Open access • Journal Article • DOI:10.1007/S11205-015-0946-1

The education effect: higher educational qualifications are robustly associated with beneficial personal and socio-political outcomes — Source link

Matthew J. Easterbrook, Matthew J. Easterbrook, Toon Kuppens, Antony Stephen Reid Manstead

Institutions: Cardiff University, University of Sussex, University of Groningen

Published on: 01 Apr 2016 - Social Indicators Research (Springer)

Topics: British Social Attitudes Survey, Higher education, British Household Panel Survey, International Social Survey Programme and Well-being

The Education Effect

Easterbrook, Matthew J.; Kuppens, Toon; Manstead, Antony S. R.

Published in:
Social Indicators Research

DOI:
10.1007/s11205-015-0946-1

Soc Indic Res (2016) 126:1261–1298
DOI 10.1007/s11205-015-0946-1

The Education Effect: Higher Educational Qualifications are Robustly Associated with Beneficial Personal and Socio-political Outcomes

Matthew J. Easterbrook[1,2] · **Toon Kuppens**[3] · **Antony S. R. Manstead**[1]

Accepted: 11 March 2015 / Published online: 18 March 2015

Abstract Level of education is a predictor of a range of important outcomes, such as political interest and cynicism, social trust, health, well-being, and intergroup attitudes. We address a gap in the literature by analyzing the strength and stability of the education effect associated with this diverse range of outcomes across three surveys covering the period 1986–2011, including novel latent growth analyses of the stability of the education effect within the same individuals over time. Our analyses of the British Social Attitudes Survey, British Household Panel Survey, and International Social Survey Programme indicated that the education effect was robust across these outcomes and relatively stable over time, with higher education levels being associated with higher trust and political interest, better health and well-being, and with less political cynicism and less negative intergroup attitudes. The education effect was strongest when associated with political outcomes and attitudes towards immigrants, whereas it was weakest when associated with health and well-being. Most of the education effect appears to be due to the beneficial consequences of having a university education. Our results demonstrate that this beneficial education effect is also manifested in within-individual changes, with the education effect tending to become stronger as individuals age.

Keywords The education effect · Education · Well-being · Social attitudes

✉ Matthew J. Easterbrook
m.j.easterbrook@sussex.ac.uk

Toon Kuppens
t.kuppens@rug.nl

Antony S. R. Manstead
MansteadA@cardiff.ac.uk

[1] School of Psychology, Cardiff University, Tower Building, Park Place, Cardiff CF10 3AT, Wales, UK

[2] Present Address: School of Psychology, University of Sussex, Brighton BN1 9QH, UK

[3] Department of Social Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands

1 Introduction

The level of education of a nation's population is seen as a key indicator of national development (United Nations Development Programme 2013), with a more highly educated population being associated with increased levels of human capital and economic growth (Barro 2001; Becker 1994). Most nations therefore strive to improve the education level of their population. For individuals, education is a strong indicator of social class (Fiske and Markus 2012; Lareau and Conley 2008; Singh-Manoux et al. 2001; Trautmann et al. 2013), and higher levels of education are positively associated with a range of valued outcomes, such as political interest and engagement (Emler and Frazer 1999); trust (Borgonovi 2012); happiness (Chen 2011; Cuñado and Gracia 2011); and health (Marmot et al. 1997). Higher levels of education are also negatively associated with outcomes such as anti-immigration attitudes (Borgonovi 2012; Jenssen and Engesbak 1994; Kunovich 2004) and nationalism (Coenders and Scheepers 2003). Although there is a body of research documenting the association between an individual's level of education and this diverse range of outcomes—a phenomenon we hereafter refer to by the overarching term '*the education effect*' (Emler and Frazer 1999)—there has as yet been no systematic investigation of the strength of these associations, or of whether they are consistent across time and/or culture, leaving important questions unanswered.

We address these questions in the current research. We analyze and compare the strength of the education effect associated with this diverse range of outcomes in two large, representative, British surveys (British Social Attitudes Survey [BSAS]; British Household Panel Survey [BHPS]), and one large, international survey (International Social Survey Programme [ISSP]). We also investigate whether the strength of the education effect has remained stable over time using multilevel regression to analyze British and international surveys (BSAS, ISSP) that have been conducted across a wide range of years. Finally, we use latent growth modelling to analyze a longitudinal survey of a representative sample of British individuals (BHPS) to investigate within-person changes in these outcomes over time, and whether such changes are related to a person's level of education. The decision to focus partly on Britain is driven by both theoretical reasons (in response to conflicting findings from prior research on health and well-being, outlined below) and practical considerations (Britain has a long tradition of social survey research yielding high quality and detailed data over a number of years). We therefore seek to provide the most comprehensive investigation of the education effect to date, comparing its strength across a variety of outcomes and a wide range of years, both within Britain and internationally.

2 Four Varieties of Education Effect

2.1 Politics

Perhaps the most robust and well-documented education effect is the association between a person's level of education and political outcomes. Research in the UK has found that education is related to political interest and cynicism (Bynner et al. 2003) and voter turnout (Bynner and Ashford 1994; Persson 2013a), and similar results have been found in Europe, the US, and internationally (Bovens and Wille 2010; Emler and Frazer 1999; Hadjar and Schlapbach 2008; Persson 2013b). Furthermore, a recent meta-analysis of studies conducted in the US and in Europe found that education was among the strongest predictors of

voting behavior, with a standardized effect of $r_{av} = .72$ across 67 studies (Smets and van Ham 2013). Although education has been shown to be linked to a range of political outcomes, here we limit our focus to two constructs, *interest in politics* and *political cynicism*, both of which have been shown to be strongly related—positively and negatively, respectively—to education (e.g. Bynner and Ashford 1994; Deth and Elff 2001).

Interest in politics refers to an intellectual engagement with political issues, and has been shown to be a strong and reliable predictor of political participation and voting behavior (Hadjar and Becker 2006; Hadjar and Schlapbach 2008; Lazarsfeld et al. 1948; Smets and van Ham 2013). Political cynicism refers to a negative attitude to and skepticism about contemporary government and politicians, and is thought to be indicative of a nation's lack of democratic health (Adams et al. 2006). Whereas interest in politics appears to be a relatively stable construct (Prior 2010), political cynicism appears to be context dependent. For example, research in the US and UK has found it to be strongly influenced by political media campaigns (e.g. Cappella and Jamieson 1996; Vreese and Elenbaas 2008), and it appears to have a complex relationship with voting behavior, interacting with variables such as the social status of one's group and the perception of opportunity for political change (Southwell and Pirch 2003). Interest in politics and political cynicism are, therefore, distinct constructs that have different consequences for political involvement (Bynner and Ashford 1994; Henn et al. 2002).

Previous research has not established whether the strength of the education effect associated with these two constructs differs. For example, whereas Bynner and Ashford (1994) found that the effect of educational attainment in the UK was slightly stronger for political awareness (a concept closely related to political interest) than for political cynicism (see also Egerton 2002), Bovens and Wille (2010) argue that the underrepresentation of the less educated in Dutch politics has led to those with lower levels of education becoming both uninterested in and cynical about politics, in comparison to those with higher levels of education. These contradictory accounts point to the need for a direct comparison of the strength of the education effect on these political outcomes. This is an empirical question we aim to answer in the present analyses.

There has been little research investigating whether the education effect associated with interest in politics and political cynicism has changed over time, and what research there is does not provide a clear answer. For example, in their analysis of the 1973–1990 Eurobarometer surveys, Deth and Elff (2001) found a strong and robust positive relationship between length of formal education and interest in politics and political apathy, but that the strength of this association did not significantly vary across the survey years. By contrast, Hadjar and Schlapbach (2008) reported that the strength of the education effect on interest in politics was weaker among older cohorts surveyed in West Germany, suggesting that the education effect decreased over time, but that there was no such decline in Switzerland. Recently, Hakhverdian et al. (2012) found that the education effect associated with political interest slightly decreased in the Netherlands between 1971 and 2010. These conflicting results call for a thorough investigation of the extent to which the education effect on interest in politics and political cynicism has changed over time.

2.2 Health and Well-Being

Education is one of the strongest indicators of social status (Fiske and Markus 2012; Lareau and Conley 2008), and, given that there is a strong social gradient in health (Marmot 2006), it is not surprising that there appears to be an education effect associated

with health, with the more highly educated tending to report better health and lower mortality rates than the lower educated across Europe, the UK, and the US (Eikemo et al. 2008; Hartog and Oosterbeek 1998; Marmot et al. 1997; Oreopoulos 2007; Schütte et al. 2013; von dem Knesebeck et al. 2006). Health is also closely and bi-directionally related to subjective well-being (Diener and Biswas-Diener 2008; Okun et al. 1984), which has been shown to have a similar social gradient (Lachman and Weaver 1998; Stansfeld et al. 1998) and education effect in Europe, the US and UK, with the more highly educated tending to have higher levels of subjective well-being (SWB) than their less educated counterparts (Blanchflower and Oswald 2004; Ferrer-i-Carbonell 2002; Graham and Pettinato 2002; von dem Knesebeck et al. 2011).

Although health and well-being can be measured in a variety of ways, we focus here on self-reported health, which is often included in survey research and has been shown to be a strong and reliable predictor of physical health and mortality (Miilunpalo et al. 1997), and on two aspects of well-being: happiness and mental well-being. Happiness concerns an individual's affective and subjective positivity, and is an important aspect of subjective well-being that has been shown to be sensitive to a range of societal and personal variables (Diener 2000). The measure we use to index mental well-being is the GHQ12 (Goldberg 1992), which assesses confidence, esteem, vitality, and ability to cope with life. These constructs have been found to be associated with different antecedents and consequences (e.g. Borgonovi 2008), pointing to the importance of separate examinations of the strength and stability of the education effect associated with them.

Although a range of studies have reported a positive education effect associated with health and SWB across many countries, it is a far from ubiquitous effect, with several studies (many of which were conducted in Britain) failing to find such a link (e.g. Banks and Mazzonna 2012; Clark and Oswald 1996; Flouri 2004; Silventoinen and Lahelma 2002), or reporting that it is fully accounted for by variables such as income or trust (e.g. Helliwell 2003; Powdthavee et al. 2013; *cf.* Blanchflower and Oswald 2004). For example, the UK Office of National Statistics found that education was weakly but positively related to life satisfaction, unrelated to happiness, and positively related to feeling worthwhile and to anxiety (Oguz et al. 2013). However, these models controlled for a range of closely related variables, including self-reported health, which may have resulted in an underestimation of the education effect (Angrist and Pischke 2010; Powdthavee et al. 2013). This suggests that health and well-being should be analyzed in separate models, and that doing so may reveal the positive education effects associated with health and well-being as robust and reliable. Given the contradictory evidence from the UK, this seems to be an especially important in analyses of British data.

Most previous studies that have kept health and well-being separate suggest that there are reliable and positive education effects associated with health and well-being, but that the effect associated with health may be slightly stronger (Eikemo et al. 2008; McKee-Ryan et al. 2005). A meta-analysis of 35 studies across Western Europe, North America, and East Asia suggested that an additional year of education is associated with an increase in self-reported health of 3.8 % of the full scale range (Furnée et al. 2008), whereas another meta-analysis of 90 US studies reported that education reliably accounted for 1–3 % of the variation in subjective well-being, an effect that was stable across five decades (Witter et al. 1984). In a more direct comparison, Hartog and Oosterbeek (1998) reported that the education effect for happiness was slightly weaker than that for health in a Dutch sample. However, this has not been found in every study (including those with a UK sample, e.g. Oreopoulos 2007), and further direct comparisons are required before firm conclusions can be drawn about the strength of these associations.

The few studies that have investigated whether the education effect associated with health has changed over time suggest that it has been relatively stable, at least in Norway between the mid-1980s to the mid-1990s (Krokstad et al. 2002; Kunst et al. 2005). Regarding the education effect associated with well-being, one large US and UK based study found that the strength of the effect associated with happiness was fairly stable between 1972 and 1998, which, along with the results from the above meta-analysis (Witter et al. 1984), suggests that the stability of the education effect on well-being is similar to that for health (Blanchflower and Oswald 2004). However, the lack of longitudinal research on these education effects makes it difficult to draw firm conclusions regarding the stability of the strength of these education effects without further evidence.

2.3 Social Trust

Social trust refers to the extent to which an individual believes they can trust a generalized other. The level of social trust within a nation has been found to be strongly related to inequality (Wilkinson and Pickett 2010), and to civic engagement, economic efficiency, and democratic stability (Kwak et al. 2004; Newton 2001), and it has been argued that it is vital to the successful functioning of and harmony within a nation (Helliwell and Putnam 2007). For individuals, social trust has been shown to be strongly positively related to subjective well-being across a vast array of nations (Helliwell and Wang 2011), and to self-reported health in the US (Subramanian et al. 2002).

Social trust has also been found to be related to education, with the more highly educated tending to report more trust than the lower educated across a large number of countries (Borgonovi 2012; Elchardus et al. 2013; Helliwell and Putnam 2007; Newton 2001). Indeed, a meta-analysis of 142 effects found that one standard deviation of schooling accounted for 12–16 % of the standard deviation in social trust, with one additional year of schooling associated with an increase of 4.6 % of the standard deviation in social trust (Huang et al. 2009). This effect was also found to be stable over time. Other British based studies have estimated that the effect of one additional year of schooling increases social trust by 4.4 % of its standard deviation, and that this effect changed little within people over time (Huang et al. 2011). These studies strongly suggest that there is a strong and positive education effect associated with social trust that is temporally stable. Given the importance of social trust for such a wide and diverse range of national and individual variables, a direct comparison of the strength of the education effects associated with social trust and our other key variables is warranted.

