The economic context of solidarity. Period vs. Cohort Differences in Support for Income Redistribution in Britain and the United States

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Abstract

This paper investigates how support for income redistribution has evolved over the last decades in Great Britain and the United States, and whether economic indicators are related to these changes. I analyse repeated cross-sectional data from the British Social Attitudes survey (1986-2014) and the General Social Survey (1978-2014) by means of hierarchical age-period-cohort models, which makes it possible to disentangle cohort and year effects of economic context. This approach suggests that the level of inequality indeed matters for individuals' redistributive preferences. The observed patterns are more complex and intricate, however, than what is postulated by median voter theory. Most importantly, a cohort's redistribute preferences seem to be related to the level of inequality experienced during its formative years (measured by the top 1% income share). American cohorts born during the post-war period of low inequality are found to be most averse of income redistribution by the government. In Britain cohort differences are markedly less outspoken and, surprisingly, the opposite pattern is found. Such cohort dynamics have been largely neglected in research on redistributive preferences. Besides cohort effects of economic inequality, the British data also reveal an impact of the level of inequality prevailing in the year of survey. In line with an institutionalist perspective, British citizens living in more unequal times are not more, but less supportive of redistribution.

Key words: income inequality, redistribution, public opinion, median voter hypothesis, age-period-cohort analysis, British Social Attitudes survey, General Social Survey

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1. Introduction

The 2008 financial crisis has spurred lively debates on income inequality and its societal consequences. One of the issues at stake relates to the question how economic turbulent times affect societies' capacity for solidarity. This paper engages with the debate on the relation between economic crises and solidarity by investigating to what extent economic contexts shape citizens' views on income redistribution by the government, i.e. arguably the most consequential form of institutionalized solidarity in contemporary Western societies (Alesina & Angeletos 2005; Bradley et al. 2003; Kenworthy & Pontussen 2005). As such, I understand solidarity as a set of shared normative preferences regarding the legitimacy of the redistribution of wealth by means of government intervention (i.e., what is called civic solidarity in the introduction to this special issue). By focusing on the impact of economic conditions, this paper contributes to knowledge on the contextual origins of solidarity.

Various studies have pointed out that economic indicators, such as actual levels of inequality or general economic performance, shape citizens' redistributive preferences (Blekesaune 2007; Bowles & Gintis 2000; Dallinger 2010; Finseraas 2009; Jæger 2013; Lübker 2007; Schmidt-Catran 2016). A potentially important limitation of this body of research is that the impact of economic context is uniquely conceptualized as an instantaneous and homogeneous effect. Episodes of economic hardship or high inequality are presupposed to exercise an instant impact that is uniform across all birth cohorts, and this effect is assumed to wither as soon as economic indicators shift back to

their original level. From a life-course perspective (Mannheim [1928] 1952; Becker & Hermkens 1993) social change is not solely driven by immediate period effects, but should be understood primordially as replacement of cohorts who experienced different realities during adolescence. This paper does justice to this theoretical argument by studying the demand for redistribution over a longer period that includes different economic conjunctures. This approach renders it possible to disentangle cohort and year differences, and to test whether the prevailing economic conditions or those during the formative years are most relevant to understand opinion change.

My empirical analyses focus on Great Britain¹ and the United States. Concretely, I address the following research questions: (1) How has support for redistribution evolved in Britain and the US over the last decades? (2) Which role do period effects or cohort differences play in these evolutions? (3) And to what extent can economic indicators –notably the actual level of income inequality– account for the observed period and cohort differences? To answer these questions, I analyse repeated cross-sectional data from the General Social Survey (GSS) in the US (1978–2014) and the British Social Attitudes Survey (BSA) in the Britain (1986–2014) by means of Hierarchical Age-Period-Cohort (HAPC) models (Yang & Land 2006).

2. Theory and previous research

There exists a long-standing research tradition attempting to understand differences in redistributive efforts between countries, as well as the role of citizens' conceptions of social justice herein (Alesina & Angeletos 2005; Blekesaune 2007; Bradley et al. 2003;

¹ Inhabitants of Great Britain are the population of the survey data analysed, while the economic indicators and social policies refer to the United Kingdom (i.e. Great Britain and Northern Ireland). Therefore, both territorial indications are used throughout this paper, depending on the context.

Kenworthy & McCall 2008; Kluegel & Smith 1986). A key idea in this field is that the economic conditions, such as the actual degree of income inequality, shape the redistributive preferences of populations. However, a variety of theoretical mechanisms underlying the link between economic context and demand for redistribution have been proposed, and opposing expectations can be formulated.

2.1 Median voter theory

The median voter hypothesis (Meltzer & Richard 1981) has obtained the widest currency in the field of political economy, and postulates that the demand for redistribution will be most outspoken in contexts with high levels of inequality. This rational choice approach assumes that individuals attempt to maximize their marginal utility, and predicts that persons whose earnings fall below the average income will favour redistribution by the government. Given that income distributions are right-skewed in advanced capitalist societies, the median voter –who is assumed to be decisive in the political process (Roberts 1977)- will advocate redistributive policies. According to this line of argument, the support base for redistribution is a direct result of the distance between the median and the mean income. In other words, the degree of income inequality is positively related to the demand for redistribution (Finseraas 2009; Schmidt-Catran 2016).

Several additional arguments have been formulated to broaden this rather narrow self-interest approach. First, this rational choice-based argument assumes that citizens are well informed about the level of income inequality, which is questionable assumption (Kenworthy & McCall 2008: 35). Individuals may hold widely varying perceptions about the level of inequality, which in turn shape redistribute preferences (Gijssberts 2002). In

political debates on inequalities tend to focus either on the bottom or on the top end of the income distribution (Ragusa 2015) rather than on evolutions in the middle. Because the income share of the top incomes is more visible and volatile (Scheve & Stasavage 2009), it could have a stronger influence on public opinion than summary measures of inequality, such as the GINI index.

