£43,999	0.005 (0.028)	0.014 (0.087)	0.002 (0.013)	-0.013 (0.077)	-0.008 (0.051)
More than £44,000	0.028 (0.030)	0.069 (0.076)	-0.002 (0.003)	-0.062 (0.068)	-0.032 (0.036)
<i>(Austerity) x (House tenure)</i>					
Home ownership	0.022 (0.019)	0.065 (0.058)	0.008 (0.007)	-0.058 (0.051)	-0.038 (0.033)
Renter	-0.051 (0.034)	-0.130 (0.088)	0.001 (0.004)	0.117 (0.079)	0.063 (0.043)
Social housing	-0.027 (0.054)	-0.067 (0.135)	0.002 (0.004)	0.060 (0.122)	0.032 (0.064)
Observations	11,921	11,921	11,921	11,921	11,921
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 15: If benefits weren't so generous, people would learn to stand on own feet

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	-0.005** (0.002)	-0.012** (0.006)	-0.005** (0.002)	0.011** (0.005)	0.012** (0.006)
£26,000-£43,999	-0.008*** (0.002)	-0.022*** (0.005)	-0.010*** (0.003)	0.018*** (0.005)	0.022*** (0.005)
More than £44,000	-0.006** (0.003)	-0.015** (0.007)	-0.007** (0.003)	0.013** (0.006)	0.015** (0.006)
<i>House tenure (ref cat: renter)</i>					
Home owner	-0.011*** (0.002)	-0.028*** (0.006)	-0.012*** (0.002)	0.024*** (0.005)	0.027*** (0.005)
Social housing	0.004 (0.004)	0.009 (0.010)	0.003 (0.004)	-0.008 (0.009)	-0.008 (0.008)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	-0.053* (0.027)	-0.113** (0.057)	-0.038** (0.019)	0.106** (0.054)	0.098** (0.050)
£15,000-£25,999	-0.007 (0.028)	-0.021 (0.081)	-0.010 (0.040)	0.017 (0.064)	0.022 (0.085)
£26,000-£43,999	-0.020 (0.026)	-0.064 (0.084)	-0.035 (0.048)	0.047 (0.061)	0.073 (0.097)
More than £44,000	0.008 (0.027)	0.023 (0.078)	0.011 (0.037)	-0.019 (0.063)	-0.023 (0.079)
<i>(Austerity) x (House tenure)</i>					
Home ownership	-0.003 (0.018)	-0.007 (0.055)	-0.004 (0.029)	0.006 (0.042)	0.008 (0.060)
Renter	-0.028 (0.036)	-0.063 (0.082)	-0.022 (0.029)	0.058 (0.075)	0.055 (0.071)
Social housing	-0.128*** (0.049)	-0.250*** (0.094)	-0.063*** (0.024)	0.251*** (0.097)	0.189*** (0.070)
Observations	11,930	11,930	11,930	11,930	11,930
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 16: Cutting welfare benefits would damage too many people's lives?

	(1) Strongly disagree	(2) Disagree	(3) Neither	(4) Agree	(5) Strongly agree
Baseline model					
<i>Income Groups (ref cat: Less than £14,000)</i>					
£15,000-£25,999	0.006*** (0.001)	0.032*** (0.006)	0.017*** (0.003)	-0.031*** (0.006)	-0.024*** (0.004)
£26,000-£43,999	0.013*** (0.002)	0.063*** (0.008)	0.027*** (0.004)	-0.061*** (0.008)	-0.042*** (0.006)
More than £44,000	0.017*** (0.002)	0.076*** (0.007)	0.031*** (0.003)	-0.075*** (0.007)	-0.048*** (0.005)
<i>Home ownership (ref cat: renter)</i>					
Home owner	0.013*** (0.001)	0.064*** (0.006)	0.028*** (0.003)	-0.063*** (0.006)	-0.043*** (0.005)
Social housing	-0.002* (0.001)	-0.014* (0.008)	-0.010* (0.006)	0.013* (0.008)	0.013* (0.008)
Interaction models					
<i>(Austerity) x (Income groups)</i>					
Less than £14,000	0.020 (0.071)	0.014 (0.051)	-0.015 (0.051)	-0.017 (0.061)	-0.003 (0.009)
£15,000-£25,999	0.071 (0.064)	0.107 (0.094)	-0.047 (0.043)	-0.108 (0.095)	-0.022 (0.020)
£26,000-£43,999	0.019 (0.039)	0.044 (0.090)	-0.008 (0.017)	-0.043 (0.088)	-0.012 (0.024)
More than £44,000	0.026 (0.027)	0.068 (0.070)	-0.007 (0.008)	-0.066 (0.069)	-0.020 (0.021)
<i>(Austerity) x (House tenure)</i>					
Home ownership	0.037 (0.029)	0.081 (0.062)	-0.016 (0.013)	-0.079 (0.062)	-0.021 (0.017)
Renter	-0.005 (0.071)	-0.005 (0.063)	0.004 (0.051)	0.005 (0.071)	0.001 (0.011)
Social housing	0.085 (0.175)	0.038 (0.079)	-0.061 (0.125)	-0.056 (0.115)	-0.006 (0.014)
Observations	11,928	11,928	11,928	11,928	11,928
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes
LA characteristics	Yes	Yes	Yes	Yes	Yes
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Household income	Yes	Yes	Yes	Yes	Yes