2.4 Nationalism and Immigration Attitudes

Given the rise in support for right-wing political parties across Britain and mainland Europe during the last decade, a pertinent education effect for our analyses is the association between lower levels of education and greater ingroup favoritism (Jackman and Muha 1984; Stouffer 1955). A range of studies analyzing data collected in Europe have found that lower education levels are associated with greater levels of prejudice, ethnic exclusionism, xenophobia, and negative attitudes towards immigration and immigrants (Hainmueller and Hiscox 2007; Hello et al. 2002; Jenssen and Engesbak 1994; Pettigrew et al. 1997), whereas studies in the US and using international data have found that lower levels of education are associated with nationalism (Coenders and Scheepers 2003; Coenders 2001), prejudice (Hadler 2012; Kuppens and Spears 2014), and immigration attitudes (Maria 2004).

We focus here on two constructs that have been argued to represent two sides of the same coin: nationalism, on the one hand, which represents protectionist attitudes and bias towards the national ingroup; and attitudes towards immigrants and immigration, on the other, which represent bias against outgroups (Coenders and Scheepers 2003). These two constructs have been found to be strongly related to each other (Dunn 2013; Green et al. 2011; Wagner et al. 2012), as well as to a wider range of important constructs such as prejudice, ethnic exclusionism, xenophobia, authoritarianism and political attitudes (Coenders and Scheepers 2003; Kalmijn and Kraaykamp 2007; Kuppens and Spears 2014; Ostapczuk 2009; Stubager 2008; Weil 1985). Despite their close relationship, ingroup and outgroup attitudes are often distinguished in the social sciences, and have been found to be associated with different antecedents and consequences (e.g. Brewer 1999). For this reason we investigate whether the education effects associated with these variables are comparable.

Few researchers have investigated whether the education effect associated with attitudes to immigrants has changed over time. A review by Ceobanu and Escandell (2010) reported that the education effect for attitudes to immigrants has been found across a range of nations, and that it has become slightly stronger over time. Although Coenders and Scheepers (2003) reported that the education effect for both nationalism and exclusion of immigrants was moderated by politico-historical variables, we know of no study that has investigated whether the education effect associated with nationalism is stable over time. We anticipate that it might exhibit a slight increase over time, similar to the education effect associated with attitudes to immigrants.

3 The Current Investigation

The aim of the current investigation is to provide a comprehensive and comparative test of these four varieties of education effect, and their strength and stability across different individual outcomes. We analyze three large social survey datasets (British Social Attitudes, British Household Panel Survey, International Social Survey Programme), merging the data from surveys conducted in different years in order to create two large stacked datasets and one longitudinal dataset that each cover a range of years. Two of the datasets are British (BSAS, BHPS), enabling us to answer questions about the generalizability and strengths of the education effects associated with particular outcomes within Great Britain and the UK (Oguz et al. 2013). The third is a large international survey (ISSP), allowing us to compare the strength of the education effect for particular variables when it is investigated across a range of nations.

Our approach therefore enables us (a) to provide a robust standardized estimate of the education effect for each outcome from large datasets covering a range of years in the UK and internationally, (b) to investigate whether the strength of the education effect has varied over the range of survey years for each outcome, and (c) to investigate whether outcomes change within individuals over time, and whether such change is related to their level of education. Our aim, therefore, is to provide a clear and comprehensive account of which aspects of the education effect are the most important, reliable, and stable, and thereby make a significant contribution to knowledge about the effects associated with different levels of education.

We selected the outcome variables considered here a priori as good exemplars of the four varieties of education effect already identified in the literature: politics; health and

well-being; trust; and intergroup attitudes. We do not claim that this is an exhaustive list of outcomes associated with education; indeed, education has been related to a wide array of variables that we do not investigate here (e.g., Hyman et al. 1975). Rather, we argue that the outcome variables considered here provide a general picture of the range, strength, and stability of the education effect within key domains that have been examined in previous research on education effects.

Although it is obviously important to arrive at an understanding of the processes that underlie the education effect, this is not the focus of this paper. Rather, our focus is on comparing, in a single paper, the education effect associated with a range of outcomes, providing a valuable resource to researchers and allowing conclusions to be drawn about the domain in which a person's level of education plays a key role. It is possible that each of the outcome variables considered here is associated with a different underlying mechanism; investigating this issue is beyond the scope of a single paper.

Educational attainment or highest educational qualification (HEQ) is the most frequently used index of socioeconomic status and is a strong indicator of SES (Backlund et al. 1999; Curhan et al. 2014; Kraus et al. 2012; Lareau and Conley 2008). Among the traditional indicators of SES—income, occupation, and education—HEQ also shows the strongest relationship with a range of outcomes, including lifestyle variables, beliefs, and functioning (Attewell and Newman 2010; Reardon 2011; Trautmann et al. 2013). It is also easily and often measured in large social surveys. We therefore use highest educational qualification (HEQ), rather than total years in education, as our main predictor variable.

We also ran separate models for each of our outcome variables to avoid underestimating the education effect (Powdthavee et al. 2013), although we did include covariates in our analyses that we deemed to be important to control for when investigating education. The most important of these was income, which, wherever possible, we control for in our analyses in order to remove its effects from those of education. Although education and income are related and are often used together to indicate socio-economic status, we wanted to examine the effect of education independently of income, partly because past research has shown they can have divergent effects (Trautmann et al. 2013), but also because this approach helps to improve our understanding of the education effect by separating it from some of the consequences of education (Powdthavee et al. 2013). This seemed especially relevant to our analyses of change within individuals, because people's incomes are likely to increase over time, whereas their HEQ generally remains stable. We therefore controlled for the effect of income in all our analyses of the BSAS and BHPS (this was not possible for the ISSP due to the absence of equivalent income data across nations and years). Wherever possible, we also controlled for employment status, marital status, age and gender, all of which have been shown to influence at least some of the outcomes of interest.

Our choice of the BSAS, the ISSP, and the BHPS surveys was informed by several considerations. First, these surveys allow us to investigate the effect of education on a range of outcomes across (a) a large and representative sample of British adults (BSAS), (b) a large and international sample of adults (ISSP), and (c) a representative panel of British adults over time (BHPS). Secondly, for the BSAS and ISSP, the fact that these surveys have been conducted across a wide range of years allowed us to investigate whether the effect of education has varied over time. The longitudinal BHPS also enables us to investigate whether a respondent's level of education is related to within-individual changes over time in the focal outcome variables. Thirdly, each of the outcome variables we focus on was measured in at least two of the three surveys, providing an investigation of whether the effect of education is survey-specific or generalizes across surveys. Finally,

although each survey had limitations with respect to the control variables available or how they were measured, each of our identified control variables was assessed in at least two of the three surveys, enhancing confidence that any observed effect of education found across the surveys is not due to any unmeasured confounding variable(s).

4 Method

We provide details of the three different surveys below. All of the wordings and response scales for each outcome variable are shown in Table 1, while Table 2 displays the years in which the outcome variables were included in the three surveys.

4.1 British Social Attitudes Survey

4.1.1 Sample

The BSAS is an annual survey of a representative sample of around 3,500 people living across Great Britain. The survey began in 1983 and is ongoing. Respondents' Highest Educational Qualification (HEQ) was not recorded before 1985, and our target outcomes were not included in the waves conducted in 1985, 1988, 1992, and 1993. We therefore analyzed the 23 waves between 1986 and 2011 that included our target questions. We merged the data for these waves to produce a dataset with 78,033 individuals clustered within 23 waves. Of this sample, 56 % were female and ages ranged from 17 to 97 years.

4.1.2 Education

Respondents' HEQ is measured at each wave and then grouped into categories of qualifications that are considered to be equivalent educational levels. Details of the exact qualifications in each category can be found on the BSAS user website http://www.britsocat.com/Details. We use the following labels for each HEQ category, based on the most familiar qualification within that category: 'No qualifications,' 'CSE,' 'O Level,' 'A Level,' 'Diploma,' and 'Degree.'[1] Figure 1 shows the percentages of the sample falling into these HEQ categories.

4.1.3 Control Variables

We include age and gender ($males = 0, females = 1$) in all our analyses, with age (like all other continuous variables) rescaled to cover the range 0–1. Income was measured in categories, although the number of categories used varied across survey waves. Within each survey wave we rescaled these categories to cover a 0–1 range, making them conceptually equivalent indicators of a respondent's relative income. We also included

[1] These categories represent increasingly higher educational qualifications. Described briefly, each (increasing) category label represents: No qualifications: no formal qualifications; CSE: a lower secondary educational qualification; O Level: a higher secondary educational qualification; A Level: a further education qualification; Higher Vocational: a higher education qualification below a bachelors' degree; Degree: a bachelors degree (similar categories are used in the other surveys). Although later waves of the BSA also included a 'postgraduate' qualification category, we included this in the 'degree' category due to its absence from the earlier waves and the very small number of respondents at any wave with postgraduate qualifications.

Table 1 Item wordings and response scales for all outcome variables

Survey	Response Scale	*Construct* Item Wording
		Interest in politics
BSAS	5	How much interest do you generally have in what is going on in politics?
ISSP	4/5	How interested would you say you are personally in politics?
BHPS	4	How interested would you say you are in politics? Would you say you are…
		Political cynicism
BSAS	5	Generally speaking, those we elect as MPs lose touch with people pretty quickly?
		Parties are only interested in people's votes, not in their opinions?
		It doesn't really matter which party is in power, in the end things go on much the same?
ISSP	5	People like me don't have any say about what the government does
		I think most people are better informed about politics and government than I am
		The average citizen has considerable influence on politics (reversed)
		I feel that I have a pretty good understanding of the important political issues facing our country (reversed)
		People we elect as MPs try to keep the promises they have made during the election (reversed)
		Most civil servants can be trusted to do what is best for the country (reversed)
BHPS	5	On the whole, what governments do in Britain/the UK reflects the wishes of the people (reversed)
		Ordinary people don't really have a chance to influence what governments do
		Governments can be trusted to place the needs of the nation above the interests of their own party (reversed)
		Social trust
BSAS	2	Would you say that most people can be trusted, or that you can't be too careful in dealing with people?"
ISSP	5	Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?
BHPS	2	Would you say that most people can be trusted, or that you can't be too careful in dealing with people?
		Well-being
BSAS	4/7	If you were to consider your life in general [these days], how happy or unhappy would you say you are, on the whole?
ISSP	4/7	If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole?
BHPS	4	GHQ12
		General health
BSAS	5	How is your health in general for someone your age? Would you say that it is very good/very bad?
ISSP	5	In general, would you say your health is?
		Negative attitudes to immigrants
BSAS	4/5	Immigrants increase crime rates
		Immigrants take jobs away from people who were born in Britain?
		Immigrants improve British society by bringing in new ideas and cultures? (reversed)

Table 1 continued

Survey	Response Scale	*Construct* Item Wording
ISSP	5	Immigrants increase crime rates
		Immigrants are generally good for [Respondent's country's] economy
		Immigrants take jobs away from people who were born in [Respondent's country]
		Immigrants improve [Respondent's country] society by bringing in new ideas and cultures
		Government spends too much money assisting immigrants.
		Preference for reduced immigration
BSAS	5	Do you think the number of immigrants to Britain nowadays should be increased a lot, increased a little, remain the same as it is, reduced a little or reduced a lot?
ISSP	5	Do you think the number of immigrants to [Respondent's country] nowadays should…
		Nationalism
ISSP		How much do you agree or disagree with the following statements?
		I would rather be a citizen of [Respondent's country] than of any other country in the world
		There are some things about [Respondent's country] today that make me feel ashamed of [Respondent's country]
		The world would be a better place if people from other countries were more like the [Respondent's country]
		Generally speaking, [Respondent's country] is a better country than most other countries
		People should support their country even if the country is in the wrong
		When my country does well in international sports, it makes me proud to be [Respondent's country]
		I am often less proud of [Respondent's country] than I would like to be
BHPS	5	Britain has a lot to learn from other countries in running its affairs
		I would rather be a citizen of Britain than of any other country in the world
		There are some things about Britain today that make me ashamed to be British