Second, Iversen (2005) stresses that income redistribution is not a purely monetary transaction in the present time. Redistribution also entails an aspect of insurance against future adverse events, which is discounted in individuals' preferences for redistribution. Therefore not only income, but also other socio-economic characteristics are relevant predictors of distributive preferences. Various personal risk variables -such as educational attainment, social class positions, sector of employment, work skill specificity or expectations of future social mobility- are expected to affect support for redistribution (Jæger 2013; Svallfors 1993, 1997; Cusack, Iversen & Rehm 2006; Alesina & La Ferrara 2005; Kelley & Evans 1993). Following a similar argument at the contextual level, one can expect that not only a skewed income distribution, but also various aspects of macroeconomic hardship increase popular demand for government intervention (i.e. the so-called *government protection hypothesis*; Blekesaune 2007). Concretely, one could expect that staggering economic growth induces economic insecurities that stimulate citizens' demand for government protection. Given that wage labour is a primary source of income for many citizens, labour market indicators, such as the unemployment rate, might be of particular relevance to understand public attitudes towards welfare and redistribution (van Oorschot & Meuleman 2014).

Summarizing, this line of thinking predicts that *the prevailing level of economic inequality (Hypothesis 1a)* and particularly *the concentration of income at the top of the distribution (Hypothesis 1b)* are positively related to support for redistribution. Furthermore, *low economic growth (Hypothesis 1c)* and *high unemployment rates (Hypothesis 1d)* are expected to reinforce support for redistribution.

2.2 Institutional theory

The idea that inequality has a direct positive effect on popular demand for redistribution has been contested from an institutionalist perspective. Whether existing inequalities incite support for more redistribution depends on the social justice conceptions that live among the public (Dallinger 2010). These redistributive ethics are culturally embedded in the institutions of the welfare state (Mau 2004; Jæger 2006): Welfare institutions provide a normative framework of what can be considered as ‘normal’, and as such shape public opinion by means of feedback loops (Kumlin & Stadelmann-Steffen 2014). By consequence, the public legitimacy of income redistribution should be higher in welfare states that redistribute more strongly. This reasoning is consistent with Gijsberts’ (2002: 272) cognitive argument that ‘*people adjust their normative standards to their perception of the situation*’, and ‘existential theories’ stating that factual inequalities come to be perceived as legitimate over time (Kelly & Zagorski 2005). Also here, due to the high visibility of ‘the rich’ (Ragusa 2015), top income shares could be more influential than more comprehensive measures summarizing the total income distribution.

In sum: contrary to hypotheses 1a and 1b, these arguments state that *the prevailing level of economic inequality (hypothesis 2a)* and particularly *the concentration of income at the*

top of the distribution (Hypothesis 2b) are negatively related to the support for redistribution.

The available empirical research has not been able to settle the discussion on the relationship between inequality and citizens' support for redistribution, as findings are very mixed (see Schmidt-Catran 2016 for a review). Various studies report that inequality encourages support for redistribution, as median voter theory predicts (Dallinger 2010; Finseraas 2009; Jæger 2013; Schmidt-Catran 2016). Yet others present evidence for a negative effect of inequality (Bowles & Gintis 2000; Dion & Birchfield 2010) or conclude that a significant relationship is absent (Lübker 2007; Kenworthy & McCall 2008). According to Schmidt-Catran (2016), the inconsistency in empirical findings is largely attributable to inappropriate research design: While cross-sectional comparisons often fail to control for relevant confounding factors, analyses based on aggregate time series do not take into account compositional differences. Detailed insight in the link between economic inequality and redistributive beliefs requires that contextual and individual differences are modelled simultaneously (e.g. by analysing repeated cross-sectional data using multilevel models).

2.3 Cohort differences in redistributive preferences

Without downplaying Schmidt-Catran's (2016) methodological critique, I argue that there is a theoretical blind spot in current research that limits our understanding of redistributive preferences. The existing literature conceptualizes the impact of economic conditions on the demand for redistribution uniquely in terms of period effects. The *present-day* economic context is thought to have an impact that is uniform across birth cohorts. Furthermore, period effects are assumed to be instantaneous: Increased

inequality immediately affects popular social justice beliefs, and this effect is thought to wither as soon as inequality reverts to the original level.

However, this period interpretation of the impact of economic context tends to overlook cohort dynamics. From a cohort perspective, social change is primordially the result of the replacement of older cohorts by younger ones (Mannheim [1928] 1952; Ryder 1965). Because cohorts are socialized under different material conditions, they tend to develop divergent normative preferences and value patterns that remain relatively stable across the entire life span (Inglehart 1990). Citizens' preferences are thus not driven by the state of the current economy, but rather by the economic conditions that prevailed during their formative years. As such, support for income redistribution should reflect past inequalities rather than the current situation (Becker & Hermkens 1993).

This cohort perspective has been used to study large-scale societal changes and important events, such as economic crisis or regime change. Elder's (1999) famous cohort analysis on *Children of the Great Depression* shows that the economic crisis of the 1930s left a permanent imprint on the social positions and values of participants in the Oakland Growth Study. Using the fall of the Berlin wall as a natural experiment, Svallfors (2010) observes that among cohorts socialized before 1989, support for state intervention is considerably stronger in Eastern than in Western Germany. That such differences are not found among younger birth cohorts suggests that cohort replacement is a key factor to understand changes in social justice beliefs. In similar vein, Kulin & Meuleman (2015) document outspoken differences in the values that drive

welfare support between Eastern Europeans socialized before and after the fall of communism.

Applied to the study of the effect of income inequality, these arguments imply that birth cohorts will differ with respect to social justice beliefs, and that *support for redistribution will be related to the level of economic inequality during the cohorts' formative years, either positively (hypothesis 3) or negatively (hypothesis 4).*

2.4 Case selection: A comparison of redistributive attitudes in Britain and the US

To test the impact of economic inequality, I select two country cases that have experienced considerable yet similar fluctuations in the levels of income inequality, namely Britain and the US. The inequality trend in both countries over the last century can be described as a 'Great U-turn' (Alderson & Nielsen 2002). In the first quarter of the 20th century, income inequality was comparatively high in both countries. In 1925 the share of the top percentile in the national income amounted to 19.4% in the UK and 17.6% in the US. Over the course of the Great Depression, the Second World War and implementation of post-war social policies, income inequality declined steadily to reach its lowest point in the 1970s. By 1975, the top 1% income share had fallen to 6.1% in the UK and 8.0% in the US. Since the neoliberal turn in the 1980s, inequalities are on the rise again and is nowadays approaching the situation prior to the crisis of the 1930s – the 2010 top 1% income shares equal 14.7 and 17.5% in the UK and US respectively (Piketty 2013).