Notes: This table reports average marginal effects of austerity on attitudes towards redistribution after ordered probit regressions. Each column represents the response outcome to the attitudes question, while each row investigates how the marginal effects vary when changing including or excluding set of controls from specifications. The baseline model controls for year and Government Office Regions fixed effects. These variables are included in all subsequent regressions. The second row adds Local Authority (LA) characteristics, employment rate and migrant share at Local Authority level. Individual characteristics added in row 3 include sex, age, race, disability, number of children, number of adults, marital status, benefit claims, house tenure, education, employment status, union membership, and an indicator for religiosity. Household income dummies are included in row 4. Row 5 shows a more parsimonious model when local-area characteristics are excluded. Standard errors in parenthesis are adjusted for clustering at Local Authority level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



## 6 Conclusion

This paper presents new evidence of the social and political effects of austerity by investigating whether austerity shocks are linked with changes in attitudes towards redistribution in England. We show that our exogenous measure of austerity is linked, on average, with more favourable views towards redistribution. Consistent with our model, we show that more positive attitudes are driven by relative richer households and house owners. Note that, in the absence of austerity, these groups are less supportive of redistribution, in line with the literature. In other words, austerity changes the attitudes of wealthier people. This finding is robust to several specifications. We confirm that the observed changes in attitudes are driven by the mechanisms identified in the theoretical model, altruism and appreciation (or dissatisfaction for the poor).

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## A Proofs

**Proof of Lemma 1.** Solving the optimisation expressed by Eq. (1), subject to  $\sum_i \lambda_i = 0$ , each individual  $i$  chooses  $\lambda_i$  taking  $\lambda_{-i}$  of the other type as given, which gives us the following first order condition for each type

$$-v'(y_i - \lambda_i) - \gamma_i a'(y_{-i} - \lambda_{-i}) \frac{d\lambda_{-i}}{d\lambda_i} + \delta_i s'(y'_i - \lambda_i) = 0, \quad (12)$$

characterising a maximum as the second derivative of Eq. (12) is clearly negative,

$$v''(y_i - \lambda_i) + \gamma_i a''(y_{-i} - \lambda_{-i}) \left( \frac{d\lambda_{-i}}{d\lambda_i} \right)^2 - \delta_i s''(y'_i - \lambda_i) < 0, \quad (13)$$

with  $v''(\cdot) \wedge a''(\cdot) < 0$  and  $s'' > 0$ . The Nash equilibrium must then satisfy

$$-v'(y_i - \lambda_i) - \gamma_i a'(y_{-i} - \lambda_{-i}) \frac{d\lambda_{-i}}{d\lambda_i} + \delta_i s'(y'_i - \lambda_i) = -v'(y_{-i} - \lambda_{-i}) - \gamma_{-i} a'(y_i - \lambda_i) \frac{d\lambda_i}{d\lambda_{-i}} + \delta_{-i} s'(y'_{-i} - \lambda_{-i}). \quad (14)$$