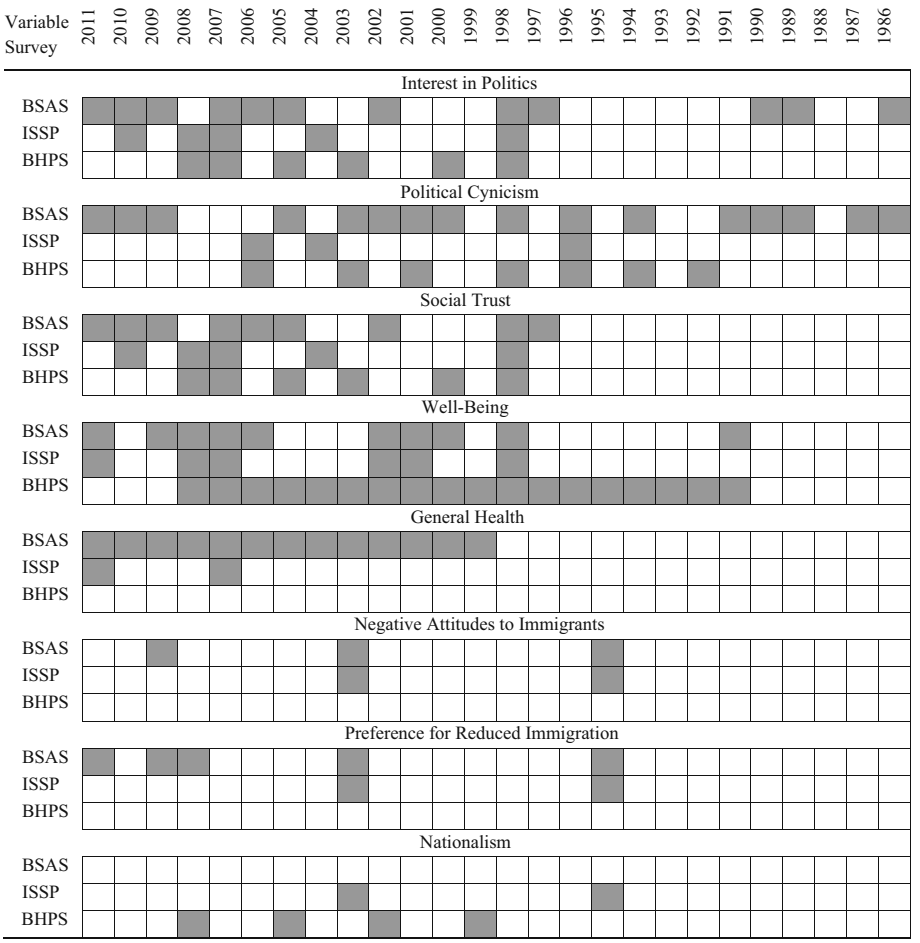
respondents' marital status (*Single/widowed/divorced* = 0, *Married/living as married* = 1) and employment status, which included the categories *employed*, *unemployed*, *retired*, and *other.*[2] For all analyses of the BSAS the reference categories for our control variables were *males, single/widowed/divorced*, and *employed.*

4.2 Statistical Approach

For each outcome variable, initial analyses indicated that a multilevel regression model that accounted for the clustering of individuals within waves was a better fit to the data than a single level model (assessed using Deviance tests; Hox 2002). We therefore conducted multilevel regression analyses using maximum likelihood estimation in SPSS. As noted earlier, we rescaled any continuous variables to cover the range of 0–1, with higher

[2] Rather than make assumptions about whether a respondent's HEQ to date or the qualification they were studying for was the most appropriate to use for the HEQ variable, we excluded respondents who were in education during the time of the survey. This resulted in the removal of only 1,880 persons, a reduction of only .2 % of the sample.

Table 2 Years in which outcome variables were included in each survey



values indicating a greater endorsement of the construct. This rescaling aids the interpretation of unstandardized coefficients within multilevel models by converting the estimates of the strength of association to represent the proportional change in the outcome variable as the predictor changes from its lowest to its highest value (Brandt and Henry 2012), and makes the effects comparable across outcome measures. We included participants' age, gender, income, marital status, and employment status as control variables in these analyses.

For each of the outcome variables, we analyzed a series of stepwise models. We first entered all control variables in Model A, before adding the education dummy variables in Model B. We then computed the Proportional Reduction of Error (PRE) statistic between these two models, which can be interpreted in a similar way to the partial R^2 statistic in ordinary least squares regression, providing an estimate of the proportion of individual-level variance in the outcome variable that is accounted for by the education dummy

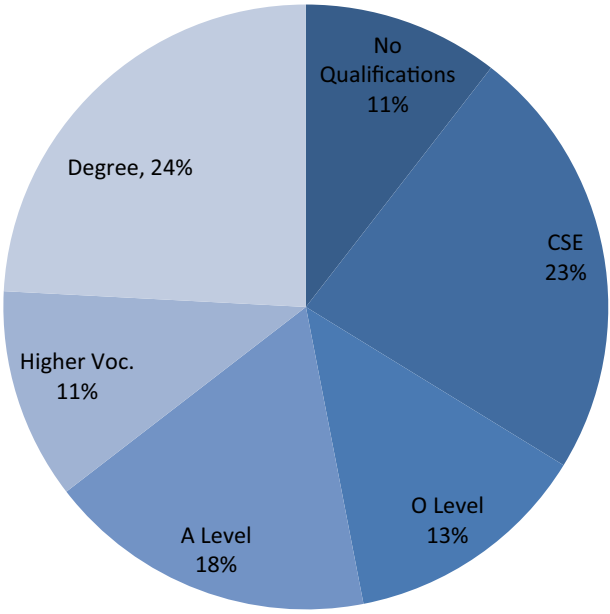


Fig. 1 Percentage of British Social Attitudes Survey sample falling into each highest educational qualification category

variables, or the degree of association. We next added year of survey as a wave-level (Level 2) predictor variable in Model C, which indicates whether the outcome variable changes significantly as a function of year of survey,[3] before adding the cross-level interactions between year and the education dummy variables in Model D, which indicate whether the strength of the education effect varies as a function of year of survey.

Because our primary aim is to provide an overall estimate of the education effect for each outcome variable, Table 2 reports only the main effects associated with the education dummy variables from the best fitting model out of Models B and C, and the PRE associated with the education dummy variables. We report any significant effect associated with year in the text. If Model D provided a further increase in fit relative to Models B or C, we report this in the text along with any significant effects associated with the interactions between year and the education dummy variables.[4] If this was the case, we also report a second PRE statistic computed from a comparison of Models C and D, which provides an estimate of the proportion of individual-level variation in the outcome variable that is accounted for by any changes in the education effect across the years of the survey. All of the estimates for the control variables, year of survey, and the year by education dummy variable interactions are available from the first author on request.

[3] We also investigated a model that additionally included year^2 to investigate whether there were quadratic effects of year. These models were never a better fit than the models without this term, so we do not discuss them further.

[4] Year was recoded so that its value represented number of years deviation from the most recent wave (2011 for the BSAS), with negative numbers indicating years in the past (for example, 2008, three years earlier than 2011, was coded as −3). Thus, a positive main effect for year indicates that the outcome variable has become more positive over time. The effect of year in a model that also includes the year by education dummy interactions represents the effect of an increase of one year on the outcome variable for the 'no qualifications' education reference category; the year by education dummy interactions represent the change in the effect associated with each HEQ with an increase of 1 year, and the effects associated with the education dummy variables shift from main effects to simple effects for the most recent wave.

4.3 International Social Survey Programme

4.3.1 Sample

The ISSP is an international, collaborative, and annual program of survey research that began in 1985. There are currently 48 countries from 6 continents participating in the ISSP, including many European, North American, and Australasian countries, and a smaller number of East Asian, South American, and African countries (more information on member countries can be found on the ISSP website: http://www.issp.org/page.php?pageId=2). Through a democratic voting system, each participating country agrees upon a master questionnaire that includes a set of core variables and more specific items in line with the module topic for the round in question. The module topic varies each year, although some topics are repeated every 5–10 years. Each country funds, conducts, and contributes its own survey to the ISSP, using their methods of choice. More information about the program and the individual survey that each nation contributes can be found on the ISSP website http://www.issp.org/index.php, as well as a list of the countries involved in each round http://www.gesis.org/en/issp/issp-modules-profiles.

HEQ is recorded in all the surveys, but internationally equivalent categories were only imposed after 1992. Furthermore, the surveys conducted in 1992, 1993, 1994, 2000, and 2005 did not contain any of our key outcome variables, so we focused our analyses on the remaining 15 surveys conducted between 1995 and 2011. We merged the data for these waves to produce a dataset with 658,979 individuals clustered within 48 nations and 15 waves. Of this sample, 54.01 % were female and ages ranged from 14 to 102 years.

4.3.2 Education

Respondents' HEQ is measured as the highest level of schooling that a respondent received. At each wave we analyzed, we used the following labels for the HEQ categories: 'No qualifications,' 'Primary,' 'Lower Secondary', 'Higher Secondary,' and 'Tertiary.'[5] Details of the categories provided at each wave and their national equivalents can be found on the GESIS website http://zacat.gesis.org/webview/. Figure 2 shows the percentages of the sample falling into these HEQ categories.

4.3.3 Control Variables

We include age and gender (*males* = 0, *females* = 1) in all analyses, with age rescaled to cover the range of 0–1. We also included respondents' marital-status (*Single/widowed/divorced* = 0, *Married/living as married* = 1) and employment status, which included the categories *employed*, *unemployed*, *retired*, *in full-time education, long-term disabled, caring for family,* and *other*.[6] For all analyses the reference categories for the control variables were *males, single/widowed/divorced*, and *employed*.[7]

[5] The categories used for HEQ varied slightly over the course of the 15 surveys, but we used this categorisation for all the waves to ensure equivalence.

[6] The larger sample size of the ISSP in comparison to the BSA enabled us to include these additional categories for respondents' employment status in the ISSP analyses.

[7] We did not include income as a control variable in these analyses because the survey from each nation recorded this variable in its own currency and the values were therefore not equivalent.

4.4 Statistical Approach

For each outcome variable, initial analyses indicated that a cross-classified multilevel regression model that accounted for the clustering of individuals within both waves and within nations was a better fit to the data than a single-level model or a simpler multilevel model. We therefore conducted cross-classified multilevel regression analyses using maximum likelihood estimation in SPSS. We rescaled any continuous variables to cover the range of 0–1, with higher values indicating a greater endorsement of the construct. We included participants' age, gender, marital status, and employment status as control variables.

We again computed a series of stepwise models for each of the outcome variables. We first entered all the control variables in Model A, before adding the education dummy variables in Model B. We again computed the Proportional Reduction of Error (PRE) statistic between these two models, providing an estimate of the proportion of individual-level variance in the outcome variable that is accounted for by the education dummy variables. We next compared Model B—a cross-classified multilevel model controlling for the clustering of individuals within nations and waves—against a model that relaxed the equality constraint implicit in Model B which assumes the variance accounted for by the clustering of nations across all waves to be equal (Leckie 2013). We did this by including a cross-product of wave and nation as an additional cross-classified level of analysis in Model C. We then chose the best fitting model from Models B and C and added year of survey as a wave-level predictor variable (Model D), thereby investigating whether the outcome variable changes significantly as a function of year of survey.[8] We then added the cross-level interaction between year and the education dummy variables (Model E), to investigate whether the education effect varies by year of survey.[9]

Table 3 reports the main effects associated with the education dummy variables from the best fitting model out of Models B, C, or D, as well as the PRE associated with the education dummy variables (computed from a comparison of Models A and B). We report any significant effect associated with year in the text. If Model E provided any further increase in fit relative to Models B, C or D, we report this in the text along with any significant effects associated with the interactions between year and the education dummy variables. If this was the case, we also report a second PRE statistic computed from a comparison of Models D and E, which provides an estimate of the proportion of individual-level variation in the outcome variable that is accounted for by any changes in the education effect across the years of the survey. All of the estimates for the control variables, year of survey, and the year by education dummy variables interactions are available from the first author upon request.

[8] We also investigated a model that additionally included year^2 to investigate whether there were quadratic effects of year. This model was never a better fit than the model without this term, so we do not discuss it further.

[9] As with the BSAS, year was recoded such that the most recent wave was indicated by 0 and all other waves were represented by a negative number indicating its deviation in years from the most recent wave. For variables that were only included in two waves of the survey, we ran models A and B before moving to models D and E, including year of survey as a dummy variable, with the most recent year of the survey as the reference category.

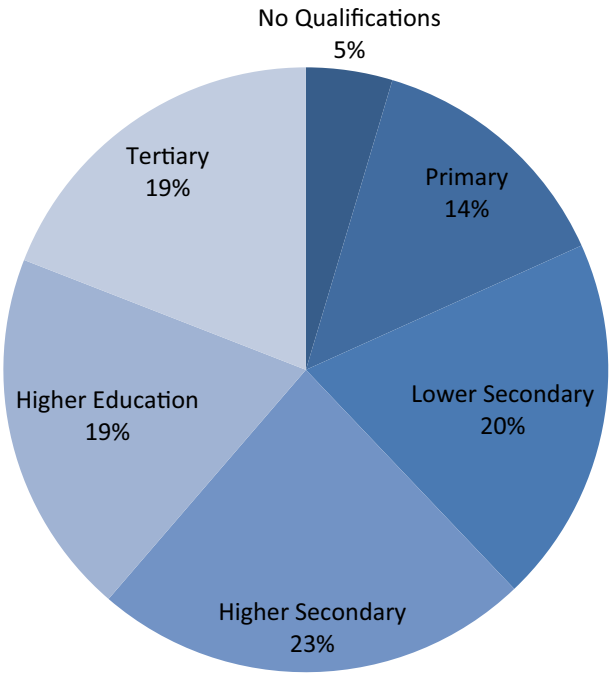


Fig. 2 Percentage of International Social Survey Program sample falling into each highest educational qualification category

4.5 British Household Panel Survey

4.5.1 Sample

The BHPS is a longitudinal survey of a representative sample of British households. The survey began in 1991 with around 5500 households containing 10,300 individuals from Great Britain, and was conducted annually until 2008, producing 18 distinct waves. Throughout the duration of the survey, households were added to the sample, and individuals were added who entered into, or became of eligible age within, sampled households (see the BHPS user manual for more detailed sampling information; Taylor et al. 2010). We merged all 18 waves for our analyses, producing a longitudinal dataset containing information on 32,224 individuals across 18 waves. The age range of this sample was 15–101 years and 52.11 % were females.[10]

4.5.2 Education

Respondents' HEQ is measured at each wave and then grouped into categories of equivalent qualifications, details of which are in the BHPS user manual (Taylor et al. 2010, p. 254). We used the following labels for each HEQ category, representing the most familiar qualification in that category: 'No qualifications,' 'CSE,' 'O Level,' 'A Level,'

[10] The size of the sample in each analysis is only a small proportion of this total because it includes only data from respondents who responded to all items included in the analyses, giving an indication of how the response to the outcome variables change over time.