According to a variety of typologies, both countries are classified as liberal or residual welfare states (Ebbinghaus 2012). Despite belonging to the same regime type, the UK

and US differ substantively in the size of government, the amount of spending on social programs and the structure of taxation. Generally speaking, the UK takes a middle position between the small government of the US and the extended welfare states in Western Europe (Alesina, Glaeser & Sacerdote 2001). Although both countries are situated in the Anglo-Saxon cultural tradition, the US is characterised by a unique social and political culture rooted in the American Revolution. This 'American exceptionalism' (Lipset 1997) includes is a mixture of, among others, individualism, antistatism and laissez-faire economics (see also Hasenfeld & Rafferty 1989). In sum, this transatlantic comparison offers an interesting mixture of differences and similarities in economic conditions, political institutions and ideological systems.

3. Data and methods

3.1 Datasets

This paper analyses two repeated cross-sectional datasets, namely the British Social Attitudes (BSA) survey and the General Social Survey (GSS). The BSA is a face-to-face survey series among random probability samples of adults living in private households in Great Britain. Almost every year since 1983, about 3000 individuals were surveyed on a variety of social, political and economic topics. Data as well as technical reports are available via the UK Data Archive (<http://www.ukdataservice.ac.uk>). For this analysis, I merged the cumulative file 1983-1991 (Social and Community Planning Research 1996) with the more recent rounds.

The GSS has been monitoring attitude change in the United States since 1972 (until 1994 almost yearly, since 1994 biannually). Respondents are randomly selected from the population of adults living in households, and are interviewed by means of face-to-face

interviews (paper-and-pencil until 2000; computer-assisted since then). Data and documentation can be found at the NORC website (<http://gss.norc.org>). Here, I analyse the Cross-sectional Cumulative data file, 1972-2014, release 6 (Smith, Marsden, Hout & Kim s.d.).

This analysis uses all survey years in which support for income redistribution is measured. The BSA time series consists of 73,457 respondents surveyed over 25 years between 1986 and 2014. The GSS series contains 30,179 individuals interviewed over 22 rounds between 1978 and 2014. Appendix Tables A1 and A2 provide an overview of the survey years and the respective sample sizes.

3.2 Dependent variable

Both time series measure support for income redistribution by means of a single survey question. In the case of the BSA, the following Likert-type statement is used: *'Government should redistribute income from the better-off to those who are less well off.'* (answer categories from 1: agree strongly to 5: disagree strongly). The GSS uses a more lengthy introduction: *'Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor.'* Subsequently, respondents are invited to indicate their opinion by choosing a score between 1 (*'the government ought to reduce the income differences between rich and poor'*) and 7 (*'the government should not concern itself with reducing income differences'*).

These single items provide general but nevertheless clear indications of citizens' opinions, as both items mention explicitly that *income* differences are at stake, and refer to the government as the actor to reduce such differences. Because of the obvious differences in question wording and answer scales, scores are not directly comparable between the BSA and the GSS.

To facilitate interpretation of the results, both items were reversed (so that higher scores indicate stronger support for redistribution) and rescaled from 0 to 10.

3.3 Individual-level predictors

Both datasets include a similar set of relevant predictors. Respondents are classified in five-year *birth cohorts*, ranging from the end of the 19th century to the mid-1990s (see Appendix Tables A1 and A2 for an overview). Besides birth cohorts, the models use the *age of respondent* at the time of survey (seven age categories to control for life cycle effects) and *gender*. Regarding *racial/ethnic origin* the BSA distinguishes respondents of white (including mixed), black and Asian origin, based on self-identification. In the case of the GSS, I collapsed the interviewer-coded racial origin into white, black and other.

Respondents' socio-economic positions are measured by means of educational level, employment status and household income. The BSA distinguishes between seven *educational levels* (Degree, Higher below degree, A-level, O-level, Certificate of Secondary Education, Foreign or other, No qualification). The GSS has five categories (Graduate, Bachelor's, Associate/Junior college, High school, Less than high school). The variable *employment status* takes information on the main activity (working or not) as well as the type of employment into account. Based on the BSA's socio-economic

grouping of respondents (variable *RSEG*), I categorize those active in the labour market into the service class, self-employed, routine non-manual, skilled manual and non-skilled manual workers. In the case of the GSS, International Standard Classification of Occupation (ISCO) codes were used to create a similar categorization. To construct an *income* variable that is sufficiently comparable across currencies and time, the following steps were taken. First, the household income was equivalized to take differences in household income into account. Second, this equivalized household income was expressed as a percentage of the median income of the relevant reference group (i.e. the respondents surveyed in the same year and belonging to the same birth cohort).² Third, this percentage was categorized into five income groups (namely <50%, 50-80%, 80-120%, 120-200% and >200% of the median equivalized household income). A sixth category 'missing' is created to deal with the considerable item non-response on the income variable.

Descriptive statistics for all individual-level predictors can be found in Appendix Table A3.

3.4 Contextual predictors at the year and cohort level

Period and cohort mechanisms are disentangled by using contextual characteristics of survey years as well as formative years of birth cohorts. The year variables contain contextual information referring to the year in which respondents were surveyed. Based on the above-mentioned theoretical arguments, we include the *GINI index* of the equivalized disposable (post-tax and post-transfers) household income (UK: Office for

² This operationalization takes into account that incomes fluctuate across the life cycle, with the highest income towards the end of the professional career, and that individuals compare themselves with primarily with members of the own birth cohort. Equivalized household income as a percentage of the median of the total population yields very similar results.

National Statistics; US: Census Bureau) as well as the *top 1% income share* (source: World Top Incomes Database). Both indicators measure a quite distinct aspect of income inequality. The GINI index is a comprehensive measure that summarizes the complete income distribution, and is especially sensitive to changes in the middle of the distribution. The top 1% income share maps evolutions at the high end of the income ladder (Alvaredo 2011). While the GINI index is based on survey data, the top 1% income share is based on administrative tax data, which allows constructing comparable time series across a longer time span (Piketty 2003).