Reordering and rewriting Eq. (14), where  $\frac{d\lambda_{-i}}{d\lambda_i} = \frac{d\lambda_i}{d\lambda_{-i}} = -1$  follows from  $\lambda_i = -\lambda_{-i}$ , we then obtain

$$v'(y_i - \lambda_i) + \gamma_{-i} a'(y_i - \lambda_i) + \delta_{-i} s'(y'_{-i} - \lambda_{-i}) = v'(y_{-i} - \lambda_{-i}) + \gamma_i a'(y_{-i} - \lambda_{-i}) + \delta_i s'(y'_i - \lambda_i), \quad (15)$$

which, given our assumptions on functional forms, and the fact that  $Y_r > Y_p$ , can only hold if and only if  $\lambda \equiv \lambda_r > \lambda_p = -\lambda$ , defining the Nash equilibrium  $(\lambda_r^*, \lambda_p^*)$ . Rewriting Eq. (14) once more, and setting  $\lambda \equiv \lambda_i = -\lambda_{-i}$ , then gives us

$$\Phi_i(\lambda) \equiv -v'(y_i - \lambda) + \gamma_i a'(y_{-i} + \lambda) + \delta_i s'(y'_i - \lambda) = -v'(y_{-i} + \lambda) + \gamma_{-i} a'(y_i - \lambda) + \delta_{-i} s'(y'_{-i} + \lambda) \equiv \Phi_{-i}(\lambda), \quad (16)$$

which shows the Nash equilibrium is unique, since  $\frac{d\Phi_i(\lambda)}{d\lambda} < 0$ ,  $\frac{d\Phi_{-i}(\lambda)}{d\lambda} > 0$ , and  $\Phi_i(0) > \Phi_{-i}(0)$  under reasonable parameter assumptions.  $\square$

**Proof of Lemma 2.** Applying the implicit function theorem to the equilibrium characterised by Eq. (3) for each individual  $i$ , we obtain

$$\frac{d\lambda_i}{d\alpha_i} = -\frac{\frac{d\Phi_i}{d\alpha_i}}{\frac{d\Phi_i}{d\lambda_i}} = -\left( \frac{-v''(y_i - \lambda_i)(-Y_i) - \gamma_i a''(y_{-i} - \lambda_{-i}) \frac{d\lambda_{-i}}{d\lambda_i} \left( -\frac{d\alpha_{-i}}{d\alpha_i} Y_{-i} \right) + \delta_i s''(y'_i - \lambda_i) Y_i}{v''(y_i - \lambda_i) + \gamma_i a''(y_{-i} - \lambda_{-i}) \left( \frac{d\lambda_{-i}}{d\lambda_i} \right)^2 - \delta_i s''(y'_i - \lambda_i)} \right). \quad (17)$$

Then, making the simplifying assumption that austerity measures affect rich and poor in the same way, so that  $\frac{d\alpha_{-i}}{d\alpha_i} = \frac{d\alpha_i}{d\alpha_{-i}} = 1$ , and solving the optimisation by setting  $\lambda \equiv \lambda_i = -\lambda_{-i} > 0$ , we obtain Eq. (4).  $\square$

**Proof of Lemma 3.** Since the denominator of Eq. (4) is negative as shown under Lemma 1, it follows that the sign of  $\frac{d\lambda_r}{d\alpha_r}$  is defined by the numerator of Eq. (4), which is expressed by Eq. (5).  $\square$

**Proof of Lemma 4.** Since the denominator of Eq. (4) is negative as shown under Lemma 1, it follows that the sign of  $\frac{d\lambda_r}{d\alpha_r}$  is defined by the numerator of Eq. (4), which is expressed by Eq. (6).  $\square$

**Proof of Proposition 1.** From our assumptions on functional forms, we know that the first term of Eq. (5) in Lemma 3 is negative, whilst the two following terms will be positive in equilibrium, and ceteris paribus. Similarly, the first term of Eq. (6) in Lemma 4 is negative, yet the sign will be more pronounced as  $v'''(.) > 0$  and  $Y_r > Y_p$ . The two other terms are still positive, but here the effect is less pronounced because  $a'''(.) > 0$ ,  $s'''(.) > 0$  and  $Y_r > Y_p$ . Given that  $\frac{d\alpha_p}{d\alpha_r} = 1$ , it then follows not only that  $\frac{d\lambda_r}{d\alpha_r} \gg \frac{d\lambda_p}{d\alpha_p}$  for reasonable parameter values, but also that  $\frac{d\lambda_p}{d\alpha_r} \approx 0$ .  $\square$

## B Local authorities in England

Local authorities in England are directly elected by their residents and are organised in single-tier and two-tier councils. The two-tier councils consist of an upper-tier area and a lower-tier area. The upper-tier areas are geographically larger than the lower-tier ones, and overlap with more than one lower-tier areas. The Local authorities have a series of services they provide to their residents. In the case of single-tier authorities, the authority is responsible with administering said services, while in the case of two-tier councils the responsibility is in many cases shared between them ([Department for Communities and Local Government 2014](#)).