Table 3 Effects of education dummy variables in analysis of British Social Attitudes Survey

Predictor	*b*	*SE*	*p*	95 % CI	
				Lower	Upper
Interest in politics: Individual n = 41,668; PRE = 7.71 % Wave n = 12					
CSE	.053	.005	<.001	.043	.062
O Level	.104	.004	<.001	.097	.112
A Level	.157	.005	<.001	.148	.166
Higher Voc.	.165	.004	<.001	.156	.173
Degree	.258	.005	<.001	.249	.267
Political Cynicism: Individual n = 18,983; PRE = 5.03 % Wave n = 16					
CSE	−.021	.005	<.001	−.031	−.011
O Level	−.057	.004	<.001	−.066	−.049
A Level	−.085	.005	<.001	−.095	−.075
Higher Voc.	−.083	.005	<.001	−.092	−.074
Degree	−.153	.005	<.001	−.163	−.143
Social Trust: Individual n = 14,432; PRE = 3.30 % Wave n = 9					
CSE	.068	.016	<.001	.037	.100
O Level	.087	.013	<.001	.062	.112
A Level	.157	.015	<.001	.128	.186
Higher Voc.	.179	.014	<.001	.151	.207
Degree	.306	.015	<.001	.278	.335
Well-Being: Individual n = 9,418; PRE = .07 % Wave n = 10					
CSE	−.010	.008	.197	−.025	.005
O Level	−.010	.006	.116	−.022	.002
A Level	−.013	.007	.083	−.027	.002
Higher Voc.	−.008	.007	.252	−.022	.006
Degree	−.018	.007	.011	−.032	−.004
General Health: Individual n = 29,258; PRE = .45 % Wave n = 13					
CSE	.026	.005	<.001	.016	.036
O Level	.030	.004	<.001	.022	.038
A Level	.035	.005	<.001	.026	.044
Higher Voc.	.039	.005	<.001	.030	.048
Degree	.048	.005	<.001	.039	.057
Negative Attitudes towards Immigrants: Individual n = 2,892; PRE = 10.79 % Wave n = 3					
CSE	−.007	.015	.627	−.037	.022
O Level	−.031	.012	.010	−.054	−.008
A Level	−.077	.013	<.001	−.103	−.051
Higher Voc.	−.096	.014	<.001	−.122	−.069
Degree	−.185	.014	<.001	−.213	−.158
Preference for Reduced Immigration: Individual n = 6,450; PRE = 5.59 % Wave n = 5					
CSE	.013	.012	.270	−.010	.037
O Level	−.002	.009	.801	−.020	.015
A Level	−.042	.010	<.001	−.061	−.022
Higher Voc.	−.069	.010	<.001	−.089	−.048

Table 3 continued

Predictor	*b*	*SE*	*p*	95 % CI	
				Lower	Upper
Degree	−.162	.010	<.001	−.181	−.142

The unstandardized coefficients represent the percentage change in the outcome variables as the predictor goes from its lowest to highest value

'Diploma,' and 'Degree.',[11,12] Figure 3 shows the proportions of the sample falling into these HEQ categories.

4.5.3 Control Variables

We include age and gender (*males* = 0, *females* = 1) in all analyses, with age rescaled to cover the range of 0–1. Income was measured in pounds and we therefore followed conventional procedures and converted it to its logarithmic form (e.g., Ferrer-i-Carbonell 2005). Given that latent growth modelling is a demanding computational procedure, we did not include other control variables in these analyses in order to simplify the models and thereby aid convergence.

4.6 Statistical Approach

The BHPS is a longitudinal survey that tracks the same individuals over time, and therefore has a multilevel structure with waves nested within individuals (Singer and Willett 2003). We therefore used latent growth modelling to investigate the relationship between respondents' HEQ and the initial level and change over time in our focus outcomes. This analysis, therefore, investigates the stability of the education effect over time, but *within the same individuals*.

We first modelled a latent intercept factor and a latent slope factor, representing the initial value of the outcome variable at the earliest wave, and the linear growth trajectory from this initial starting value, respectively.[13] If this linear growth model did not fit the data well, indicating that the growth trajectory was not linear, we added a quadratic factor and, if necessary, a cubic factor. Once we had a good-fitting growth model, we regressed the time-varying outcome variable onto the three control variables (age, gender, and income) at each wave, and constrained these paths to be equivalent across the waves. Finally,

[11] Although the BHPS also included a 'postgraduate' qualification category, we incorporated this into the 'degree' category due to the very small number of respondents with postgraduate qualifications, especially in the earlier waves.

[12] Because the BHPS follows the same individuals over time, some respondents' HEQ changed across the waves of the survey. Our statistical approach was to treat HEQ as a time-invariant variable, which we did to reduce the complexity of our latent growth curve models in order to aid convergence. Rather than make assumptions about whether a respondent's initial or final HEQ was the most appropriate to use, we excluded respondents whose HEQ changed over the course of the survey from the analyses. This resulted in the removal of 179 respondents, a reduction of only .005 % of the sample.

[13] We specified the growth factors so as to take account of the length between measurement occasions of the outcome variable, as well as dividing these values by 10 to aid convergence. For example, if the outcome variable was measured at Wave 1, Wave 4, and Wave 6, the growth factor would be specified as 'i s | Wave1@0 Wave4@.3 Wave 6@0.5', thus retaining the appropriate distance between the time points.

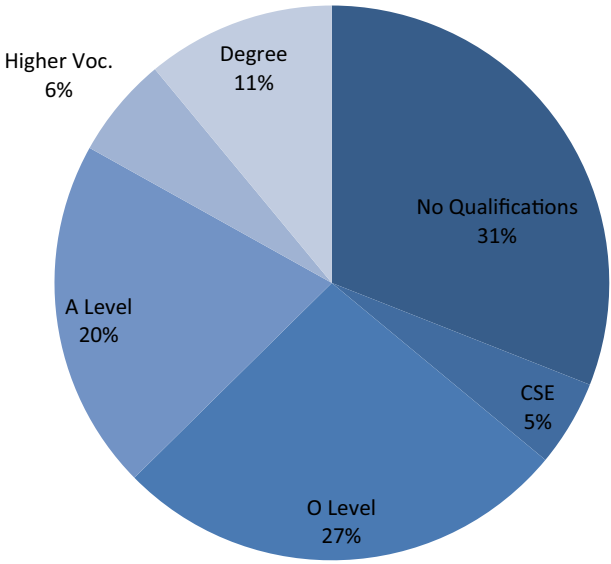


Fig. 3 Percentage of British Household Panel Survey sample falling into each highest educational qualification category

we regressed the latent intercept and growth factors on the time-invariant education dummy variables to investigate whether respondents' HEQ predicted the initial value and growth trajectory of the outcome variables, once the control variables had been accounted for.

We report the mean (or intercept) and variance of the growth factors, the estimated parameters of the effect of the education dummy variables on these factors, and the model fit for each outcome variable. A positive slope estimate indicates that the outcome variable has increased over time from the initial wave, and a positive estimate for a particular education dummy variable indicates that this positive growth was stronger for those who fall into that education category in comparison to the 'No qualifications' reference category. Estimates for the control variables are available from the first author upon request.

5 Results

We report the results for each outcome in turn. The results for the analyses of the BSAS are shown in Table 3, for the ISSP in Table 4, and for the BHPS in Table 5. For the sake of brevity and clarity, we focus here on the results for the education dummy variables. Additional results from the analyses including the model that was analyzed for each outcome, the estimates for the control variables, and the covariances between latent factors are available from the first author on request.

5.1 Interest in Politics

5.1.1 BSAS

Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in interest in politics, and all of the HEQ dummy variables were associated

Table 4 Effects of education dummy variables in analysis of International Social Survey Programme

Predictor	*b*	SE	*p*	95 % CI	
				Lower	Upper
Interest in Politics: Individual n = 167,941; PRE = 4.01 % Wave n = 5					
Primary	.034	.004	<.001	.027	.041
Lower Secondary	.080	.004	<.001	.073	.087
Higher Secondary	.123	.004	<.001	.117	.130
Higher Education	.160	.004	<.001	.153	.168
Tertiary	.218	.004	<.001	.211	.226
Political Cynicism: Individual n = 132,035; PRE = 4.25 % Wave n = 3					
Primary	−.011	.002	<.001	−.015	−.007
Lower Secondary	−.029	.002	<.001	−.033	−.026
Higher Secondary	−.050	.002	<.001	−.053	−.046
Higher Education	−.073	.002	<.001	−.077	−.069
Tertiary	−.108	.002	<.001	−.112	−.104
Social Trust: Individual n = 238,446; PRE = 1.81 % Wave n = 5					
Primary	−.008	.003	.004	−.013	−.002
Lower Secondary	.015	.003	<.001	.009	.020
Higher Secondary	.039	.003	<.001	.034	.044
Higher Education	.070	.003	<.001	.065	.076
Tertiary	.109	.003	<.001	.103	.114
Well-Being: Individual n = 266,952; PRE = .59 %; Wave n = 6					
Primary	.018	.002	<.001	.014	.022
Lower Secondary	.030	.002	<.001	.026	.034
Higher Secondary	.047	.002	<.001	.043	.051
Higher Education	.051	.002	<.001	.047	.055
Tertiary	.065	.002	<.001	.061	.069
General Health: Individual n = 92,418; PRE = 1.57 % Wave n = 2					
Primary	.015	.005	.002	.005	.025
Lower Secondary	.049	.005	<.001	.039	.058
Higher Secondary	.077	.005	<.001	.068	.087
Higher Education	.078	.005	<.001	.069	.088
Tertiary	.115	.005	<.001	.105	.124
Negative Attitudes towards Immigrants: Individual n = 70,416; PRE = 4.75 % Wave n = 2					
Primary	−.004	.004	.296	−.011	.003
Lower Secondary	−.024	.004	<.001	−.031	−.016
Higher Secondary	−.061	.004	<.001	−.069	−.054
Higher Education	−.087	.004	<.001	−.095	−.079
Tertiary	−.143	.004	<.001	−.151	−.135
Preference for Reduced Immigration: Individual n = 65,166; PRE = 2.97 % Wave n = 2					
Primary	.006	.005	.259	−.004	.015
Lower Secondary	−.006	.005	.229	−.016	.004
Higher Secondary	−.037	.005	<.001	−.047	−.027
Higher Education	−.069	.005	<.001	−.079	−.058
Tertiary	−.134	.005	<.001	−.144	−.123

Table 4 continued

Predictor	*b*	SE	*p*	95 % CI	
				Lower	Upper
Nationalism: Individual n = 75,031; PRE = 3.46 % Wave n = 2					
Primary	.001	.003	.680	−.004	.006
Lower Secondary	−.025	.003	<.001	−.031	−.020
Higher Secondary	−.045	.003	<.001	−.050	−.039
Higher Education	−.055	.003	<.001	−.061	−.049
Tertiary	−.088	.003	<.001	−.094	−.083

The unstandardized coefficients represent the percentage change in the outcome variables as the predictor goes from its lowest to highest value

with significantly greater interest in politics than the no qualification reference category. Furthermore, higher HEQs were associated with larger increases in interest in politics (from the reference category), and the non-overlapping 95 % confidence intervals (Cis) imply that each HEQ was reliably associated with greater interest in politics than the HEQs below them. The greatest difference in the level of interest in politics was between the two extreme HEQs, with degree associated with an increase of 26 % of the full range of scores on interest in politics in comparison to the no qualifications category. In summary, respondents with higher HEQs were more interested in politics.

Adding survey year to the model significantly improved the fit of the model, with survey year associated with a significant positive effect ($b = .002$, $p < .001$) indicating that interest in politics increased across the 12 waves of the survey. Adding the year by HEQ interactions to the model did not improve the fit of the model, showing that the effects associated with HEQ were stable over the 12 waves.

5.1.2 ISSP

Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in interest in politics, and all of the HEQ dummy variables were associated with significantly greater interest in politics than the reference category. Higher HEQs were associated with larger increases in interest in politics, and the non-overlapping 95 % CIs imply that each HEQ was reliably associated with more interest in politics than the HEQs below it. Focusing on the two extreme HEQs, tertiary was associated with an increase in interest in politics that amounted to 22 % of the full range of scores in comparison to the no qualification group. Once again, this shows that respondents with higher HEQs were more interested in politics.

Adding survey year and the year by HEQ interactions did not improve the fit of the model, showing that the level of interest in politics and the effects associated with the HEQs were stable across the five survey waves.