As indicators of economic strain, I include *real GDP growth* (UK: Eurostat, indicator *nama_10_gdp*; US: Federal Reserve Economic Data) and the *unemployment rate* (UK: Eurostat, indicator *une_rt_a*; US: Labour Statistics from the Current Population Survey). The political party in power (UK: Labour vs. Conservative prime minister; US: Democratic vs. Republican president) is included as a political control variable (Iversen & Soskice 2006; Listhaug & Aalberg 1999).

Cohort variables refer to the contextual conditions during the formative years of birth cohorts, i.e. late adolescence and young adulthood. I calculate for every respondent the average of context variables over the period between 17 and 21 years old.³ Ideally, the model would include all contextual variables that are used at the period level at the cohort level as well. Given that the analysis includes respondents born more than a century ago, the choice for cohort-level context variables is severely restricted by data availability. Piketty (2013) provides information on the *top 1% income share* since 1908 for the UK and 1917 for the US (<http://piketty.pse.ens.fr/en/capital21c2>). *Real GDP*

³ Additional analyses show that the conclusions are robust against the changes in the definition of formative period.

growth was taken from the Maddison Historical GDP time series (<http://worlddeconomics.com>). For the UK, the historical *unemployment rate* could be retrieved from the series ‘Three centuries of macroeconomic data’ collected by the Bank of England. No historical time series are available for the GINI coefficients in both countries and the unemployment rate in the US. Table 1 summarizes the available contextual indicators at the period- and cohort-level.

Table 1. Availability of contextual indicators used in the analysis

Concept	Indicator	Year-level		Cohort-level	
		UK	US	UK	US
Level of inequality	1% income share	x	x	x	x
	GINI coefficient	x	x		
Economic strain	Real GDP growth	x	x	x	x
	Unemployment rate	x	x	x	

x: contextual indicator is available

3.5 Statistical modelling: Hierarchical Age-Period-Cohort analysis

To gain insight in the distinct character of period and cohort differences, I use the Hierarchical Age-Period-Cohort (HAPC) model for repeated cross-sections developed by Yang & Land (2006). The point of departure of this approach is that individual respondents are nested within birth cohorts on the one hand, and survey years on the other hand, which creates a double but non-nested hierarchical structure. Estimating a cross-classified multilevel model with random year and cohort effects renders it possible to distinguish between these two mechanisms of social change:

$$SR_{i(jk)} = \beta_0 + \beta_1 Age_{i(jk)} + v_{0j} + v_{0k} + \varepsilon_{i(jk)} \quad (1)$$

In equation (1), $SR_{i(jk)}$ refers to the support for redistribution of individual i belonging to birth cohort j surveyed in year k . Note that j and k are written between parentheses to indicate that these two nesting structures are independent from each other. To control

for life cycle effects, support for redistribution is modelled as a function of the respondents' age (β_1 indicates the fixed age effect). The model contains three error components, namely residuals for specific birth cohorts (v_{0j} - the random cohort effects), for particular years (v_{0k} - the random year effects) and individual-level residuals ($\varepsilon_{i(jk)}$). This model can be extended straightforwardly to incorporate characteristics of individuals ($X_{i(jk)}$), cohorts (Z_j) or years (Z_k) as explanatory variables.

Recently, the HAPC-approach has been criticized for not being able to solve the long-standing age-period-cohort identification problem and to disentangle the common linear trend of age, period and cohort differences (e.g. Bell & Jones 2014). As shown below, however, this analysis yields non-linear cohort and year effects in the first place. As such, the HAPC model is appropriate to shed light on the cohort and period effects in redistributive beliefs present in the BSA and the GSS.

All models below are estimated using the MIXED procedure SAS version 9.3. Although strictly speaking, the dependent variable is ordinal with a limited number of scale points, I use a linear model specification (Ferrer-i-Carbonel & Frijters 2004; for a similar approach see Schmidt-Catran 2016). The analyses are weighted using the design weights correcting for unequal probabilities of selection (BSA: *wtfactor* until 2005, *oldwt* since then; GSS: *wtssall*).

The models were estimated using a stepwise procedure. First, I introduce all individual predictors. Next, each of the year- and cohort-variables is tested in a separate model, controlling for the individual predictors (these 'bivariate' contextual effects are included in Appendix Table A4). Ultimately, I estimate a parsimonious final model including only

contextual variables that were found to have a significant effect. This procedure avoids including a too large number of contextual predictors for the relatively small number of observations at the year- and cohort level (Meuleman & Billiet 2009). Below, the results for these final models are reported.

4. Findings

4.1 Trends in support for income redistribution

The gross trend of the average support for income redistribution (see Figure 1) evidences a moderately positive stance of British and American citizens towards income redistribution. With the exception of the period 2005-2007 in Britain, all year averages exceed the midpoint of the 0 to 10-scale. The averages for Britain and the US are remarkably similar. Although differences in question wording obstruct a direct numerical comparison, one can safely say that there is no evidence that the American citizens are more averse from redistribution than their British counterparts. Clearly, the 'American exceptionalism' (Lipset 1997) is not reflected in popular opinions on redistributive justice.

Figure 1 displays relative stability in support for income redistribution. Over 35 years, the British and American averages fluctuate only mildly (between 5 and 6 on the 0-10 scale). The British data reveals relatively strong support for redistribution in the late 1980s and early 1990s. After having reached a maximum in 1994 (5.93), a gradual decrease takes place until 2005 (4.75). Since 2005, a slight revival can be noticed. In the US, support for income redistribution is relatively high during the 1980s (with a peak of 5.91 in 1990), then decreases over the course of the 1990s (with a low point of 5.01 in 1994), and finally increases again during the 2000s. Remarkably, the GSS data suggests a

short-lived effect of the financial crisis: In 2010 demand for redistribution decreases considerably, but bounces back to its pre-crisis level in 2012. In Britain, the 2008 crisis does not have a noticeable impact.

Figure 1. Average support for income redistribution by year in Britain and the US, 1978-2014

Note: This graph represents year averages for support for income redistribution on a 0-10 scale, as measured in the BSA (for GB) and the GSS (for the US). Averages are weighted by means of design weights to correct unequal probabilities of selection.