The Local Authorities can take the following forms; Metropolitan Districts, London Boroughs, Unitary Authorities, Shire Counties, Shire Districts, and Single Purpose Authorities. The Single Purpose Authorities include the Fire and Rescue Authorities, Transport Authorities, Waste Authorities, Police and Crime Commissioner, and National Parks

Authorities ([Department for Communities and Local Government 2015](#)). The Unitary Authorities, the Metropolitan Districts, the London Boroughs and the City of London, and the Isles of Scilly are all single-tier councils. Two-tier councils are the Shire Counties (upper-tier) and the Shire Districts (lower-tier) ([Ministry of Housing, Communities and Local Government 2016](#)). Finally, there are some Combined Authorities which are legal bodies formed to allow two or more councils to cooperate and decide together on matters that affect all of them ([Shared Intelligence 2016](#)).

In our analysis we exclude the Fire and Rescue Authorities, Police and Crime Commissioner Authorities, and National Parks Authorities as they are financed from the Central Government and the Local Authorities have no decisive power over their finances ([Innes & Tetlow 2015a](#)). There is an overlap of the Combined Authorities, the Transport Authorities, the Waste Authorities, and the Greater London Authority with the Unitary Authorities, the Metropolitan Districts, the Shire Districts, and the London Boroughs. In the following table we show the smaller areas that the larger ones cover:

<b>Larger Areas</b>	<b>Smaller Areas</b>
Combined Authority	Unitary Authorities Metropolitan Districts Shire Districts
Transport Authority	Metropolitan Districts
Waste Authority	Metropolitan Districts London Boroughs
Greater London Authority	London Boroughs
Shire Counties	Shire District

We match the BSA data with the lower tier areas and London. In order to be able to calculate the exact spending over those areas, we use population weights to calculate the approximate proportion of the larger area spending that corresponds to the smaller areas they overlap with. We calculate all spending in real terms and per capita for our analysis.

## C Google Trends

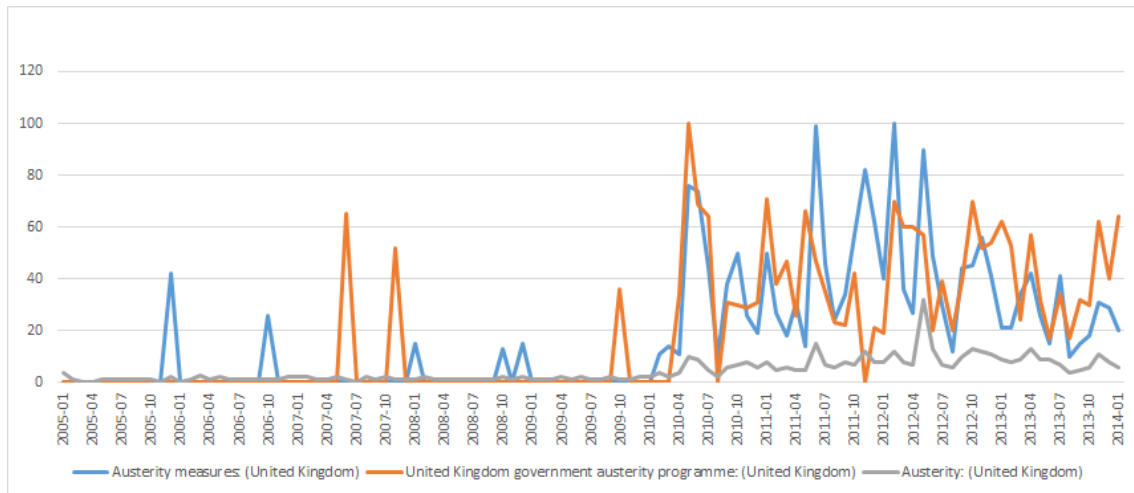


Figure C.1: Google searches for "Austerity" in the UK.