5.1.3 BHPS

The linear slope estimates indicate that respondents' interest in politics decreased linearly over the six waves. Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in respondents' initial levels of interest in politics, but

Table 5 Effects of education dummy variables in analysis of British Household Panel Survey

	Intercept			Slope			Quadratic			Model Fit	
Predictor	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*		
Interest in Politics: Individual n = 3,509; Wave n = 6											
Intercept	.348	.016	.000	−.073	.004	.000				χ^2	1476.587
Variance	.050	.001	.000	.011	.000	.000				*DoF*	563
CSE	−.032	.018	.071	−.006	.010	.583				*CFI*	.979
O Level	.038	.010	.000	.012	.005	.021				*RMSEA*	.022
A Level	.052	.012	.000	.008	.006	.186				*SRMR*	.026
Higher Voc.	.106	.015	.000	−.001	.008	.850					
Degree	.180	.013	.000	.017	.006	.009					
Variance reduction	7.41 %			.00 %							
Social Trust: Individual n = 2,628; Wave n = 6											
Threshold	1.685	.335	.000	−1.269	.304	.000				LL	−7622.141
Variance	6.035	.595	.000	10.000	1.876	.000				Scaling	.0955
CSE	−.704	.270	.009	.913	.660	.166				AIC	15280.282
O Level	−.108	.155	.486	.625	.351	.075				BIC	15386.014
A Level	.246	.161	.128	.905	.368	.014				BIC adj.	15,328.823
Higher Voc.	.444	.241	.065	1.130	.530	.033					
Degree	1.846	.199	.000	1.729	.482	.000					
Variance reduction	8.51 %			4.03 %							
Well-Being: Individual n = 1,801; Wave n = 6											
Intercept	.348	.016	.000	−.073	.004	.000	.014	.006	.018	χ^2	1,476.587
Variance	.050	.001	.000	.011	.000	.000	.008	.001	.000	*DoF*	563
CSE	−.032	.018	.071	−.006	.010	.583	−.031	.012	.008	*CFI*	.979
O Level	.038	.010	.000	.012	.005	.021	−.007	.008	.352	*RMSEA*	.022
A Level	.052	.012	.000	.008	.006	.186	.000	.008	.960	*SRMR*	.026

Table 5 continued

	Intercept			Slope			Quadratic			Model Fit	
Predictor	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*		
Higher Voc.	.106	.015	.000	−.001	.008	.850	.010	.011	.376		
Degree	.180	.013	.000	.017	.006	.009	.007	.010	.476		
Variance reduction	.00 %			3.85 %			.00 %				
Nationalism: Individual n = 7,445; Wave n = 4											
Intercept	.523	.008	.000	−.056	.004	.000				χ^2	200.855
Variance	.014	.000	.000	.012	.001	.000				*DoF*	48
CSE	.002	.008	.772	−.034	.011	.002				*CFI*	.981
O Level	.004	.004	.413	−.019	.005	.000				*RMSEA*	.021
A Level	−.013	.005	.005	−.002	.006	.763				*SRMR*	.008
Higher Voc.	−.024	.007	.000	−.003	.009	.698					
Degree	−.051	.005	.000	.024	.007	.000					
Variance reduction	.00 %			.00 %							

The estimates associated with the HEQ dummy variables are in comparison to the no qualifications category, which is used as the reference category for these analyses. Thus, a significant effect for an HEQ dummy variable signifies that that parameter is significantly different from the effect associated with the no qualification HEQ category

only a very small percentage of variation in the linear growth of interest in politics over time, showing that the effect associated with HEQ does not change as individuals become older.

The HEQ effects on the intercept for interest in politics replicate the above results from the BSAS and ISSP, and confirm that respondents with higher HEQs were more interested in politics. The only HEQs with a significantly different slope from the reference category were O Level and Degree, both of which had slightly flatter downward slopes, suggesting that the decline in interest in politics was slightly less for these respondents in comparison to those with no qualifications. Figure 4 shows the trends over time for those with no qualifications and those with degrees.

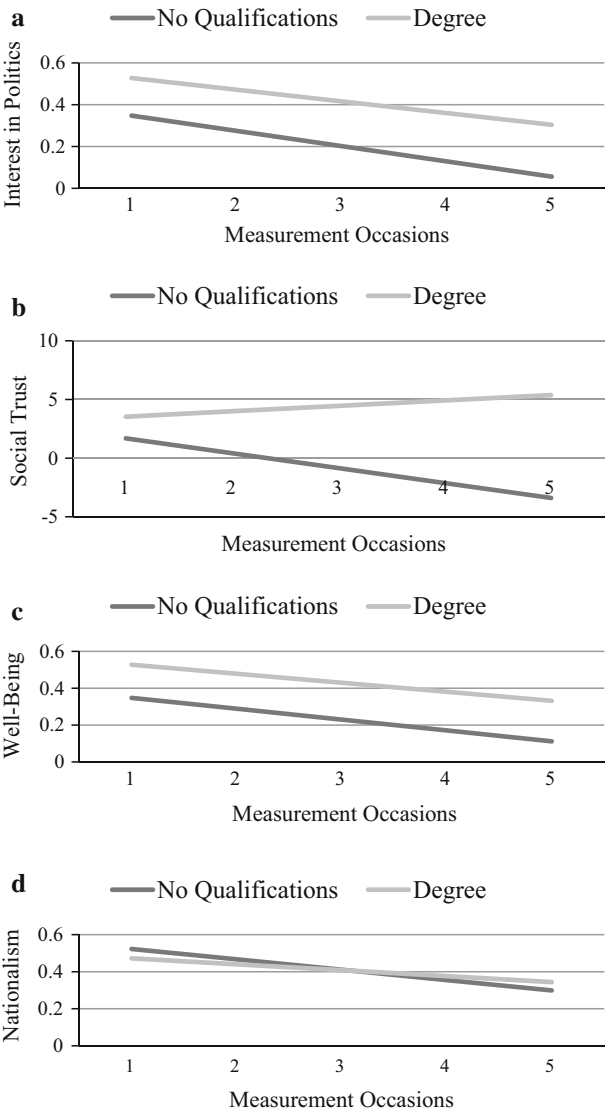


Fig. 4 British Household Panel Survey trends over time for those with no qualifications and those with degrees for outcomes interest in politics (**a**), social trust (**b**), well-being (**c**), and nationalism (**d**)

5.2 Political Cynicism

5.2.1 BSAS

Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in political cynicism, and all of the HEQ dummy variables were associated with significantly lower levels of political cynicism than the reference category. Furthermore, for every increase in HEQ apart from the increase from A level to higher vocational, higher HEQs were associated with larger decreases in political cynicism, and the non-overlapping 95 % CIs imply that these increases were reliably larger for higher HEQs. Degree was associated with a decrease in political cynicism in comparison to the no qualification category amounting to 15 % of the full range of scores. This shows that respondents with higher HEQs were less cynical about politics.

Adding survey year and the year by HEQ interactions significantly improved the fit of the model, although there was a non-significant effect of survey year ($b = -.001$, $p = .697$) indicating that political cynicism was stable across the 16 waves of the survey. Although the interactions imply that the effects associated with O level, A level, higher vocational, and (marginally) degree all slightly decreased over time, these interactions only accounted for .14 % of the individual-level variance in political cynicism, suggesting that there was very little change in the effects of HEQ on political cynicism over time (the estimates for the interactions are available from the first author on request).

5.2.2 ISSP

Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in political cynicism, and all of the HEQ dummy variables were associated with significantly lower political cynicism than the reference category. Furthermore, higher HEQs were associated with larger decreases in political cynicism, and the non-overlapping 95 % CIs indicate that each HEQ is reliably associated with lower levels of political cynicism than the HEQs below it. Compared to the no qualification category, tertiary was associated with a decrease in political cynicism amounting to 26 % of the full range of scores. This shows that respondents with higher HEQs were less cynical about politics.

Adding survey year and the year by HEQ interactions significantly improved the model fit, although there was a non-significant effect of survey year ($b > -.000$, $p = .978$), indicating that political cynicism was stable across the three survey years. The interactions imply the effects associated with all HEQs bar tertiary decreased slightly over time, but these interactions only accounted for .02 % of the individual-level variance in political cynicism, suggesting that there was very little change in the effects of HEQ on political cynicism over time.

5.2.3 BHPS

Initial analyses indicated that the change in political cynicism was unsystematic across the seven survey waves, and that there was no consistency in the effects associated with HEQs and political cynicism across the seven waves.[14] Consequently, none of our attempts to fit a linear, quadratic, cubic, quintic, or piecewise growth model provided adequate model fit

[14] For example, estimates for the effect associated with degree ranged between −.19 to .38, with p values < .001–.857.

indices, suggesting there were no stable patterns of within-person growth for political cynicism. We do not, therefore, report any models for this outcome.

5.3 Social Trust

5.3.1 BSAS

Adding the HEQ dummy variables to the model explained a relatively moderate percentage of the variation in social trust, and all of the HEQ dummy variables were associated with significantly greater social trust than the reference category. Furthermore, higher HEQs were associated with higher levels of social trust, showing that respondents with higher HEQs have greater trust in others. The non-overlapping 95 % CIs suggest that social trust was reliably higher for A level and degree than for the HEQs below them. Compared to the no qualification category, degree was associated with an increase in social trust amounting to 31 % of the full range of scores.

Adding survey year to the model significantly improved the fit of the model, and there was a significant effect of survey year ($b = .004$, $p = .043$) indicating that social trust increased slightly across the 9 waves of the survey. Adding the year by HEQ interactions did not improve the model fit, implying that the effects associated with HEQ were stable over time.

5.3.2 ISSP

Adding the HEQ dummy variables to the model explained a relatively small percentage of the variation in social trust. Primary educational attainment was associated with significantly *lower* levels of social trust than the reference category, whereas the higher HEQs were associated with significantly greater social trust than the reference category. Furthermore, beyond primary, higher HEQs were associated with greater increases in social trust, and the non-overlapping 95 % CIs show that HEQs above primary were reliably associated with greater social trust than were the HEQs below them. Compared to the no qualification category, tertiary was associated with an increase in social trust amounting to 11 % of the full range of scores. This suggests that respondents with higher HEQs had greater trust in others.

Adding survey year and the year by HEQ interactions significantly improved fit of the model, although there was a non-significant effect of survey year ($b = -.002$, $p = .351$), showing that social trust was stable across the five survey waves. The interactions imply that the effect associated with the lower secondary category increased somewhat over time, but the year by HEQ interactions only explained .01 % of the individual-level variance, showing that there was very little change in the effect of HEQs on social trust over time.

5.3.3 BHPS

The slope estimates indicate that respondents' social trust[15] decreased linearly over the six waves. Adding the HEQ dummy variables to the model explained a relatively large percentage of the residual variance of the intercept of social trust, and a relatively moderate percentage of the residual variance in the linear growth of social trust over time.

[15] We used latent growth modelling for dichotomous outcomes for the BHPS social trust analyses (Múthen and Múthen 1998–2011).

The HEQ effects associated with the intercept for social trust confirm the earlier findings and suggest that respondents with higher HEQs tended to have higher social trust. Furthermore, the estimates associated with the slope suggest that the social trust of respondents with A level and higher vocational HEQs showed a significantly shallower decrease over time than respondents with other HEQs, except for respondents with degrees, whose social trust actually increased slightly over time. This shows that the differences in social trust between respondents with high versus low HEQs tended to increase over time.

5.4 Well-Being

5.4.1 BSAS

Adding the HEQ dummy variables to the model explained a relatively small percentage of the variation in well-being, with degree being the only HEQ dummy variable showing significantly lower levels of well-being than the reference category. Adding survey year or the year by HEQ interactions did not significantly improve the fit of the model, showing that the level of well-being and the effects of HEQ were stable across the 10 waves.

5.4.2 ISSP

Adding the HEQ dummy variables to the model explained a relatively small percentage of the variation in well-being, although all of the HEQ dummy variables were associated with significantly greater well-being than the reference category. Furthermore, higher HEQs were associated with larger increases in well-being, and the non-overlapping 95 % CIs indicate that well-being was reliably higher for higher HEQs, apart from the increase from higher secondary to higher education. Compared to the no qualification category, tertiary was associated with an increase in well-being amounting to 6 % of the full range of scores. This shows that respondents with higher HEQs were happier.

Adding survey year and the year by HEQ interactions significantly improved the fit of the model, and there was a marginally significant effect for survey year ($b = -.004$, $p = .057$), indicating that well-being tended to decrease slightly over the six waves. The interactions indicate that this trend was slightly weaker for primary, lower secondary, and higher secondary, but the year by HEQ interactions explained only .01 % of the individual-level variation in well-being, suggesting the effect of HEQ on well-being varied very little over time.

5.4.3 BHPS

The linear slope estimates indicate that respondents' well-being decreased over the six waves, although the quadratic estimates show that this decrease was slightly weaker in more recent years. Adding the HEQ dummy variables to the model explained a very small percentage of the variation in the intercept or quadratic growth of well-being, but did explain a moderate percentage of variation in the linear growth of well-being over time.

The effects of the HEQs on the intercept of well-being confirm the above results, suggesting that there is a small but reliable tendency for respondents with higher HEQs to have better well-being. The estimates associated with the slope of well-being suggest that the linear decrease in well-being over time was somewhat weaker for respondents with O levels and degrees (see Fig. 4). The quadratic effects associated with CSE suggest that, in

contrast to the other HEQs, the downward slope in well-being was actually stronger for those with CSE during more recent years.

5.5 General Health

5.5.1 BSAS

Adding the HEQ dummy variables to the model explained a relatively small percentage of the variation in general health, and all of the HEQ dummy variables were associated with significantly greater general health than the reference category. Furthermore, higher HEQs were associated with larger increases general health, showing that respondents with higher HEQs tended to be report better general health. Compared to the no qualification category, degree was associated with an increase in general health amounting to 5 % of the full range of scores.

Adding survey year and the year by HEQ interactions significantly improved the fit of the model, and there was a significant effect of survey year ($b = .011$, $p = .011$) indicating that general health increased over the 13 waves of the survey. The interactions indicate that this increase was slightly less for the O level and higher vocational categories, but these interactions only explained .04 % of the individual-level variation in general health, suggesting that the effect of HEQ on general health varied very little over time.

5.5.2 ISSP

Adding the HEQ dummy variables to the model explained a relatively small percentage of the variation in general health, and all of the HEQ dummy variables were associated with significantly higher levels of general health than the reference category. Furthermore, higher HEQs were associated with larger increases in general health, showing that respondents with higher HEQs tended to have higher levels of general health. For every increase in HEQ except between higher secondary and higher education, the non-overlapping 95 % CIs indicate that higher HEQs were reliably associated with higher levels of general health than the HEQs below them. Compared to the no qualification category, tertiary was associated with an increase in general health amounting to 12 % of the full range of scores.