The trends shown in Figure 1 are superficial in the sense that they do not only capture period effects, but are contaminated by different compositions in terms of birth cohorts. As such, these findings are only preliminary and more detailed analysis is called for.

4.2 Empty models: The presence of period and cohort differences

To decompose the total variation into differences between individuals, survey years and cohorts, I estimate empty models (that is, without predictors). The variance

decomposition diverges considerably between Britain and the US. In the British case, the variance at the year level (estimate: 0.091; p-value = .0004) is considerably larger than the cohort-level variation (estimate: 0.011; p-value = 0.0114).⁴ In the US, on the contrary, differences between birth cohorts (estimate: 0.121; p-value = 0.0038) are more outspoken than the year-by-year changes (estimate: 0.077; p-value = 0.0018). Clearly, different mechanisms underlie the pattern of changes in redistributive preferences in the US and Britain. In both datasets, the residual variance (BSA: 7.583; p <.0001; GSS: 10.60; p<.0001) is far in excess over the year and cohort variation. Although the higher-level variance components are comparatively small, insight in period and cohort differences can deepen our understanding of redistributive beliefs.

Not so much the presence of period and cohort differences, but especially the specific pattern of these differences is of great relevance. Figure 2 displays the residuals at the cohort and year level, i.e. how particular survey years and birth cohorts deviate from the overall average support for redistribution. Regarding the year-level residuals, more or less similar patterns can be seen in Britain and the US, with above average support for redistribution during the 1980s, and lower levels during the late 1990s (especially in Britain) and the 2000s (foremost in the US). In both countries, the year-by-year variations are comparable in size: The difference between the years with the highest and lowest support for redistribution equals 1.12 on Britain, and 0.92 in the US, which is substantively relevant on a scale from 0 to 10.

⁴ The small observed cohort variance in Britain underestimates cohort dynamics, however. When controlling for individual predictors, the cohort variance doubles, meaning that the differential composition of birth cohorts in terms of individual characteristics suppresses differences in support for income redistribution.

The pattern of cohort residuals, by contrast, reveals marked transatlantic differences. In the US, the birth cohorts born between 1920 and 1960 –whose formative period took place during the era of lower economic inequality- are most averse of income reduction by the government. Among the cohorts born after 1970 –and thus socialized in times of increasing inequality- the demand for redistribution is more outspoken. The difference in redistributive support between the most (born between 1986 and 1990) and least (1931-1935) supportive birth cohort exceeds 1 scale point. In Britain, cohort differences are not only comparatively smaller. They also follow exactly the opposite pattern: The younger British cohorts are more critical of redistribution than citizens born between 1920 and 1960.

Figure 2. Year- and cohort-level residuals based on empty and final models of support for income redistribution, BSA and GSS data

Note: This figure represents the higher-level residuals of a cross-classified multilevel model for support for income redistribution. Parameter estimates for this model can be found in Table 2.

4.3 Individual predictors of support for income redistribution

The effects of individual socio-economic characteristics (see Table 2) show remarkable similarities between Britain and the US. In line with median voter theory, household income is inversely related to support for income redistribution. Compared to the lowest incomes, persons earning an income at least twice the median score 1.521 (Britain) or 1.420 (US) points lower on support for redistribution. In both countries, the effect of education is curve-linear. Initially, support for redistribution decreases as the educational level goes up. Yet obtaining the highest credential ('Degree' in Britain, 'Graduate' in the US) strengthens support for redistribution compared to the one-but-highest educational level. This finding illustrates the double face of education: Schooling improves one's socio-economic position (thereby decreasing the interest in redistribution) but at the same time socializes democratic and tolerant values (Portes 1998). Also the effects of employment status show great consistency. In Britain as well as the US, the service class and the self-employed show most opposition against redistribution. Economically more vulnerable groups, such as the non-skilled labourers or those outside the labour market are more inclined to support redistribution.

The effects of demographic control variables, however, are less consistent across the two countries. In the US, age has an almost linear, negative effect on support for redistribution: Elderly are less inclined to favour redistribution than youngsters. In Britain the age effect is not only considerably weaker, but also runs in the opposite direction. In Britain, females are less supportive of redistribution than men, while the opposite is true for the US. Possibly, the inconsistency in gender and age effects is related to the different wording of the item measuring support for income

redistribution. Finally, White citizen are less supportive than minority groups (who often occupy less favourable economic positions) in both countries.

4.4 Contextual predictors of support for income redistribution

The primary purpose of this analysis, however, is to find out how cohort- or year-level indicators of economic context relate to public opinions. The results show that the inequality context matters indeed, be it in diverse and intricate ways. Evidence for the existence of period effects of inequality (i.e., the effect that has received most scholarly attention) is mixed. In Britain, the top 1% income share in the year of survey seems to be connected to demand for redistribution. Contrary to the mediation voter theory (hypothesis 1b) but in line with the institutionalist perspective (hypothesis 2b), Britons' demand for redistribution is lower in times of a strong concentration of income at the top. To assess the substantive relevance of this year effect, one can compare the predicted values for the minimum and maximum values of top income share. The predicted difference in redistributive support for the year with the lowest (7.6% in 1986) and the highest (16.5% in 2013) value for the top 1% income share equals almost 0.75 points. Interestingly, the GINI index (the most frequently used indicator in previous research) shows no such period effect (thereby rejecting hypotheses 2a and 2b). Public opinion seems to be more sensitive for evolutions at the very top of the income distribution than for the form of the total distribution. In the US no effects of inequality in the year of survey were detected, and all hypotheses regarding period effects of inequality (1a, 1b, 2a, 2b) are refuted.

Contrary to the period effect, both countries show a significant cohort effect of the top 1% income share. Redistributive preferences seem to be responsive to the inequality

context during adolescence, a factor that has been largely neglected in previous research. However, this cohort effect has a different sign in the US and the UK, suggesting that different mechanism might be at work. In the US, experiences of a heavily skewed income distribution during adolescence seem to have a lasting positive effect on the demand for redistribution (in line with hypothesis 3). The cohorts socialized during the post-war era of low inequality seem to be least concerned about inequality, while younger cohorts growing up in a context of rising inequalities are more supportive of redistribution. The predicted difference in support for the cohorts socialized in the early 1970s (top 1% income share: 7.82%) vs. cohorts socialized in the late 1920s (18.88%) amounts to a half scale point. In Britain, the observed effect has the opposite sign and is considerably weaker: Inequality during the formative years has a negative impact on support for income redistribution (confirming hypothesis 4). The difference in predicted values for the minimum and maximum values for top 1% income share equals 0.32. The presence of opposing effects is consistent with the earlier observation that cohort variation is patterned completely differently at both sides of the Atlantic.

In Britain also the unemployment is relevant to understand change in redistributive opinions. First, Brits who were confronted with large numbers of unemployed persons during adolescence develop less favourable attitudes towards income redistribution. The unemployment rate at the year of survey had a significant impact when tested separately (see Appendix Table A4), but this effect disappears here under control of the other year characteristics.⁵

⁵ Additionally, I estimated models with interactions between inequality and the rate of economic growth (both at the year and at the cohort level). After all, citizens' evaluations of inequality might be contingent on the general economic prosperity: in times of strong growth, people at the bottom of the ladder might

Besides economic indicators, social justice beliefs are related to the political context, here indicated by the political party in power. In both countries the demand for redistribution is systematically more elevated in years when the power is in the hands of the party least in favour of redistribution (i.e. a Conservative prime minister in Britain, a Republican president in the US). This finding points towards reactive processes (Listhaug & Aalberg 1999): Policy innovations are often followed by an immediate reversal of aggregate public preferences.

In the US, the final model is quite successful in predicting differences between years as well as cohorts. The proportions of explained variance at the year and the cohort level equal 62% and 89% respectively. Of course, these high proportions should be evaluated keeping in mind that the amount of variation located at these levels is comparatively small compared to the individual-level variance (of which the US model explains 8%). For the British data, the explained variance at year, cohort and individual level equals 66, 22 and 5%. The British model is thus far less successful in explaining cohort differences (that were very small in the first place). The same message can be deduced from Figure 2, where the various higher-level residuals (grey bars) are considerably smaller than the residuals of the empty model (black bars).

willing to accept high inequality because they believe that 'the rising tides lifts all boats'. None of the interaction effects were found to be significant, however.

Table 2. Hierarchical Age-Period-Cohort models for support for income redistribution

Great Britain (BSA)				United States (GSS)			
Fixed effects				Fixed effects			
Intercept		7.785	***	Intercept		5.390	***
Age category	18-24	0.150	**	Age category	18-24	0.092	
	25-34	0.021			25-34	0.196	**
	35-44	-0.075	*		35-44	0.029	
	45-54 (ref.cat.)				45-54 (ref.cat.)		
	55-64	0.029			55-64	-0.026	
	65-74	-0.063			65-74	-0.381	***
	75+	-0.087			75+	-0.545	***
Gen-der	Male (ref.cat.)			Gen-der	Male (ref.cat.)		
	Female	-0.338	***		Female	0.419	***
Racial origin	White / mixed (ref.cat.)			Racial origin	White (ref.cat.)		
	Black	0.402	***		Black	1.242	***
	Asian	0.250	***		Other	0.680	***
Educational level	Degree	0.173	***	Educational level	Graduate	-0.581	***
	Higher below degree	-0.557	***		Bachelor's	-1.240	***
	A-level	-0.586	***		Associate / Junior college	-0.752	***
	O-level	-0.590	***		High school	-0.723	***
	Certificate Secondary Education	-0.324	***		Less than high school (ref.cat.)		
	Foreign / other	-0.416	***				
	No qualification (ref.cat.)						
Employment status	Not working service class (ref.cat.)	0.237	***	Employment status	Not working service class (ref.cat.)	0.231	***
	routine non-manual	0.118	**		routine non-manual	0.289	***
	skilled manual	0.248	***		skilled manual	0.375	***
	non-skilled manual	0.491	***		non-skilled manual	0.465	***
	self-employed	-0.325	***		self-employed	-0.311	***
Household income (% of median)	<50% (ref.cat.)			Household income (% of median)	<50% (ref.cat.)		
	50-80%	-0.433	***		50-80%	-0.334	***
	80-120%	-0.871	***		80-120%	-0.524	***
	120-200%	-1.220	***		120-200%	-0.838	***
	>200%	-1.521	***		>200%	-1.420	***
	Missing	-0.744	***		Missing	-0.604	***
Cohort : Income share top 1%		-0.020	*	Cohort : Income share top 1%		0.045	***
Cohort: Unemployment rate		-0.009					
Year: Income share top 1%		-0.084	***				
Year: Unemployment rate		-0.063					
Year: Conservative prime minister		0.475	***	Year: Conservative prime minister		0.293	***
Random effects				Random effects			
Variance year effects		0.031	**	Variance year effects		0.029	**
Variance cohort effects		0.009	*	Variance cohort effects		0.014	*
Residual variance		7.190	***	Residual variance		9.779	***
Deviance (-2LL)		340613.6		Deviance (-2LL)		154046.3	

* $p < .05$; ** $p < .01$; *** $p < .001$. Entries are parameter estimates from a cross-classified linear multilevel model with random intercepts for survey year and birth cohort. Weighted for unequal selection probabilities in the sampling design. BSA: $N(\text{individuals}) = 69,635$; $N(\text{years}) = 25$; $N(\text{cohorts}) = 19$. GSS: $N(\text{individuals}) = 29,516$; $N(\text{years}) = 22$; $N(\text{cohorts}) = 20$

5. Discussion and conclusions

This paper attempted to find out to what extents popular beliefs regarding solidarity and social justice are influenced by the economic context citizens are confronted with. Analysing repeated cross-sectional survey data from the BSA (1986-2014) and the GSS (1978-2014) by means of HAPC models (Yang & Land 2006) made it possible to disentangle cohort and year differences in redistributive preferences, and to test whether these preferences depend on the prevailing economic context or on economic conditions during the formative years.