Adding a dummy variable for the 2007 survey and the interactions between this and the HEQs significantly improved the fit of the model, although there was a non-significant effect associated with the dummy variable for 2007 ($b = .013$, $p = .153$), implying that there general health was stable between the 2007 and 2011 surveys. The interactions suggest that the effect associated with higher education was significantly weaker in 2011, but these interactions explained only .07 % of the individual-level variation in general health, suggesting that the effect of HEQ on general health varied very little over time.

5.6 Negative Attitudes towards Immigrants

5.6.1 BSAS

Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in negative attitudes towards immigrants, and all of the HEQ dummy variables bar CSE were associated with significantly lower negative attitudes towards immigrants than the reference category. Furthermore, higher HEQs were associated with larger decreases in

negative attitudes towards immigrants, showing that respondents with higher HEQs hold less negative attitudes towards immigrants. The non-overlapping 95 % CIs indicate that degree was reliably associated with less negative attitudes towards immigrants than the other HEQs. Compared to the no qualification category, degree was associated with a decrease in negative attitudes towards immigrants amounting to 19 % of the full range of scores.

Adding survey year and the year by HEQ interactions did not improve the fit of the model, suggesting that negative attitudes towards immigrants and the effects associated with HEQ were stable over the three survey waves.

5.6.2 ISSP

Adding the HEQ dummy variables to the model explained a relatively large percentage of the variation in negative attitudes towards immigrants, and all of the HEQ dummy variables except primary were associated with significantly less negative attitudes towards immigrants than the reference category. Furthermore, higher HEQs were associated with greater decreases in negative attitudes towards immigrants, and the non-overlapping 95 % CIs indicate that HEQs above primary were reliably associated with less negative attitudes toward immigrants than the HEQs below them. Compared to the no qualification category, tertiary was associated with an increase in negative attitudes towards immigrants amounting to 13 % of the full range of scores. This shows that respondents with higher HEQs hold less negative attitudes towards immigrants.

Adding a dummy variable for the 1995 survey and the interactions between this and HEQ significantly improved the fit of the model, and there was a significant effect associated with the dummy variable for 1995 ($b = -.027$, $p < .001$), implying that negative attitudes towards immigrants were stronger in 2003 than 1995. The interactions suggest that the effect associated with tertiary was significantly weaker in 2003 than in 1995, but these interactions explained only .04 % of the individual-level variation in negative attitudes towards immigrants, suggesting that there was very little change in the effect of HEQ on negative attitudes towards immigrants over time.

5.7 Preference for Reduced Immigration

5.7.1 BSAS

Adding the HEQ dummy variables to the model explained a moderate to large percentage of the variation in preference for reduced immigration, and the HEQ dummy variables above O level were associated with significantly lower preference for reduced immigration than the reference category. Furthermore, beyond CSE, higher HEQs were associated with larger decreases in preference for reduced immigration, showing that respondents with higher HEQs tend to have a lower preference for reduced immigration. The non-overlapping 95 % CIs indicate that degree was reliably associated with lower preference for reduced immigration than the other HEQs. Compared to the no qualification category, degree was associated with a decrease in preference for reduced immigration amounting to 16 % of the full range of scores.

Adding survey year and the year by HEQ interactions did not improve the fit of the model, suggesting that preference for reduced immigration and the effects of HEQ were stable over the five waves.

5.7.2 ISSP

Adding the HEQ dummy variables to the model explained a moderate percentage of the variation in preference for reduced immigration, and all the HEQ dummy variables above lower secondary were associated with a significantly lower preference for reduced immigration than the reference category. Furthermore, higher HEQs were associated with larger decreases in preference for decreasing immigration, and the non-overlapping 95 % CIs suggest that, above primary, higher HEQs were reliably associated with lower preference for reduced immigration than the HEQs below them. Compared to the no qualification category, tertiary was associated with an increase in preference for reduced immigration amounting to 13 % of the full range of scores. This again shows that respondents with higher HEQs tend to hold lower preference for reduced immigration.

Adding a dummy variable for the 1995 survey and the interactions between this and the HEQs significantly improved the fit of the model, although there was a non-significant effect associated with the dummy variable for 1995 ($b = .003$, $p = .770$), implying that preference for reduced immigration were stable between 1995 and 2003. The interactions suggest that the effect associated with tertiary HEQ was significantly weaker in 2003 than in 1995, but these interactions explained only .02 % of the individual-level variation in preference for reduced immigration, suggesting that the effect of HEQ on preference for reduced immigration varied very little over time.

5.8 Nationalism

5.8.1 ISSP

Adding the HEQ dummy variables to the model explained a moderate to large percentage of the variation in nationalism, and all of the HEQ dummy variables except primary were associated with significantly lower levels of nationalism by comparison with the reference category. Furthermore, higher HEQs were associated with greater decreases in nationalism, showing that respondents with higher HEQs were less nationalistic. The non-overlapping 95 % CIs indicate that tertiary was reliably associated with less nationalism than the other HEQs. Compared to the no qualification category, tertiary was associated with a decrease in nationalism amounting to 9 % of the full range of scores.

Adding a dummy variable for the 1995 survey and the interactions between this and the HEQs significantly improved the fit of the model, and there was a significant effect associated with the dummy variable for 1995 ($b = .069$, $p < .001$), showing that nationalism was higher in 1995 than 2003. The interactions improve the fit of the model, but they suggest that none of the effects associated with the HEQs varied between 1995 and 2003, and they only explained .04 % of the individual-level variation in nationalism. This suggests that there was very little variation in the effect of HEQ on nationalism over time.

5.8.2 BHPS

The linear slope estimates indicate that respondents' nationalism decreased linearly over the four waves. Adding the HEQ dummy variables to the model explained no variation in the intercept or the linear growth of nationalism over time, suggesting that the effects of a respondent's HEQ on nationalism were very weak and did not change over time.

Although weak, the HEQ effects associated with the intercept of nationalism largely confirm the above results, suggesting that respondents with higher HEQs are less nationalistic. The effects associated with the slope of nationalism were very weak, but suggest that, in comparison to the HEQ reference category, the downward slope for nationalism was slightly stronger for CSE and O level, but weaker for degree (see Fig. 4). This suggests that the decrease in Nationalism over time was greater for CSE and O level, but weaker for respondents with the highest HEQs.

6 Discussion

Our results clearly demonstrate that the education effect is robust across a range of outcome variables. Level of education is associated with political interest, political cynicism, well-being, health, social trust, and intergroup attitudes. The education effect was strongest in relation to negative attitudes towards immigrants and interest in politics: education explained 5–10 % of the variance in negative attitudes towards immigrants, and the extreme education groups differed in their average levels by 14–19 % of the full range of scores. For interest in politics, education explained 4–7 % of the variance, and the extreme education groups differed by 22–26 % of the full scale range. The effect was only slightly weaker for social trust, with education explaining 2–8 % of the variance and an average disparity between the extreme groups of 11–31 % of the range of scores. The education effect was of intermediate strength for preference for reduced immigration, explaining 6 % of the variation and with an average disparity between the extreme groups of 13–16 % of the range of scores. It was weaker for nationalism, explaining 0–6 % of the variance and an average disparity of 9 % of the range of scores between the extreme groups. The effect was weakest for personal well-being and health, explaining only .5–1.5 % of the variation in these outcomes, with an average disparity between the extreme education groups of 2–12 %. As this summary shows, a consistent feature of our findings is the relatively large difference in the outcome variables between individuals with no educational qualifications and those with university degrees. Our results also show that the education effect has remained relatively stable over time, and that within-individual change in these outcomes over time is only weakly related to level of education. We elaborate on these findings below.

Within the UK, level of education explained about 7.5 % of the variance in interest in politics; this dropped to around 4 % when investigated in the international survey data. For political cynicism, education explained about 5 % of the variation, both in the UK and internationally. It can be concluded, therefore, that education explains 4–7 % of the variation in outcomes relating to politics. There were also large disparities in political outcomes between those with no educational qualifications and those with degrees or other tertiary educational qualifications, which amounted to 15–26 % of the full range of observed scores. Although our results suggest that the strength of this education effect was stable within individuals and across time, we found that the within-individual change in political cynicism over time fluctuated to such an extent that we were unable to specify an acceptable growth model. We can infer from this, as foreshadowed in the introduction, that political cynicism is highly context dependent, whereas interest in politics is relatively stable. Nevertheless, education was reliably related to both of these political outcome variables.

The weakest of the education effects we investigated were those associated with personal well-being and health. Education explained less than 1 % of the variance in well-being and between .5 and 1.5 % of the variance in general health, although the extreme education groups differed more with respect to general health than they did for well-being. These effects were nevertheless reliable and consistent with past research. We also found a robust education effect associated with social trust, with education explaining 2–8.5 % of the variation in this outcome and a large disparity in social trust between the extreme education groups. The strength of this effect was relatively stable over time. Interestingly, social trust showed the most variation within individuals over time, and education explained by far the largest amount of variance in the growth trajectory for those associated with social trust: 8.5 % of the variation in initial levels of trust, and 4 % of the variation in within-individual change in trust over time. Indeed, whereas trust showed a strong downward trend for those with no qualifications and was rather stable for the intermediate education levels, it showed an upward trend for those with undergraduate degrees or higher degrees (see Fig. 4).

The strongest of the education effects observed here was for negative attitudes towards immigrants. Education explained over 10 % of the variance in this measure in the UK and almost 5 % in the international data. The disparity between the extreme education groups in negative attitudes towards immigrants was slightly less than for political outcomes, however, ranging between 14 and 19 % of the full range of scores. This was echoed by a strong effect and similar disparity in relation to a preference for decreased immigration, for which education explained almost 6 % of the variance in the UK and 3 % internationally, with the disparity between the extreme groups ranging between 13 and 16 % of the full range of scores. Education explained similar amounts of variance in nationalism in the international data, accounting for 3.5 % of the variation, but did not explain any variation in the initial levels or change over time in the UK data.

Across all the outcomes investigated here, there were large differences in the strength of the education effect associated with our two extreme education categories: those with no qualifications, and those with degrees or some other form of tertiary education. The effect associated with those who have degrees or tertiary education was significantly different from those with no qualifications across all analyses. Furthermore, for all of the analyses of the international survey data, having tertiary education was consistently significantly different from *all* of the other HEQ categories. The effects associated with having a university degree were also significantly different from all the other HEQ categories in all of our BSAS analyses, with the exception of well-being and general health. The consistency of these associations across time, surveys and nations suggests that the way in which tertiary education affects these diverse outcomes accounts for much of the power associated with the education effect. Whether or not one has a tertiary education qualification therefore seems to be an important divide in many contemporary societies.

Consistent with this suggestion, those who had university degrees differed significantly from those with no educational qualifications with respect to the rate of within-individual change in the four variables for which we could model within-individual change: interest in politics, social trust, well-being, and nationalism (see Fig. 4). Although, on average, individuals from both the no qualification HEQ group and the degree HEQ group exhibited decreasing levels of interest in politics and well-being over time, these decreases were significantly less steep for those with university degrees. Furthermore, the trends over time for social trust were actually in opposite directions, with those who had no qualifications tending to become less trusting over time, whereas those who had degrees became more trusting. Education showed very weak effects on both the intercept and slope of

nationalism, as the similarity of the two lines in Fig. 4d indicate. These longitudinal findings are arguably the most novel ones to emerge from the current analyses, and show for the first time that the within-person change in a range of variables over time is related to a person's level of education.

These within-person longitudinal effects provide some possible insights into the underlying processes associated with these education effects. For three of our four variables, the education effect was found to increase as people age (see Fig. 4). We think this could be due to the influence of education on how people associate with each other. It is well-established that people with the same level of education tend to live in the same neighborhoods (Wilkinson 1997), form friendships and romantic relations within their own educational group, and have similar cultural and media preferences (Bourdieu 1984; Elchardus and Siongers 2003). This could create a cultural and social milieu that reinforces the education effect over time. This argument is in line with a growing body of research demonstrating that neighborhood context can influence a range of outcomes associated with the education effect, such as political behaviors and attitudes (Bailey et al. 2013; MacAllister and Johnston 2001), health (Naess et al. 2005; Pickett and Pearl 2001), and intergroup attitudes, trust, and racism (Schmid et al. 2014). Our results do not rule out other, more traditional socialization, selection, or moral enlightenment mechanisms for the education effect, however, because we also found education effects in our multilevel analyses and on the intercepts in our longitudinal analyses. Although we are only speculating here, this could indicate that the education effect exists prior to any homogeneous social milieu or segregation effects, but that these social conditions strengthen the education effect over time. Future research should aim to investigate these potential underlying processes more directly.

Of the more traditional explanations for the education effect, the moral enlightenment argument—that education affords people moral and cognitive enlightenment that frees them from intergroup negativism (Stouffer 1955)—could be seen as a common underlying mechanism for several of the education effects we found. This would be in line with our finding that the association between education and immigration attitudes was among the strongest of the education effects we investigated (cf. Jackman and Muha 1984; Stember 1961). Another potential mechanism that could underlie several of the education effects we found relates to the social stigma associated with lower levels of education (Jones 2011). Coupling these negative stereotypes with the commonplace perception that the education system is meritocratic (Bourdieu 1984) attaches a legitimacy to the stigma and low status associated with those with lower levels of education, which research has shown is associated with poorer health and well-being, lower levels of engagement, and to greater levels of outgroup derogation (Jetten et al. 2013, 2011; Schmitt et al. 2014). Although an investigation of these mechanisms is beyond the scope of this paper, it is an obvious line for future research to pursue.