The observed relationship between income inequality and redistributive support deviates in several respects from what median voter theory (Meltzer & Richard 1981) predicts. A higher level of income inequality in the year of survey is, neither in Britain nor in the US, related to increased support for redistribution. Overall, these results endorse the conclusion of Kenworthy & McCall (2008: 35) that median voter theory is of little use to understand the nexus between inequality and redistributive support. This does not imply that the inequality context is irrelevant to understand social justice beliefs, however. The presented findings suggest several points of departure for a reconceptualization of the inequality-attitudes link, even if the results are sometimes inconsistent and therefore tentative.

A noteworthy conclusion is that Americans' social justice beliefs are more clearly related to the level of income inequality during their formative years than to contemporary inequalities. American cohorts socialized during the post-war period of prosperity and low inequality are most averse of income redistribution by the government. This between-cohort variation should not be overstated, but is substantially meaningful: The

differences between the most and the least supportive cohorts are comparable in size to the impact of education, racial origin or employment status. Cohort differences in the US can be almost fully explained by the economic and political climate during the cohorts' formative years. These findings are relevant to interpret the pattern of political participation of American youngsters, who are growing up in times of high inequality.

Yet at the same time, the British data tell a quite different story. In Britain, cohort differences are far less marked, and structured differently: The British cohorts that experienced high inequality during their formative period show a higher (and not lower, as in the US) level of support for redistribution. At this point, a definitive explanation for this puzzling difference between the US and Britain is lacking. The unique combination of economic prosperity, the social programs of the 'Great Society' and the rise of consumer culture might have instilled the optimistic idea that redistribution is unnecessary among US citizens socialized during the 1950s and 1960s. Experiences of the Second World War might have tempered such optimism in Britain and created different set of social justice beliefs. It is important to realize that the specific pattern found in the US is largely driven by the particular historical context of post-war US; It should therefore not be interpreted as a universal mechanism that can be generalized to other Western countries. Yet, these results do underline the potential relevance of cohort dynamics for our understanding of redistributive support – a factor that has been largely neglected in previous research.

Besides cohort effects of economic inequality, the British data reveals an impact of the top 1% income share prevailing in the year of survey. In line with the institutionalist perspective (Jæger 2006; Mau 2004), British citizens living in a period with a stronger

concentration of income at the top are more supportive of redistribution. Interestingly, a no such effect is found when the GINI index is used as an indicator instead of the top incomes share. This suggests that evolutions at the top of the income distribution are more relevant to understand redistributive preferences than the form of the total income distribution. By consequence, the inequality effect cannot be understood in terms of pure self-interest mechanisms as median voter theory predicts. The politicization and mobilization of contentious subjects such as the wealth of the rich seems to play a role in opinion formation (Ragusa 2015).

The diverging patterns in the UK and the US point towards a limitation of this study: The results are confined to two specific contexts that are similar in several respects. It would be of great interest to extend these analyses to other countries. Future research – preferably with a broad comparative scope- is needed to contextualize the seemingly inconsistent patterns of between-cohort variation, and to find out which period and cohort characteristics structure redistributive preferences. However, the possibilities for such comparative research are seriously hampered by the limited availability of long-term time series. Finally, the use of single items to measure redistributive support is suboptimal, because measurement error cannot be taken into account. Among others, the presence of random measurement error might lead to underestimated year and cohort differences and diluted effect parameters.

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Appendix 1.

Table A1. Sample sizes per survey year and birth cohort - BSA

Year	Birth cohort																			Total
	1895-1905	1906-10	1911-15	1916-20	1921-25	1926-30	1931-35	1936-40	1941-45	1946-50	1951-55	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-96	
1986	28	42	54	66	69	93	97	108	132	139	133	119	133	86	0	0	0	0	0	1299
1987	26	50	87	140	194	184	201	207	224	265	258	222	220	169	0	0	0	0	0	2447
1989	19	58	97	152	185	159	173	186	266	256	243	252	251	215	51	0	0	0	0	2563
1990	24	42	90	103	172	179	154	175	219	254	239	231	226	211	73	0	0	0	0	2392
1992	16	57	100	143	200	183	186	219	195	263	200	279	240	238	106	0	0	0	0	2625
1993	18	34	70	116	180	164	156	172	194	248	264	262	252	278	168	0	0	0	0	2576
1994	18	64	162	276	330	406	442	350	420	550	478	576	752	552	296	64	0	0	0	5736
1995	4	32	78	134	191	221	196	203	244	259	274	303	351	316	195	62	0	0	0	3063
1996	8	34	75	122	198	206	179	208	231	266	274	295	342	288	209	90	0	0	0	3025
1998	1	10	50	85	122	154	168	181	180	202	204	257	272	285	177	118	0	0	0	2466
1999	0	10	27	77	146	174	193	182	172	198	190	218	265	240	172	108	26	0	0	2398
2000	1	6	34	86	145	175	200	243	204	239	224	284	340	275	261	165	59	0	0	2941
2001	1	4	23	70	140	143	184	194	212	262	208	262	315	310	209	146	66	0	0	2749
2002	3	5	21	61	119	145	157	189	236	234	207	269	317	317	239	174	126	0	0	2819
2003	1	2	17	63	146	188	224	248	279	344	302	293	352	365	298	250	156	0	0	3528
2005	0	1	9	56	121	177	199	240	300	329	299	308	353	357	283	215	188	63	0	3498
2006	0	1	5	40	106	143	226	244	283	370	276	305	374	383	307	280	220	127	0	3690
2007	0	1	7	34	108	157	220	233	270	298	280	296	316	363	339	251	176	131	0	3480
2008	0	2	5	27	90	156	209	257	323	348	317	317	392	394	358	296	205	192	1	3889
2009	0	0	3	11	42	87	154	193	191	256	253	264	285	293	274	220	191	123	29	2869
2010	0	0	1	14	36	95	113	167	245	267	233	204	267	259	268	193	179	140	53	2734
2011	0	0	3	5	39	87	127	173	200	283	225	206	256	262	250	250	224	123	79	2792
2012	0	0	0	10	33	94	128	181	241	290	222	223	256	258	240	196	173	126	106	2777
2013	0	0	0	8	48	74	119	141	214	262	226	259	219	240	247	215	192	155	144	2763
2014	0	0	0	2	16	51	91	148	194	229	211	204	217	199	216	179	127	142	112	2338
Total	168	455	1018	1901	3176	3895	4496	5042	5869	6911	6240	6708	7563	7153	5236	3472	2308	1322	524	73457