Related to this, a limitation of our within-person growth modelling was that the sample sizes were reduced due to the way latent growth modelling deals with missing data, which constrained the analyses to persons who provided responses on the outcome variables at every time point. We also excluded those who increased their level of education during the time span of the survey. Future research could examine more closely the longitudinal trajectory of these outcomes with the aim of investigating whether and how an increase in HEQ alters these trajectories. This would help to shed light on the mechanisms that underlie the education effect.

For all variables except well-being and general health, there was a stronger education effect in the UK than in other countries, with education accounting for a greater proportion

of the variation in outcomes in the BSAS than in the ISSP. Well-being and health are two outcome variables in which this difference was reversed, with a stronger education effect in the international data than in the UK data. These patterns may reflect national differences that have been found in the strength of the education effect associated with ingroup attitudes and trust, which appear to be stronger in more developed nations and older democracies (Delhey and Newton 2005; Elchardus and De Keere 2013; Hello et al. 2002; Scheepers et al. 2002). Future research should investigate possible national-level moderators of the education effect for the range of outcomes investigated here in an effort to understand this pattern of results.

In summary, the present findings testify to the robustness of the education effect over time and across a variety of outcomes. We found that the education effect was associated with political outcomes, with health and well-being, with social trust, and with intergroup attitudes, the strongest effects being those associated with political outcomes and intergroup attitudes. Most of the education effect appears to be due to the consequences of having a university degree. As well as providing the most comprehensive analysis to date of the education effect, showing that educational outcomes are significantly associated with a wide range of personal and socio-political variables across time and across countries, our results are to our knowledge the first to demonstrate that the education effect is also manifested in within-individual changes. Higher educational outcomes are associated with a range of personal, social and political benefits that are evident in differences both between individuals and within individuals over time.

Although we have used the term 'education effect' to refer to the associations between educational outcomes and personal and social indicators of well-being, we should acknowledge that the causal role played by education itself cannot be established on the basis of the present data. For example, it is known that children from disadvantaged backgrounds tend to underperform their more advantaged peers throughout their school career (Department for Children, Schools and Families 2009). It is also the case that there are social inequalities in access to higher education (e.g., Meghir and Palme 2005). It is therefore unclear to what extent the benefits associated with higher educational outcomes are ones that have their origin in differences that were present prior to education, in which case they cannot be attributed directly to education per se.

While our findings do not address the casual role of education, our novel results do suggest that social association effects (e.g., in neighborhoods) are important. We found that, for three of the education effects we investigated longitudinally, the strength of the educational divide increases as people age. This suggests that initial divides between those with different levels of education increases, implying that the social environment in which those with different levels of education find themselves after their educational experience increases the effect of their education. This could be due to the benefits that a higher education affords, such as increased in wealth and status, or due to a neighborhood context effect, given that people with similar levels of education tend to live in similar areas (Wilkinson 1997) and there may be social norms influencing their behaviors and attitudes. Indeed, recent work suggests that the education effect associated with political participation is due to *relative status differences* between those with different levels of education (Persson 2013a, b), suggesting that psychological mechanisms regarding social comparisons may drive these effects. Future work could focus on the role of the neighborhood and household context in the education effect.

The evidence from the analyses reported above is consistent with the view that education brings with it a range of positive outcomes, both to the individual and to society at large. Our findings demonstrate the pervasiveness of the education effect, and highlight

the need for educational policies that encourage people to remain in the education system and to attain the highest qualifications of which they are capable. Such policies have the potential to provide benefits for personal outcomes, such as health and well-being, which may ultimately result in economic benefits through savings in healthcare costs, but also socio-political benefits, including greater political engagement, higher levels of trust, and more positive intergroup attitudes, all of which contribute to a successful and healthy modern democracy. Governments interested in maximizing these benefits should invest in an education system that provides high quality education for citizens, regardless of their social backgrounds, and should take steps to eliminate the educational attainment gaps between socially and economically disadvantaged students and their more advantaged peers. The higher the level of educational qualification attained by students, the greater will be the benefits to them as individuals and to the societies in which they live.

References

Adams, J., Dow, J., & Merrill, S. (2006). The political consequences of alienation-based and indifference-based voter abstention: Applications to presidential elections. *Political Behavior, 28*, 65–86. doi:10.1007/s11109-005-9002-1.

Angrist, J., & Pischke, J. (2010). *The credibility revolution in empirical economics: How better research design is taking the con out of econometrics*. IZA Discussion Papers, No. 4800. Retrieved from http://www.nber.org/papers/w15794

Attewell, S., & Newman, K. S. (2010). Growing gaps: Educational inequality around the world. New York, NY: Oxford University Press.

Backlund, E., Sorlie, P. D., & Johnson, N. J. (1999). A comparison of the relationships of education and income with mortality: The national longitudinal mortality study. *Social Science and Medicine, 49*, 1373–1384.

Bailey, N., Gannon, M., Kearns, A., Livingston, M., & Leyland, A. H. (2013). Living apart, losing sympathy? How neighbourhood context affects attitudes to redistribution and to welfare recipients. *Environment and Planning A, 45*, 2154–2175. doi:10.1068/a45641.

Banks, J., & Mazzonna, F. (2012). The effect of education on old age cognitive abilities: Evidence from a regression discontinuity design. *The Economic Journal, 122*, 418–448.

Barro, R. J. (2001). Human capital and growth. *The American Economic Review, 91*, 12–17.

Becker, G. (1994). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). Chicago: University of Chicago Press.

Blanchflower, D. G., & Oswald, A. J. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics, 88*, 1359–1386.

Borgonovi, F. (2008). Doing well by doing good. The relationship between formal volunteering and self-reported health and happiness. *Social Science and Medicine, 66*, 2321–2334.

Borgonovi, F. (2012). The relationship between education and levels of trust and tolerance in Europe. *The British Journal of Sociology, 63*, 146–167. doi:10.1111/j.1468-4446.2011.01397.x.

Bourdieu, P. (1984). *Distinction: A social critique of the judgment of taste*. Boston, MA: Routledge & Kegan Paul.

Bovens, M., & Wille, A. (2010). The education gap in participation and its political consequences. *Acta Politica, 45*, 393–422. doi:10.1057/ap.2010.7.

Brandt, M. J., & Henry, P. J. (2012). Psychological defensiveness as a mechanism explaining the relationship between low socioeconomic status and religiosity. *International Journal for the Psychology of Religion, 22*, 321–332. doi:10.1080/10508619.2011.646565.

Brewer, M. B. (1999). The psychology of prejudice: Ingroup love and outgroup hate? *Journal of Social Issues, 55*, 429–444. doi:10.1111/0022-4537.00126.

Bynner, J. M., & Ashford, S. (1994). Politics and participation: Some antecedents of young people's attitudes to the political system and political activity. *European Journal of Social Psychology, 24*, 223–236.

Bynner, J. M., Romney, D. M., & Emler, N. P. (2003). Dimensions of political and related facets of identity in late adolescence. *Journal of Youth Studies, 6*, 319–335. doi:10.1080/1367626032000138282.

Cappella, J., & Jamieson, K. (1996). News frames, political cynicism, and media cynicism. *Annals of the American Academy of Political and Social Science, 546*, 71–84.
Ceobanu, A. M., & Escandell, X. (2010). Comparative analyses of public attitudes toward immigrants and immigration using multinational survey data: A review of theories and research. *Annual Review of Sociology, 36*, 309–328. doi:10.1146/annurev.soc.012809.102651.
Chen, W. (2011). How education enhances happiness: Comparison of mediating factors in four East Asian countries. *Social Indicators Research, 106*, 117–131. doi:10.1007/s11205-011-9798-5.
Clark, A. E., & Oswald, A. (1996). Satisfaction and comparison income. *Journal of Public Economics, 61*, 359–381.
Coenders, M. (2001). *Nationalistic attitudes and ethnic exclusionism in a comparative perspective: An empirical study of attitudes towards the country and ethnic immigrants in 22*. Nijmegen: Radbound Repositor. Retrieved from http://dare.ubn.kun.nl/handle/2066/19170
Coenders, M., & Scheepers, P. (2003). The effect of education on nationalism and ethnic exclusionism: An international comparison. *Political Psychology, 24*, 313–343. doi:10.1111/0162-895X.00330.
Cuñado, J., & Gracia, F. P. (2011). Does education affect happiness? Evidence for Spain. *Social Indicators Research, 108*, 185–196. doi:10.1007/s11205-011-9874-x.
Curhan, K. B., Levine, C. S., Markus, H. R., Kitayama, S., Park, J., Karasawa, M., & Ryff, C. D. (2014). Subjective and objective hierarchies and their relations to psychological well-being: A U.S./Japan Comparison. *Social Psychological and Personality Science,*. doi:10.1177/1948550614538461.
Delhey, J., & Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or nordic exceptionalism? *European Sociological Review, 21*, 311–327. doi:10.1093/esr/jci022.
Department for Children, Schools and Families. (2009). Departmental Report 2009. http://www.dcsf.gov.uk.
Deth, J. V. & Elff, M. (2001). Politicisation and political interest in Europe: a multi-level approach. In *Arbeitspapiere—Mannheimer Zentrum für Europäische Sozialforschung* (Vol. 36, pp. 1–66). Retrieved from, http://www.mzes.uni-mannheim.de/publications/wp/erpa/wp-36.html
Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist, 55*, 34–43. doi:10.1037//0003-066X.55.1.34.
Diener, E., & Biswas-Diener, R. (2008). *Happiness: Unlocking the mysteries of psychological wealth*. Malden, MA: Blackwell Publishing.
Dunn, K. (2013). Preference for radical right-wing populist parties among exclusive-nationalists and authoritarians. *Party Politics,*. doi:10.1177/1354068812472587.
Egerton, M. (2002). Political partisanship, voting abstention and higher education: Changing preferences in a British youth cohort in the 1990s. *Higher Education Quarterly*, *56*, 156–177. doi:10.1111/1468-2273.00209.
Eikemo, T. A., Huisman, M., Bambra, C., & Kunst, A. E. (2008). Health inequalities according to educational level in different welfare regimes: A comparison of 23 European countries. *Sociology of Health & Illness, 30*, 565–582. doi:10.1111/j.1467-9566.2007.01073.x.
Elchardus, M., & De Keere, K. (2013). Social control and institutional trust: Reconsidering the effect of modernity on social malaise. *The Social Science Journal, 50*, 101–111. doi:10.1016/j.soscij.2012.10.004.
Elchardus, M., Keere, K. De, & De Keere, K. (2013). Republicanism in mediated society. A comparative analysis on public and private evaluation guided by the theory of symbolic society. *International Journal of Politics, Culture, and Society, 26*, 273–290. doi:10.1007/s10767-013-9145-8.
Elchardus, M., & Siongers, J. (2003). Cultural practice and educational achievement: The role of the parents' media preferences and taste culture. *Netherlands' Journal of Social Sciences*, *39*, 151–171.
Emler, N., & Frazer, E. (1999). Politics: The education effect. *Oxford Review of Education, 25*, 251–273. doi:10.1080/030549899104242.
Ferrer-i-Carbonell, A. (2002). *Income and well-being*. Tinbergen Institute Discussion Paper, 02-019/3.
Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics, 89*, 997–1019. doi:10.1016/j.jpubeco.2004.06.003.
Fiske, S., & Markus, H. (2012). *Facing social class*. New York, NY: Russell Sage Foundation.
Flouri, E. (2004). Subjective well-being in midlife: The role of involvement of and closeness to parents in childhood. *Journal of Happiness Studies, 5*, 355–358.
Furnée, C., Groot, W., & van den Brink, H. M. (2008). The health effects of education: A meta-analysis. *European Journal of Public Health, 18*, 417–421. doi:10.1093/eurpub/ckn028.
Goldberg, D. (1992). *General health questionnaire (GHQ-12)*. Windsor, UK: Nfer-Nelson.
Graham, C., & Pettinato, S. (2002). *Happiness and hardship: Opportunity and insecurity in new market economies*. Washington D.C.: Brookings Institution Press.
Green, E. G. T., Sarrasin, O., Fasel, N., & Staerklé, C. (2011). Nationalism and patriotism as predictors of immigration attitudes in Switzerland: A municipality-level analysis. *Swiss Political Science Review, 17*, 369–393. doi:10.1111/j.1662-6370.2011.02030.x.

Hadjar, A., & Becker, R. (2006). *Politisches interesse und politische partizipation*. Heidelberg: Springer.
Hadjar, A., & Schlapbach, F. (2008). Educational expansion and interest in politics in temporal and cross-cultural perspective: A comparison of West Germany and Switzerland. *European Sociological Review, 25*, 271–286. doi:10.1093/esr/jcn047.
Hadler, M. (2012). The influence of world societal forces on social tolerance. A time comparative study of prejudices in 32 countries. *The Sociological Quarterly, 53*, 211–237.
Hainmueller, J., & Hiscox, M. J. (2007). Educated preferences: Explaining attitudes toward immigration in Europe. *International Organization, 61*, 399–442. doi:10.1017/S0020818307070142.
Hakhverdian, A., van der Brug, W., & de Vries, C. (2012). The emergence of a 'diploma democracy'? The political education gap in the Netherlands, 1971–2010. *Acta Politica, 47*, 229–247. doi:10.1057/ap.2011.27.
Hartog, J., & Oosterbeek, H. (1998). Health, wealth and happiness: Why pursue a higher education? *Economics of Education Review, 17*, 245–256.
Helliwell, J. F. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling, 20*, 331–360.
Helliwell, J. F., & Putnam, R. D. (2007). Education and social capital. *Eastern Economic Journal, 33*, 1–19. doi:10.1057/eej.2007.1.
Helliwell, J. F., & Wang, S. (2011). Trust and wellbeing. *International Journal of Wellbeing, 1*, 42–78. doi:10.5502/ijw.v1i1.9.
Hello, E., Scheepers, P., & Gijsberts, M. (2002). Education and ethnic prejudice in Europe: Explanations for cross-national variances in the educational effect on ethnic prejudice. *Scandinavian Journal of Educational Research, 46*, 5–24. doi:10.1080/00313830120115589.
Henn, M., Weinstein, M., & Wring, D. (2002). A generation apart? Youth and political participation in Britain. *The British Journal of Politics and International Relations, 4*, 167–192. doi:10.1111/1467-856X.t01-1-00001.
Hox, J. J. (2002). *Multilevel analysis: Techniques and applications* (2nd ed.). Hove: Routledge.
Huang, J., Maassen van den Brink, H., & Groot, W. (2009). A meta-analysis of the effect of education on social capital. *Economics of Education Review, 28*, 454–464. doi:10.1016/j.econedurev.2008.03.004.
Huang, J., van den Brink, H. M., & Groot, W. (2011). College education and social trust: An evidence-based study on the causal mechanisms. *Social Indicators Research, 104*, 287–310. doi:10.1007/s11205-010-9744-y.
Hyman, H. H., Wright, C. R., & Reed, J. S. (1975). *The enduring effects of education*. Chicago, US: The University of Chicago Press.
Jackman, M. R., & Muha, M. J. (1984). Education and intergroup attitudes: Moral enlightenment, superficial democratic commitment, or ideological refinement? *American Sociological Review, 1984*(49), 751–769.
Jenssen, A. T., & Engesbak, H. (1994). The many faces of education: Why are people with lower education more hostile towards immigrants than people with higher education? *Scandinavian Journal of Educational Research, 38*, 33–50.
Jetten, J., Iyer, A., Branscombe, N. R., & Zhang, A. (2013). How the disadvantaged appraise group-based exclusion: The path from legitimacy to illegitimacy. *European Review of Social Psychology, 24*(1), 194–224. doi:10.1080/10463283.2013.840977.
Jetten, J., Schmitt, M. T., Branscombe, N. R., Garza, A., & Mewse, A. J. (2011). Group commitment in the face of discrimination: The role of legitimacy appraisals. *European Journal of Social Psychology, 41*(1), 116–126. doi:10.1002/ejsp.743.
Jones, O. (2011). *Chavs: The demonizatiion of the working class*. London, UK: Verso.
Kalmijn, M., & Kraaykamp, G. (2007). Social stratification and attitudes: A comparative analysis of the effects of class and education in Europe. *The British Journal of Sociology, 58*, 547–576. doi:10.1111/j.1468-4446.2007.00166.x.
Kraus, M. W., Rheinschmidt, M. L., & Piff, P. K. (2012). The intersection of resources and rank: Signaling social class in face to face interactions. In S. T. Fiske & H. R. Markus (Eds.), *Facing social class: How societal rank influences interaction* (pp. 152–172). New York, NY: Russell Sage Foundation.
Krokstad, S., Kunst, A., & Westin, S. (2002). Trends in health inequalities by educational level in a Norwegian total population study. *Journal of Epidemiology and Community Health, 56*, 375–380.
Kunovich, R. M. (2004). Social structural position and prejudice: An exploration of cross-national differences in regression slopes. *Social Science Research, 33*, 20–44. doi:10.1016/S0049-089X(03)00037-1.
Kunst, A. E., Bos, V., Lahelma, E., Bartley, M., Lissau, I., Regidor, E., & Mackenbac, J. P. (2005). Trends in socioeconomic inequalities in self-assessed health in 10 European countries. *International Journal of Epidemiology, 34*, 295–305. doi:10.1093/ije/dyh342.

Kuppens, T., & Spears, R. (2014). You don't have to be well-educated to be an aversive racist, but it helps. *Social Science Research, 45*, 211–223. doi:10.1016/j.ssresearch.2014.01.006.
Kwak, N., Shah, D. V., & Holbert, R. L. (2004). Connecting, trusting, and participating: The direct and interactive effects of social associations. *Political Research Quarterly, 57*, 643–652.
Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology, 74*, 763–773. doi:10.1037/0022-3514.74.3.763.
Lareau, A., & Conley, D. (2008). *Social class: How does it work?*. New York, NY: Russell Sage Foundation.
Lazarsfeld, P. F., Berelson, B., & Gaudet, H. (1948). *The peoples choice: How the voter makes up his mind in a presidential campaign*. New York, NY: Columbia University Press.
Leckie, G. (2013). Cross-classified multilevel models – Concepts. *LEMMA VLE Module*, *12*, 1–60. http://www.bristol.ac.uk/cmm/learning/course.html.
MacAllister, I., & Johnston, R. (2001). Class dealignment and the neighbourhood effect: Miller revisited. *British Journal of Political Science, 31*, 41–59.
Maria, A. M. (2004). *Who is against immigration?: A cross-country investigation of individual attitudes towards immigrants*. IZA Discussion Paper Series, 1115.
Marmot, M. (2006). Status syndrome: A challenge to medicine. *JAMA, The Journal of the American Medical Association, 295*, 1304–1307. doi:10.1001/jama.295.11.1304.
Marmot, M., Ryff, C., & Bumpass, L. (1997). Social inequalities in health: Next questions and converging evidence. *Social Science and Medicine, 44*, 901–910.
McKee-Ryan, F., Song, Z., Wanberg, C. R., & Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: A meta-analytic study. *The Journal of Applied Psychology, 90*, 53–76. doi:10.1037/0021-9010.90.1.53.
Meghir, C., & Palme, M. (2005). Educational reform, ability, and family background. *The American Economic Review*, *95*, 414–424.
Miilunpalo, S., Vuori, I., Oja, P., Pasanen, M., & Urponen, H. (1997). Self-rated health status as a health measure: The predictive value of self-reported health status on the use of physician services and on mortality in the working-age population. *Journal of Clinical Epidemiology, 50*, 517–528.
Naess, Ø., Leyland, A. H., Davey Smith, G., & Claussen, B. (2005). Contextual effect on mortality of neighbourhood level education explained by earlier life deprivation. *Journal of Epidemiology and Community Health, 59*, 1058–1059. doi:10.1136/jech.2005.036822.
Newton, K. (2001). Trust, social capital, civil society, and democracy. *International Political Science Review, 22*, 201–214.
Oguz, S., Merad, S., & Snape, D. (2013). *Measuring national well-being: What matters most to personal well-being?* Newport, Wales: Office for National Statistics.
Okun, M., Stock, W., Haring, M., & Witter, R. (1984). Health and subjective well-being: A meta-analysis. *The International Journal of Aging and Human Development, 19*, 111–132.
Oreopoulos, P. (2007). Do dropouts drop out too soon? Wealth, health and happiness from compulsory schooling. *Journal of Public Economics, 91*, 2213–2229. doi:10.1016/j.jpubeco.2007.02.002.
Ostapczuk, M. (2009). A randomized-response investigation of the education effect in attitudes towards foreigners. *European Journal of Social Psychology, 39*, 920–931. doi:10.1002/ejsp.
Persson, M. (2013a). Education and political participation. *British Journal of Political Science,*. doi:10.1017/S0007123413000409.
Persson, M. (2013b). Is the effect of education on voter turnout absolute or relative? A multi-level analysis of 37 countries. *Journal of Elections, Public Opinion & Parties, 23*, 111–133. doi:10.1080/17457289.2012.747530.
Pettigrew, T. F., Jackson, J. S., Brika, J. Ben, Lemaine, G., Meertens, R. W., Wagner, U., & Zick, A. (1997). Outgroup prejudice in Western Europe. *European Review of Social Psychology, 8*, 241–273. doi:10.1080/14792779843000009.
Pickett, K. E., & Pearl, M. (2001). Multilevel analyses of neighbourhood socioeconomic context and health outcomes: A critical review. *Journal of Epidemiology and Community Health, 55*, 111–122.
Powdthavee, N., Lekfuangfu, W., & Wooden, M. (2013). *The marginal income effect of education on happiness: Estimating the direct and indirect effects of compulsory schooling on well-being in Australia*. CEP Discussion Paper, (1214): Econstor. Retrieved from http://www.econstor.eu/handle/10419/80669
Prior, M. (2010). You've either got it or you don't? The stability of political interest over the life cycle. *The Journal of Politics, 72*, 747–766. doi:10.1017/S0022381610000149.

Reardon, S. F. (2011). The widening gap between the rich and the poor: New evidence and possible explanations. In G. J. Duncan & R. J. Murname (Eds.), *Whither opportunity? Rising inequality, schools and children's life chances* (pp. 91–119). New York, NY: Russell Sage Foundation.

Scheepers, P., Grotenhuis, M. Te, Slik, F., & Van Der., F. (2002). Education, religiosity and moral attitudes: Explaining cross-national effect differences. *Sociology of Religion, 63*, 157. doi:10.2307/3712563.

Schmid, K., Ramiah, A. Al, & Hewstone, M. (2014). Neighborhood ethnic diversity and trust: The role of intergroup contact and perceived threat. *Psychological Science,*. doi:10.1177/0956797613508956.

Schmitt, M. T., Branscombe, N. R., Postmes, T., & Garcia, A. (2014). The consequences of perceived discrimination for psychological well-being: A meta-analytic review. *Psychological Bulletin,*. doi:10.1037/a0035754.

Schütte, S., Chastang, J.-F., Parent-Thirion, A., Vermeylen, G., & Niedhammer, I. (2013). Social differences in self-reported health among men and women in 31 countries in Europe. *Scandinavian Journal of Public Health, 41*, 51–57. doi:10.1177/1403494812469854.

Silventoinen, K., & Lahelma, E. (2002). Health inequalities by education and age in four Nordic countries, 1986 and 1994. *Journal of Epidemiology and Community Health, 56*, 253–258.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modelling change and event occurrence*. Oxford: Oxford University Press.

Singh-Manoux, A., Marmot, M. G., & Adler, N. E. (2001). Does subjective social status predict health and change in health status better than objective status? *Psychosomatic Medicine, 67*, 861–885. doi:10.1097/01.psy.0000188434.52941.a0.

Smets, K., & van Ham, C. (2013). The embarrassment of riches? A meta-analysis of individual-level research on voter turnout. *Electoral Studies, 32*, 344–359. doi:10.1016/j.electstud.2012.12.006.

Southwell, P. L., & Pirch, K. D. (2003). Political cynicism and the mobilization of black voters. *Social Science Quarterly, 84*, 906–917. doi:10.1046/j.0038-4941.2003.08404020.x.

Stansfeld, S. A., Head, J., & Marmot, M. (1998). Explaining social class differences in depression and well-being. *Social Psychiatry and Psychiatric Epidemiology, 33*, 1–9.

Stember, C. H. (1961). *Education and attitude change*. New York, NY: Institute of Human Relations Press.

Stouffer, S. A. (1955). *Communism, conformity, and civil liberties: A cross-section of the nation speaks its mind*. New York, NY: Doubleday & Co.

Stubager, R. (2008). Education effects on authoritarian-libertarian values: A question of socialization. *The British Journal of Sociology, 59*, 327–350. doi:10.1111/j.1468-4446.2008.00196.x.

Subramanian, S. V., Kim, D. J., & Kawachi, I. (2002). Social trust and self-rated health in US communities: a multilevel analysis. *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 79*, S21–S34.

Taylor, M. F., Brice, J., Buck, N., & Prentice-Lane, E. (2010) *British household panel survey user manual volume A: Introduction, technical report and appendices*. Colchester: University of Essex.

Trautmann, S., van de Kuilen, G., & Zeckhauser, R. J. (2013). Social class and (un) ethical behavior: A framework with evidence from a large population sample. *Perspectives on Psychological Science, 8*, 487–497. doi:10.1177/1745691613491272.

United Nations Development Programme. (2013). *Human development report 2013*. New York, NY: United Nations Development Programme.

Von dem Knesebeck, O., Pattyn, E., & Bracke, P. (2011). Education and depressive symptoms in 22 European countries. *International Journal of Public Health, 56*, 107–110. doi:10.1007/s00038-010-0202-z.

Von dem Knesebeck, O., Verde, P. E., & Dragano, N. (2006). Education and health in 22 European countries. *Social Science and Medicine, 63*, 1344–1351. doi:10.1016/j.socscimed.2006.03.043.

Vreese, C. De, & Elenbaas, M. (2008). Media in the game of politics: Effects of strategic metacoverage on political cynicism. *International Journal of Press/Politics, 13*, 285–309. doi:10.1177/1940161208319650.

Wagner, U., Becker, J. C., Christ, O., Pettigrew, T. F., & Schmidt, P. (2012). A longitudinal test of the relation between german nationalism, patriotism, and outgroup derogation. *European Sociological Review, 28*, 319–332. doi:10.1093/esr/jcq066.

Weil, F. (1985). The variable effects of education on liberal attitudes: A comparative-historical analysis of anti-Semitism using public opinion survey data. *American Sociological Review, 50*, 458–474.

Wilkinson, R. G. (1997). Commentary: Income inequality summarises the health burden of individual relative deprivation. *British Medical Journal, 314*, 1727–1729.

Wilkinson, R. G., & Pickett, K. (2010). *The spirit level: Why equality is better for everyone*. London, UK: Penguin Group.

Witter, R. A., Okun, M. A., Stock, W. A., & Haring, M. J. (1984). Education and subjective well-being: A Meta-Analysis. *Educational Evaluation and Policy Analysis, 6*, 165–173.