Table A2. Sample sizes per survey year and birth cohort - GSS

Year	Birth cohort																				Total
	1885-1900	1900-05	1906-10	1911-15	1916-20	1921-25	1926-30	1931-35	1936-40	1941-45	1946-50	1951-55	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-96	
1978	38	42	45	48	44	57	52	44	76	74	97	95	34	0	0	0	0	0	0	0	746
1980	38	40	62	111	86	112	95	99	105	131	186	160	161	29	0	0	0	0	0	0	1415
1983	19	36	54	81	99	110	113	83	119	129	177	209	229	94	0	0	0	0	0	0	1552
1984	17	33	52	57	91	95	95	79	101	120	176	161	197	157	2	0	0	0	0	0	1433
1986	12	30	56	61	98	93	82	84	94	131	155	179	188	140	38	0	0	0	0	0	1441
1987	12	26	50	74	100	121	96	105	114	165	185	227	225	188	87	0	0	0	0	0	1775
1988	6	14	23	48	70	60	68	45	48	81	103	109	107	119	68	0	0	0	0	0	969
1989	6	12	24	44	46	62	58	55	83	79	94	124	124	112	87	3	0	0	0	0	1013
1990	0	10	20	30	57	55	50	47	44	58	99	109	117	86	78	11	0	0	0	0	871
1991	0	7	24	31	54	49	64	58	54	64	100	119	142	106	95	19	0	0	0	0	986
1993	0	6	14	34	49	56	49	54	56	82	110	131	134	116	86	55	0	0	0	0	1032
1994	0	14	22	46	81	93	102	113	125	153	199	220	262	244	196	97	6	0	0	0	1973
1996	0	0	24	29	58	63	101	97	91	145	183	207	218	231	199	171	51	0	0	0	1868
1998	0	0	11	35	54	90	84	79	99	119	157	194	217	259	199	161	109	0	0	0	1867
2000	0	0	0	27	47	67	89	80	94	111	164	184	227	201	199	170	144	38	0	0	1842
2002	0	0	0	10	20	24	44	44	44	52	76	95	101	78	118	75	83	32	0	0	896
2004	0	0	0	4	9	29	27	25	49	58	72	81	96	95	84	80	81	66	7	0	863
2006	0	0	0	0	31	45	56	88	85	110	140	201	203	206	200	195	184	157	50	0	1951
2008	0	0	0	0	16	18	48	54	57	86	100	142	138	124	122	136	111	115	74	0	1341
2010	0	0	0	0	0	30	48	45	55	82	99	133	135	116	127	112	120	128	98	31	1359
2012	0	0	0	0	0	25	32	42	58	73	109	108	123	120	113	118	125	121	102	52	1321
2014	0	0	0	0	0	11	30	48	77	85	113	139	181	150	122	167	157	166	131	88	1665
Total	148	270	481	770	1110	1365	1483	1468	1728	2188	2894	3327	3559	2971	2220	1570	1171	823	462	171	30179

Table A3. Descriptive statistics for the individual-level predictors

Great Britain: BSA				United States: GSS			
		Frequency	Percentage			Frequency	Percentage
Age category	18-24	5910	8.05	18-24	2897	9.60	
	25-34	12844	17.49	25-34	6689	22.16	
	35-44	14322	19.50	35-44	6345	21.02	
	45-54	12446	16.94	45-54	4924	16.32	
	55-64	11460	15.60	55-64	3917	12.98	
	65-74	9727	13.24	65-74	3177	10.53	
	75+	6748	9.19	75+	2230	7.39	
Gender	Male	32277	43.88	Male	13380	44.20	
	Female	41282	56.12	Female	16891	55.80	
Racial origin	White / mixed	68732	95.51	White	24398	80.60	
	Black	1894	2.63	Black	4150	13.71	
	Asian	1334	1.85	Other	1723	5.69	
Educational level	Degree	10708	14.96	Less than high school	5801	19.20	
	Higher below degree	9609	13.42	High school	15683	51.90	
	A-level	9730	13.59	Associate / Junior college	1843	6.10	
	O-level	13822	19.31	Bachelor's	4666	15.44	
	Certificate Secondary Education	6118	8.55	Graduate	2222	7.35	
	Foreign / other	900	1.26				
	No qualification	20710	28.93				
Employment status	Not working	34717	47.41	Not working	11670	38.82	
	service class	17612	24.05	service class	8028	26.70	
	routine non-manual	8882	12.13	routine non-manual	2652	8.82	
	skilled manual	5060	6.91	skilled manual	2200	7.32	
	non-skilled manual	4536	6.19	non-skilled manual	3551	11.81	
	self-employed	2424	3.31	self-employed	1963	6.53	
Household income (% of median)	<50%	16540	22.50	<50%	8236	27.24	
	50-80%	14133	19.23	50-80%	5534	18.30	
	80-120%	14089	19.17	80-120%	5422	17.93	
	120-200%	14111	19.20	120-200%	5094	16.85	
	>200%	5644	7.68	>200%	2754	9.11	
	Missing	8990	12.23	Missing	3197	10.57	

A4. Context effects for various year- and cohort-level predictors

	BSA	GSS
Year characteristics		
Real GDP growth rate	1.797	-0.005
Gini index	-0.008	-0.809
Income share top 1%	-0.103 ***	
Unemployment rate	0.122 ***	-0.017
Conservative prime minister / republican president	0.498 ***	0.313 ***
Cohort characteristics		
Real GDP growth rate	-0.007	-0.005
Income share top 1%	-0.025 ***	0.044 ***
Unemployment rate	-0.017 **	

* $p < .05$; ** $p < .01$; *** $p < .001$. Entries are parameter estimates from a cross-classified linear multilevel model with random intercepts for survey year and birth cohort. Every parameter reported here was estimated in a separate model with one contextual variable and individual control variables (see Table 1 for an overview of individual controls included). Weighted for unequal selection probabilities in the sampling design. BSA: $N(\text{individuals}) = 69,635$; $N(\text{years}) = 25$; $N(\text{cohorts}) = 19$. GSS: $N(\text{individuals}) = 29,516$; $N(\text{years}) = 22$; $N(\text{cohorts}) = 20$